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MISSING

Canadian Railway and Marine World

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Freight Brake Maintenance.

By F. B. Farmer, Northwestern Representative, Westinghouse Air Brake Co., St. Paul, Minn.

My first purpose in this paper is to show that freight brake maintenance is generally unsatisfactory; next to show why; and then to suggest how to improve it. As is generally known, the Westinghouse Air Brake Co. maintains a large, selected and trained organization for the special purpose of co-operating with customers in obtaining good and economical installation, maintenance and operation of brake equipment. Several years ago, while two of us Westinghouse men and two railway air brake experts were giving particular attention to reducing freight train break-in-twos, we became convinced that freight train brakes in interchange service were not being maintained as well as the needs and the time and money spent on them would warrant, but to effect an improvement the proof and the causes were required.

The proof of unsatisfactory conditions was finally obtained at a "dead line" division point on a road where, to control an increased tonnage safely, and without aid from hand brakes, down a subsequent steep, descending grade, it was required that at this terminal all brakes in each freight train must apply with the ordinary terminal test application of a 20-lb., continuous service reduction from 70 lb., and that none leak off entirely during the period of inspection. As this application should produce approximately 50 lb. in every brake cylinder; as brake pipe leakage causes more to be fed in from the auxiliary reservoirs during the inspection, as the inspection is finished ordinarily in 12 to 14 minutes; as 1 in. recession of piston travel means the loss of all effective holding power; as 5 or 6 lb. in a brake cylinder will hold the brake cylinder in applied position; as no test of the retaining valves was included; and as no brake was considered ineffective unless entirely off when inspected, it will be appreciated that this test requirement was very moderate, yet, when the rule was first put in force, and although division terminals in advance of this one did more brake cleaning than before, 10 to 12% of the cars had to be set out for brake repairs.

The even more disturbing feature noted was the short time since a large proportion of these defective brakes had, as indicated by the stencils, been supposedly put in good condition. This was in 1913. That you may appreciate not only how bad the situation was, but also the great possibilities remaining after two years of special and unusual work done to improve it, as described later, please see table 1, which shows, out of the total ineffective brakes set out and repaired at the "dead line" point for July of three years, the number of such bearing system stencils, and the elapsed periods since they had supposedly been put in good order. System-cleaned brakes only were taken, because we were seeking to improve the work on this particular road. The foreign-cleaned brakes on it showed a much worse condition. In fact, a check made in Oct. and Nov., 1917, of freight trains yet uninfluenced by steep grade conditions, the latter resulting in improved brake maintenance, showed that of 1,103 system cars 14.1% had defective brakes, as compared with 25.3% on 659 foreign cars.

Table 1—Brakes Cleaned at "Dead Line" Point.

July	System Stencils	% system work recleaned in months. 1	2	3	4	5	6	7	8	9	10	11	12
1913	596	21.3	35.7	44.7	51.9	56.9	63.0						
1914	823	18.9	28.1	36.2	43.0	48.2	52.6	58.4	65.1	76.1	84.9	93.5	96.9
1915	630	8.8	16.1	23.8	30.9	36.3	44.6	47.7	54.1	65.2	75.7	85.4	95.4

In this tabulation the average car months since previous brake cleaning were 6.6 for 1914 and 7.1 for 1915, a gain of 7.5%. But these brakes had not suddenly become inefficient. Hence, with more "dead lines," which would have caught the defective brakes sooner, these averages would have been lower. Even so, note in 1913 that 44.7% of the defective brakes were inefficient three months after cleaning; that this was 23.8% in 1915; and that with but one "dead line" and it operating in one direction only, less than 5% had run over 12 months.

Although a special effort was made in 1914 to improve conditions, and in spite of the encouraging results shown in table 1, a gauge test for brake cylinder leakage made at various division terminals in 1915 on 164 freight brakes showed that of 52 tested immediately after cleaning 46.1% leaked down over 5 lb. in one minute. The customary method of lubricating had been followed, this including filling the expander space, next to the inside of the packing leather, with the lubricating grease. As this temporarily stops or reduces leakage through a defective packing leather, the unfavorable results stated were minimized.

As illustrating this feature, a special gauge test was made of a packing leather, that the average cleaner would judge by inspection to be good, but which we had found to be very porous. With a dry surface on the expander side and a lubricated cylinder wall it leaked 38 lb. from 50 lb. in one minute. This was reduced to 7 lb. leakage by filling the expander space with lubricant. After being under pressure of from 50 lb. down to about 30 lb. for 90 minutes, representing not over 2 or 3 days' ordinary service, the leakage had increased to 37 lb. The lubricating grease on the porous portion had been forced through the packing.

Reverting to the gauge tests, 12 brakes just cleaned leaked up over 3 lb. from 50 lb. in one minute, due to faults in the triple valves or their gaskets. A limit of 3 lb. should certainly not be exceeded. From this cause and excessive cylinder leakage 40.6% of these 64 brakes were defective immediately after cleaning. The average leakage was 8.4 lb. A gauge test of 76 brakes that, caught at random in 1915, had run from one to three months since cleaned, showed the following leakage from 50 lb. in one minute:

71.0% leaked over 5 lb.
59.2% leaked over 10 lb.
40.7% leaked over 15 lb.
21.0% leaked over 20 lb.

The 50.2% that leaked over 10 lb. averaged 22 lb. or 44% of a full service application.

Regarding the present general condition of freight brakes in interchange service, thorough terminal tests and inspections made personally by the four of us air brake men on freight trains in transit during Oct. and Nov., 1917, covering 51 trains far removed from mountain grade service and 26 others ready for or having recently come down steep, descending grades, indicated a very noticeable improvement in the brakes of the 26 trains, as compared with 1915, but absolutely none in the others. The 51 trains had 2,276 cars, and 14.1% of these cars had inefficient brakes. This emphasizes the statement in the report of the Chief of the Bureau of Safety to the Interstate Commerce Commission for the year ended June 30, 1917, that: "The maintenance of the air brakes to the point of maximum efficiency is a consummation to be striven for by all carriers, regardless of whether the grade on a particular line of road demands such efficiency in the ordinary movement of trains. Level roads should maintain their air brake equipment to the same degree as those having steep mountain grades."

Causes for unsatisfactory condition.—As will doubtless appeal to you, the "dead line" data for 1913 (see table 1) gave ample proof that freight brake maintenance was very unsatisfactory, but we required the causes to effect a betterment. It may be said, in passing, that "cleaning with the stencil" was not an explanation. After failing in an attempt to learn the causes by having brake cleaners report their findings, the four of us in 1914 took our over-clothes, wrenches, and test gauges and spent six weeks working with the brake cleaners at the various division terminals. We made gauge and soap suds tests of a large number of brakes, including those just cleaned and others that had run for various periods. With each brake found to have over 5 lb. brake cylinder leakage per minute from an initial pressure of 50 lb. we personally located and remedied the faults, thereby instructing the accompanying, local brake cleaners. Other existing defects were treated similarly. The Air Brake Association recommends that no newly repaired brake be considered satisfactory until it will pass the above cylinder leakage test, as well as other tests. This work disclosed such opportunities for betterment that we repeated it in 1915 and 1916. It has convinced me that large roads should have a special man giving it regular attention, as more particularly referred to later.

The more common causes for brakes failing to apply or leaking off quickly, as indicated by tables 1 and 2, are, in the order of their estimated proportions:—

1. Defective brake cylinder packing leathers, due to being worn, cracked, cut, porous, off center and applied reversed. 2. Loose brake cylinder piston follower nuts. 3. Dry and dirty brake cylinders. 4. Expanders out of place or not fitted. 5. Release valve or "bleeder" leakage. 6. Pressure cylinder head gasket leakage. 7. Cylinder pipe leakage with detached equipment. The last mentioned is usually due to no provision for reasonable flexibility in the pipe, and to the cylinder moving when the brake is applied and released. On roads handling much of such equipment this cause for defective brakes will be relatively much more prominent.

In addition to the ineffective brakes due to the foregoing causes, as disclosed by terminal brake tests, are others resulting from:—8. Bad order brake rigging, such as rods broken, due to being cut by axles or to flaws, broken brake hangers and beams. 9. Good order brakes received cut out and left so without test, or cut out on the trip for insufficient reason, all uncarded. 10. Leaks at or near branch pipe connections to triple valves (requiring cutting out), due to shifted main brake pipes or to brake cylinders and auxiliary reservoirs being loose at the bracket connections. 11. Piston travel over 10 in. (U.S. Federal rules designate such as ineffective brakes.) As regards brake beams, a recent tabulation on a mountain division of one road showed an average for a week, based on conductors' reports, of 2 beams down per day. The principal causes were hanger pins out or hangers broken. A partial explanation is the difficulty of seeing the hanger pin cotters and keys, due to the varied and obscured locations.

Retaining valve.—Trains cannot be held down steep grades, with the air brakes, without the aid of retaining valves, and no part of the air brake requires less to maintain it if once properly installed; also, no part gets less needed attention. A very few years ago, while examining the piece work list for freight brake repairs on a large, level grade railway, the omission of any price for testing and repairing the retaining valve and its pipe was noted. The results are obvious. It is difficult for level grade roads, and even level grade divisions of roads having mountain grades, to appreciate that they must give these parts good attention if trains are to be handled safely down mountain grades. Willingness to pay mountain grade roads for repairs necessary to make retaining valves hold will not answer. The time now required to put the rest of the brake equipment in sufficiently good order is so excessive at mountain grade terminals as to generally preclude doing anything for retaining valves. We must depend essentially on the valve and its pipe being properly installed and on needed repairs being made when the brake is cleaned.

Underlying cause.—Rightly termed, the brake cleaning faults indicated are merely symptoms, and the real or underlying cause for this portion of the unsatisfactory freight brake maintenance is superficial inspecting, testing and repairing. The main reasons for this are undue haste, the pressure applied to get quantity without equal insistence on quality, unskilled men, and insufficient supervision. A letter to X asks why less brakes were cleaned last month than the previous one, or why less than by Y. Then there is the daily, local pressure to "have those B.O. loads ready at ——— o'clock," and like pressure to have the repair track ready to pull at the appointed time, each occasionally requiring more speed than will permit of good work. The letter enquiry mentioned is always undesirable, as such comparisons cannot be made fairly. If there is good reason to believe more should be done generally, then the air brake man should personally look into it on the ground. The daily pressure, understandingly applied, is largely necessary, but the almost entire absence of a balancing pressure and provision for good work, and the more or less inadequate time, lack of sufficient proficient workmen, and needed tools and material to accomplish, will inevitably result in superficial repairing.

One very competent railway air brake man is confident that with good, initial brake installation and with efficient cleaning and lubricating, freight brakes will, as a rule, be reasonably efficient for 9 to 12 months. The results with many brakes apparently support this contention. But, even if this is impossible, the gap between it and the actual condition shown in table 1 proves that a big improvement is easily practicable.

Wasting material.—A natural corollary of the quantity only basis of repairing is the expensive "economy" resulting from failure to replace material that is worn out or otherwise defective. Illustrating: A gauge test of a newly-cleaned brake showed excessive cylinder leakage. Removal of the piston disclosed the cause as a badly worn and cracked packing leather. The workman assured us that he had noted the condition of the leather, but that, as he had recently been "jumped on for using too many leathers," he thought he had "better take a chance on that one." This was not local, for at another point, where we found much better work being done, we were asked to test a large accumulation of removed packing leathers, because there, too, they had been criticized for using too many packing leathers. We did so, and found all so defective as to unquestionably warrant removal. There is generally more reason to criticize undue retention of defective packing leathers, gaskets and rubber seats for emergency valve, than of applying new ones unnecessarily. All of such removed parts should be sent to a central point for inspection, so that any yet good may be saved, the best scrap value got from the others (pipe gaskets can be made from same), and to get ample evidence of wastefulness before criticizing adversely. Don't nag.

Car brake instructions and inspections. Various well known factors have long operated to cause rather frequent changes in a portion of the freight car brake repair force, and the war has magnified this. The new men are seldom properly instructed, and there is little adequate supervision of the work done. The remedy is to give the general air brake inspector an assistant whose main duty will be to instruct the car brake inspectors and repairmen, inspect their work, and inform local foremen of results. His instructions should be largely demonstrations of train, repair track, and shop inspecting, repairing and testing, requiring overclothes as part of his daily habit. The latter is imperative if he is to meet the demands.

A timely editorial in a railway periodical recently said: "In the present emergency, and particularly with the large labor turnover, it is more than ever necessary that adequate supervision be provided." Before the war the freight car brake equipment, complete, cost about $75 a car for the 8 in. size and $85 for the 10 in. size. Cleaning and repairing will cost over $1 a car a year. Multiply these separately by the number of cars owned and then consider whether the original investment and annual repair cost for cleaning only do not alone warrant a special inspecting and demonstrating instructor. If more proof is needed designate one or more "dead lines," points where all ineffective brakes will be found and repaired before being allowed to pass, then tabulate the periods such have run since the previous repairs were made and the causes for the short-time periods.

Time.—While trite to say that a car is earning only when it is moving, yet we should ever keep this in mind so as to help to avoid any unnecessary standing time. D. Willard, President, B. & O. Rd., in a remarkable address to the officers of that road last June, gave some astonishing figures on this, as shown by the following quotation:—"We have had tests made by our own people, and they have also been made on other railways, which show that the freight cars in this country are upon the average under control of the shippers 37% of the time—37% the shipper has the car; 6% out of that 37 being Sundays and holidays. That leaves 63% of the time of the car in the control of the railway. Now, what does the railway do with it? You may say, I suppose, that out of that 63, probably 45 or 50% of the time the car is moving on the road. Nothing of the sort. Only 11% of the total time of the car is it actually being moved. What happens to that other 52% of the time? Standing still in terminals, waiting to be switched, standing on connecting tracks with other railways, waiting to be repaired, being moved from the yard where the train left it to the warehouse—and things of that kind. Only 11% of the time is the car actually in motion; only 37% of the time is it under the control of the shipper; and the Baltimore & Ohio is not any worse than others—as a matter of fact, figures show that bad as we are, we were slightly better than the average, but that is the problem that confronts the railways."

Mr. Willard also stated that they were then making 28 miles a day with their freight cars, expressed the opinion that it should be 30, and advised that this gain of 2 miles a day would be equivalent to adding 6,000 cars to their equipment, and which would cost them, for steel hopper cars, approximately $15,000,000. He said also that for some months their bad order cars had not exceeded 2½%. But does such a measure imply that the air brakes on the balance are in good order?

We should keep prominently before us the statement made in a railway periodical recently that "the cars must be kept in good condition, and when repairs are made they should be done thoroughly so that the equipment will not spend an excessive time on the repair tracks." While the car air brake repairs have not generally been made thoroughly, yet making such repairs has not contributed seriously to the percentage of bad order cars, those out of service for repairs. If this percentage could, for this reason, have been a little higher on our eastern lines during last summer, it would have helped materially to prevent the serious troubles experienced during the winter from inadequate control down steep grades.

One time saving not used as extensively as warranted is, where the destination of loads with defective brakes is a terminal, to mark them on arrival "B.O. when empty," with defect, and instruct switchmen to deliver same to the repair tracks promptly when empty.

Incoming freight train brake test.—It being obvious that we are far from the time when even fairly modern freight cars will reach the repair tracks for other work

at such intervals as will permit of satisfactory brake maintenance, those with ineffective brakes in trains must be located and set out for repairs with the minimum possible interference with transportation. For this we depend on the train brake test. The defect card can be made to help a little, but not much. Some claim that the train yard test plant is needed and useful for this. I believe it is not, in other than the very exceptional yard, as in special service, such as ore, where there is unusual dead time with no switching to be done. Repairs cannot be made safely while switching is going on, and when a train is made up it should start with the least delay thereafter.

The outgoing freight brake test is, or should be, merely a check against error. To then set out defective brakes for repairs is to disorganize dispatching and switching, thus delaying cars ready to proceed, and greatly augmenting expenses, hence, is as unthinkable as a means of maintenance as it would be to depend on an inspection of locomotives and reports of work needed alone when they were being got out for departure.

Immediately on arrival each train must have a general inspection under blue signals. Assuming that the proper brake application was made by the incoming engineer, a thorough brake inspection can now be given, minor repairs made, and cars with inoperative brakes marked for repair tracks, all during the time and protection afforded by the general inspection. As the air brake inspection must be begun as soon as the brakes are applied, and must be completed quickly (not over 20 minutes and preferably less, so as to avoid an unduly severe test and the setting out of cars with reasonably efficient brakes), it cannot be performed by the men making the general inspection. Under the above plan, the yard master is informed, before switching, just what cars are ready to proceed. Thus brake delays to departing trains are avoided, brakes are maintained, and incident expense is kept at the minimum.

But these desirable ends all depend on the correct performance of a simple duty by the incoming crew. The locomotive man must leave the brakes applied by a 20 lb. reduction, merely adding to any reduction needed for stopping the amount necessary to total 20 lb. It is preferable to have this made as one reduction, and some locomotive men do so by carefully making the stop with the locomotive brakes only, but the other method will have to answer in many cases to avoid the delay of releasing and recharging. Where time will permit of releasing, stretching the slack (hand brakes set at rear), recharging and then applying, a better inspection of draft gear will be possible. If less than 20 lb. is drawn off, some brakes in condition to proceed will be found unapplied. On being sent to the repair tracks these will be found operative, and the inspector may be criticized for the unnecessary work and delay. Thereafter he will fear to bad order brakes found unapplied, especially if there are several in a train. Thus there will be either useless expense and delay or brake maintenance will depreciate, with its resultant dangers and ultimate greater expenses, all due to even a few improperly-made incoming brake test applications. The errors are due either to the locomotive man failing to make the proper reduction (even after drawing off 20 lb. he will generally need to add more to have 20 lb. off when the brake valve exhaust ceases), or to the brakeman closing the angle cocks (to cut off) before the reduction is completed. Yet the delay, if any, to make the test application right will not exceed 15 seconds. For this reason, the simplicity of the test, and especially because of the value of the inspection depends primarily on the application being made properly, it is reasonable and necessary to require 100% efficiency in this.

War time merely emphasizes the need for making the incoming brake test invariably and correctly. We must depend mainly on road foremen and trainmasters to, while on other duties on the locomotive or in the caboose, instruct and check against errors and delinquencies. They cannot do so if they get off when entering yards. Carmen cannot check this. An attempt to do so under existing conditions would result only in more trouble for them. Instructions to govern the method of making the incoming freight brake test, arranged so that they may be issued conveniently in bulletin form, are given at the end of this paper. These are the result of several years' experience with this test on one large road, being a recent revision. Where, as in some instances at mountain terminals, trains arrive with 90 lb., this should be reduced to 70 lb., by suitable application and release, before making the test application. Tests from 90 lb. are less severe, because the high pressure left in the auxiliary reservoir after the reduction of 20 lb. will supply brake cylinder leakage longer than where the application is made from 70 lb.

Car brake repair instructions.—It is generally understood that triple valves cannot be well maintained, unless at each periodical cleaning they are cared for in a suitable room, having among its facilities a standard test rack. At two points where experienced cleaners cared for good order triple valves without removing them, but where instructions were to get a good order valve from the near by repair room to replace each found defective, the change was made to sending all valves to the repair room. The effect was shown by one shop repair foreman complaining of the additional work required on triple valves, other than cleaning, while the other and more far seeing foreman expressed surprise that they had, considering the additional serious defects found and repaired, got along as well as they had. Both repair rooms had standard test racks.

The manufacturer's instruction book for use of the standard test rack gives much of the information needed to care for the triple valve repairs fairly well, but the men who maintain the rest of the brake equipment on the car have generally had to depend upon verbal instructions. To aid such men the Westinghouse Air Brake Co. has had certain of its men, who are closely in touch with such work, prepare instructions for the brake work to be done on the car. They represent in concrete form a large part of the remedies proposed for unsatisfactory freight brake maintenance.

Piston travel and brake pipe leakage. Short piston travel (less than 6 in.) and brake pipe leakage render good braking far more difficult. A piston travel of 9 in. is actually less objectionable than one of 6 in. The former, by giving a much less increase for ordinary braking reductions, lessens slack action and consequent shocks, yet is almost as efficient in a full application as the 6 in. travel.

Regarding the caution in the appended instructions against altering piston travel until it has been determined, by ascertaining if a brake beam can be moved, whether the brake has partially leaked off, it will be of interest to know that tests made a number of freight cars, starting with 50 to 60 lb. in the brake cylinder, gradually reducing the pressure, and noting the amount remaining after each ¼ in. recession or loss in piston travel, gave an average amount left of 30 lb. after ¼ in. recession, 20 lb. after ½ in., 10 lb. after ¾ in. and 5 lb. after 1 in. This explains the statement elsewhere that 1 in. loss in piston travel means the loss of all effective holding power.

The bad results from brake pipe leakage are much greater with long trains and increase more rapidly than the train length. That is, a rate of leakage that would not be particularly detrimental with 40 cars would prevent good handling with 80. But as any leakage is detrimental and wasteful, and as the many moderate leaks, while harder to find and remedy in a train, make a large total leakage, it is very important that all such be located and stopped substantially when cars are on repair tracks. The needed results cannot be obtained without the soap suds test. A loose pipe means a future leak, as also does a rigid pipe where the need of some flexibility is plainly indicated. One illustration of the latter is a branch pipe connection (from main pipe to triple valve) consisting of two straight pieces and one ell. Another that destroys the pipe fit in the triple valve and breaks the pipe is a retaining valve pipe connection running close to the auxiliary reservoir and horizontal or nearly so.

Brake head spacing.—In these days, when conservation of material is of the greatest importance, attention may well be given to the waste of shoe metal and brake efficiency resulting from the brake shoes that overlap the wheel treads. This is due to the old head spacing of 60½ in., magnified by manufacturing errors and the spreading action of the overlapping shoes. In addition to insuring that all new beams have the 60 in. spacing, the errors should be rectified in repairing old beams.

Efficient train inspection.—Is not considerable of the unsatisfactory maintenance, and which extends beyond the brakes, due to lack of system, insufficient or untrained inspectors, and undue haste in train inspecting and repairing? Where a specified time is allotted for this work is it based on tests with a certain number of reasonably competent men, modern inspection requirement, and certain car limits per train? Is the number of men apportioned for this work generally adequate for the time allotted? Do the switchmen, in an effort to meet the requirements of their superiors, as to when trains must be ready to depart, prevent the inspectors from doing the work properly, as by emptying the brake pipe of air, bleeding uninspected brakes, and by commencing to switch the train before the inspector's work can possibly be completed properly? These questions do not necessarily suggest the belief that the most thorough inspection required should be made of each freight train at every locomotive terminal, but if the rules require it and gross deviations occur regularly, due either to insufficient time or men, how can any really good inspection be expected? If the circumstances will not permit of or justify a thorough inspection at each locomotive terminal, why not outline a less complete one for, say, through trains at alternate terminals, specifying for particular attention only the most important details? Of course, the term inspection includes the making of needed repairs, either on cars while in the train yard or by sending them to repair tracks. Unfortunately, the tendency

is against taking "the stitch in time," with the readily-appreciated results. For example, a cotter is seen to be out, but is not replaced, possibly because its pin is yet in place. Or, piston travel of 9¾ in. is not shortened, maybe because it is not over the government limit. However, with competent men it is believed that the underlying reason will generally be inadequate time.

Freight brake repairing and stencilling. The Northwest Air Brake Club of St. Paul, Minn., has proposed to the Air Brake Association a revision of M.C.B. requirement regarding brake repairing and stencilling, as follows:—It is submitted that the present M.C.B. stencilling for freight brake cleaning, etc., can be simplified, time and money saved, brake maintenance improved and more use got from cars by adopting a rule that when either the triple valve or the brake cylinder must be cleaned, lubricated and tested, all other parts, including the retaining valve and, where had, the dirt collector, be cared for at the same time; also, that any other repairs needed by the brake equipment be made then. Stencilling should then be modified as follows:—Use but two lines; the upper to show the shop or station letters indicating where the work was done, followed by the numerals indicating the month, day and year; the second line to be the initials of the road that did the work. Also, duplicate this on the opposite side of the reservoir or car so that one man inspecting can read all dates without frequently crossing over the train, as is now necessary. The present requirements are to stencil on one side only, and that the shop mark, date and road be repeated each for the "Cylinder," "Triple," and "Dirt Collector," the parts to be lettered as quoted. There is now just enough room to get all of it on the auxiliary reservoir of an 8 in. equipment. The retaining valve is supposed to be cared for at the same time, but there would be no room for a similar stencil for it even were this desirable, as it is not.

The thought back of this separate and complete stencil for each part is that one may require attention, with incident billing if a foreign car, when the others may not. In the rare event of this being so it will be cheaper to care for all then; first, because the broken dates that would otherwise follow would require that the car be switched to the repair tracks twice as often and held from service doubly as long per year to care for the brake cleaning; second, because in the necessarily rapid work of inspection the presence of two or more dates increases errors; and, third, because of the additional expense, if, when a defective brake is found in a train and sent to the repair tracks, a test must be made to positively locate the defect before cleaning and lubricating are begun, as must be if only the then imperative work be done. In that rare case where, for example, a triple valve must be changed (usually cared for in the train) and the other parts may be let go, time and money will be saved if the stencil is not changed and, if a foreign car, no charge is made.

In view of the obvious advantages of the foregoing, and as the cost of switching a car to and from the repair tracks, with the time it must be out of service, means a greater expense than the entire permissible charge for properly caring for all of the details covered by the present stencil, it is hoped that the proposed change in the stencilling rule and in others relating to the work involved will be favorably recommended to the M.C.B. Association and will meet with its consideration.

Incoming Freight Brake Terminal Test.

To all concerned—Enginemen and trainmen of freight trains on arrival at terminals will leave the brakes applied by a 20 lb. service reduction made from 70 lb. Where engineman has made an automatic application for stopping, he will, as soon as stopped, add to it by one farther, continuous reduction sufficient to make a total of 20 lb., and, watching the gauge, insure that this amount is had when the brake valve discharge ceases. On its completion he will give one short whistle blast, as advice to brakeman that he may cut off and to inspectors that inspection may begin. The brakeman will not close angle cocks until this signal is given. When the train must be left on two or more tracks, or when crossings must be cut, those concerned will follow the foregoing plan before cutting off each part. To avoid preventing inspectors from ascertaining the condition of air brakes, switchmen, carmen and others must not discharge any air from the auxiliary reservoirs or brake pipe of cars that have not been inspected. Before discharging any air from those already inspected, an angle cock must be closed between such and any uninspected brakes.

On brakes being applied, as indicated by whistle signal, inspectors will at once, and rapidly, examine for piston travel, brakes failing to apply, any that have leaked off and brake pipe leaks. At this time, make no repairs; merely indicate the defect with chalk. After completing inspection, repair the defects that should be cared for in the yard. For other defects, bad order cars for repair tracks unless impracticable, as may be with perishable or time freight. The air brake and the general inspection must not be made by the same man or men.

Adjust incorrect piston travel (less than 6 in. or over 8 in.) to 7 in., but before marking for apparent short travel, be sure, by trying a brake beam, that the brake has not partially leaked off. When a brake shoe can be moved back easily, as with one's foot, the brake piston has leaked back 1 in. or more. Consider cars over 12 months since brakes were cleaned as having defective brakes. Loads that cannot be held for brake repairs earlier will, where destination is a terminal, be marked on arrival "B. O. when empty," with date, and defect. These will be delivered to repair tracks as soon as practicable after unloading.

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

Quebec & Saguenay Ry. Purchase.—The Minister of Railways informed the House of Commons recently, that an agreement was entered into on July 25, 1916, as authorized under the statutes of 1915, chap. 16, and under the statutes of 1916, chap. 22, for the purchase of the railway lines from Quebec to Nairns Falls, and another line from Lyster to St. Jean des Challons, Que. The first mentioned lines include a line from and inclusive of its terminals in Quebec, easterly. The lines are fully described in the statutes, and the fixing of the prices to be paid for the same is set out in the statutes of 1916, sec. 2. Up to the time the information was given, no money had been paid by the government on account of the purchase price of these lines.

G. Gordon Gale, M.Sc., M.Can.Soc.C.E., Vice President and General Manager, Hull Electric Co., Hull, Que., writes: "I take a very great interest in Canadian Railway and Marine World, and have obtained considerable valuable information by reading each issue carefully."

Timiskaming and Northern Ontario Railway Report.

The Timiskaming & Northern Ontario Ry.'s report for the year ended Oct. 31, 1917, has been issued by the commission which operates it, and the Nipissing Central Ry.—an electric line—for the Province of Ontario. Following are extracts:

Mileage.	
Main Line, North Bay to Cochrane	252.29
Branch lines (three)	76.21
Nipissing Jct. spur leased to G.T.R.	2.10
Yards and sidings	114.05
Second track	1.70
Total mileage T. & N.O. Ry.	446.35
Assets.	
Cost of road	$18,297,149.50
Cost of equipment	2,563,911.79
Nipissing Central Ry.	483,123.31
Empire Lumber Co. plant, Latchford	805.00
Working assets	1,129,751.46
Deferred debit items	9,595.55
	$22,484,336.61
Liabilities.	
Provincial loan account	$21,593,869.99
Working liabilities	324,358.00
Deferred credit items	292,802.98
Balance profit and loss	273,305.64
	$22,484,336.61
Earnings and Expenses.	
Revenue from transportation	$2,220,892.22
Revenue other than transportation	111,013.57
Total operating revenue	$2,331,905.79
Maintenance of way structures $419,266.84	
Maintenance of equipment 305,268.86	
Traffic expenses 17,676.10	
Transportation expenses 985,452.19	
Miscellaneous operations 47,824.69	
General expenses 107,255.05	
Transportation for investment—cr. 1,465.44	
Total operating expenses	$1,881,296.29
Net operating revenue	$ 450,609.50
Ore royalties	119,567.04
Rent from joint facilities	12,849.94
Rent from lease of road	13,624.15
Interest—dr.	5,649.48
Miscellaneous income	9,417.21
Total income	$ 600,427.36
Deductions from income	83,726.80
Total earnings	$ 516,700.56

Compared with the year ended Oct. 31, 1916, the total operating revenue increased $193,783.84; total operating expenses increased $287,118.83, and net operating revenue decreased $93,334.99. Income from ore royalties increased $69,698.42; rent from joint facilities decreased $5,770.51; rent from lease of road increased $287.11; interest decreased $7,385.84, and miscellaneous income increased $8,387.43. The deductions from income show a decrease of $16,123.48, and the total earnings decreased $12,004.90. From the profit and loss $250,000 was paid to the Treasurer of Ontario, certain adjustments were made, and uncollectable accounts cancelled, and $273,305.64 was carried forward.

Traffic Statistics.	
Revenue passengers	499,759
Passengers carried one mile	28,616,324
Passengers carried one mile per mile or road	87,112 57.26
Average distance carried (miles)	$1.31
Average amount received	2.29 cts.
Average receipts per passenger per mile	
Passenger service train revenue per train mile	$1.52
Revenue freight carried (tons)	960,714
Tons carried one mile	161,476,738
Carried one mile per mile of road	491,558
Average distance of haul of one ton (miles)	168.06
Average revenue per ton	$1.52
Average amount received per ton per mile	00.9 cts.
Freight revenue per train mile	$2.56
Freight originating on the line (tons)	465,350
Received from Canadian lines (tons)	417,472
Received from U.S. lines (tons)	77,891
Total (tons)	960,714
Mileage of revenue passenger trains	435,769
Mileage of revenue mixed trains	58,132
Mileage of revenue freight trains	512,161
Total revenue train mileage	1,006,062

Birthdays of Transportation Men in June.

Many happy returns of the day to:

Jas. Anderson, Vice President, Sandwich, Windsor & Amherstburg Ry., Windsor, Ont., born at Ayr, Ont., June 20, 1851.

F. F. Backus, General Manager, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Rochester, N.Y., June 4, 1860.

W. C. Bowles, General Freight Agent, Western Lines, C.P.R., Winnipeg, born at Montreal, June 3, 1875.

J. H. Boyle, Superintendent, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., born at Waterloo, Que., June 26, 1869.

F. P. Brady, General Manager, Western Lines, Canadian Government Railways, Winnipeg, Man., born at Haverhill, N.H., June 22, 1853.

H. W. Brodie, General Passenger Agent, Lines West of Revelstoke, C.P.R., Vancouver, B.C., born at Fredericton, N. B., June 8, 1874.

J. A. Clancey, Trainmaster, Districts 27 and 28, Detroit Division, Western Lines, G.T.R., Durand, Mich., born at Walkerton, Ont., June 8, 1884.

G. W. Coburn, Resident Engineer, C.P.R., Brandon, Man., born at Upper Melbourne, Que., June 24, 1877.

E. P. Coleman, General Manager, Dominion Power & Transmission Co., Ltd., Hamilton, Ont., born at Taunton, Mass., June 14, 1867.

W. S. Cookson, General Passenger Agent, G.T.R., Montreal, born at Port Jervis, N.Y., June 12, 1871.

E. L. Cousins, Manager and Chief Engineer, Toronto Harbor Commission, Toronto, born there, June 11, 1883.

A. Craig, City Passenger Agent, C.P.R., Hamilton, Ont., born there, June 5, 1884.

A. E. Doucet, M.Can.Soc.C.E., Quebec, ex-District Engineer, National Transcontinental Ry., Quebec, born at Montreal, June 9, 1860.

E. W. DuVal, formerly Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon, now on active military service, born at Toledo, Ohio, June 5, 1885.

Knowlson Elliott, City Freight Agent, C.P.R., Calgary, Alta., born at Gorrie, Ont., June 26, 1884.

J. M. R. Fairbairn, M.Can.Soc.C.E., Assistant Chief Engineer, Eastern Lines, C.P.R., Montreal, born at Peterborough, Ont., June 30, 1873.

W. E. Foster, Solicitor for Ontario, G.T.R., Montreal, born at Belleville, Ont., June 27, 1866.

A. A. Goodchild, General Storekeeper, Eastern Lines, C.P.R., Montreal, born at Peckham, London, Eng., June 3, 1866.

H. W. Harding, Local Secretary, Canadian Northern Ry., London, Eng., born there, June 6, 1869.

J. A. Heaman, A.M.Can.Soc.C.E., Assistant Chief Engineer, Grand Trunk Pacific Ry., Winnipeg, born at Memphis, Tenn., June 3, 1874.

L. K. Jones, I.S.O., Assistant Deputy Minister, Department of Railways and Canals, Ottawa, born at Port Hope, Ont., June 9, 1849.

M. W. Kirkwood, General Manager, Grand River Ry., and Lake Erie & Northern Ry., Galt, Ont., born at Cheltenham, Ont., June 8, 1877.

A. C. Lytle, Assistant Superintendent of Construction, Montreal Tramways Co., Montreal, born at Hemmingford, Que., June 6, 1854.

J. D. McAuley, Commercial Agent, Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., Ltd., Prince Rupert, B.C., born at Plantagenet, Ont., June 11, 1884.

R. S. McCormick, M.Am.Soc.C.E., Chief Engineer and General Superintendent, Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ont., born at Quaker City, Ohio, June 22, 1873.

Duncan McDonald, ex-General Manager, Montreal Tramways Co., born at St. Thomas de Montmagny, Que., June 17, 1859.

S. J. McLean, Dominion Railway Commissioner, Ottawa, born at Quebec, June 14, 1871.

C. E. McPherson, Assistant Passenger Traffic Manager, Western Lines, C.P.R., Winnipeg, born at Chatham, Ont., June 7, 1861.

W. R. MacInnes, Freight Traffic Manager, C.P.R., Montreal, born at Hamilton, Ont., June 7, 1867.

J. R. C. Macredie, M.Can.Soc.C.E., Engineer, Saskatchewan District, C.P.R., Moose Jaw., born at St. John, N.B., June 13, 1880.

James Manson, Assistant to Vice President, C.P.R., Montreal, born at Thurso, Scotland, June 8, 1863.

J. D. Morton, Assistant Comptroller, Canadian Northern Ry., Toronto, born at London, Ont., June 15, 1857.

L. Mulkern, Division Freight Agent, C.P.R., St. John, N.B., born at London, Ont., June 18, 1871.

J. E. Pinault, General Superintendent, Canada & Gulf Terminal Ry., Mont Joli, Que., born at Rimouski, Que., June 24, 1884.

F. R. Porter. Assistant General Freight Agent, Grand Trunk Pacific Ry., Winnipeg, born at Stratford, Ont., June 13, 1875.

F. Price, Superintendent of Car Service, G.T.R., Montreal, born there, June 11, 1864.

Allan Purvis, General Superintendent, Quebec District, C.P.R., Montreal, born at Batavia, Java, June 29, 1878.

L. J. Reycraft, Solicitor, Manitoba and Saskatchewan Districts, C.P.R., Winnipeg, born in Orford Tp., Kent County, Ont., June 20, 1868.

L. G. Rogers, Yardmaster, C.P.R., Trenton, Ont., born at Richford, Vt., June 18, 1874.

J. R. Shaw, General Agent, Passenger Department, Canadian Pacific Ocean Services, Ltd., Hong Kong, China, born at Montreal, June 28, 1871.

J. L. Simpson, agent, C.P.R., Port McNicoll, Ont., born at Mount Forest, Ont., June 9, 1866.

H. H. Smith, Car Accountant, Canadian Northern Ry., Toronto, born at Quebec, Que., June 14, 1872.

N. Van Wyck, Purchasing Agent, Canada Steamship Lines, Ltd., Montreal, born at Hamilton, Ont., June 29, 1883.

V. G. R. Vickers, ex-Manager, Foreign Department, and Superintendent, Atlantic Division, Dominion Express Co., now Vice President, The Holden Co., Ltd., Montreal, born at Toronto, June 1, 1866.

Walter White, Trainmaster, G.T.R., Palmerston, Ont., born at Toronto, June 4, 1866.

Colored Men on Dining Cars.—A Winnipeg dispatch says that, to release men for more important work elsewhere, the C.P.R. has decided to place colored men on dining cars as waiters and cooks, and that the change will be made as soon as the men are secured.

The St. John and Quebec Railway's Arbitration Suit.

The arbitration proceedings in connection with the claims made by A. R. Gould and those associated with him in the St. J. & Q. Ry.'s affairs, against the New Brunswick Government, which confiscated the charter, and took over the work, were concluded recently, when Mr. Justice McKeown, who presided, made his report to the legislature. Following are the findings:—That the government carried out all obligations arising under and out of the contract entered into between the province and the railway company. That the railway company defaulted in its obligations under the contract. That the defaults so made were of such a nature as to justify the government in terminating the contract and taking over and vesting in His Majesty the stock of the company heretofore belonging to the claimants. That the claimants have no right which should be recognized or enforced in any court or before any arbitrator because the contracts are void by reason of an act of bribery committed by A. R. Gould during the negotiations for the building of the road, between the province and the railway company. That neither in law nor in equity is there any amount whatever due from the Province of New Brunswick to A. R. Gould and his associates.

Two claims were made by Gould, the first, $445,560, was for contractors' profits at 10% upon the construction cost of the railway, and the alternative claim was for $334,230, representing the alleged value of the stock of which Gould and his associates were deprived in 1915.

The Provincial Secretary informed the New Brunswick Legislature recently that the Prudential Trust Co. of Montreal, on Feb. 1, held $563,880 available for the railway. Since that date $43,406 had been paid over to the company, which is now composed of nominees of the government. This fund is one of the complications arising out of the circumstances which brought about the determination of the contract by the government.

Tie Supplies for Timiskaming and Northern Ontario Railway.

In his annual report to the T. & N.O. Ry. Commission, S. B. Clement, Chief Engineer and Superintendent of Maintenance, says:—The Commission has obtained from the Lands, Forests and Mines Department the reservation of the timber on several townships tributary to Night Hawk Lake. There are in the reserved area several large stands of jackpine, from which it is estimated the commission will be able to obtain all the ties it requires for renewals for at least 20 years. It is proposed to contract for the cutting of the timber, the making and delivery of the ties at Connaught, where the Porcupine Branch of the railway crosses the Frederick House River, which runs from Night Hawk Lake. It is hoped that before long a creosoting plant will be built in Northern Ontario, where all ties could be creosoted. A proper treatment with creosote will probably increase the life of a jackpine tie from 8 to 20 years, provided suitable tie plates are used to protect the face of the tie from mechanical wear. The growing scarcity of suitable tie timber, and increased cost of ties, and the greatly increased wages now paid trackmen, make a reduction in the cost of tie renewals a matter of first importance. The area of the reserve is about 135 square miles.

Fluework in a Railway Shop.

The accompany engravings illustrate some of the methods and equipment used in connection with fluework at the Southern Pacific shops at Sparks, Nev. Figs 1 and 2 are views of the flue-tumbling apparatus located just outside the shop building. It consists of a perforated cylinder long enough to receive the tubes and provided at the end next the shop wall with power driving mechanism for rotating the cylinder upon its journals. At one side, as shown in fig. 2, there is a longitudinal opening extending the full length of the cylinder to admit the tubes, which are hauled up on a car on the inclined track to a point directly in front of the cylinder. At the rear there is a series of inclined rails upon which the tubes fall when the cylinder is opened for their discharge. Down these rails the tubes roll on to a car placed on the track below, as shown by fig. 1. This track leads directly into the building, so the tubes are readily handled between tumbler and shop.

Fig. 3 shows a lot of tubes in the shop, stacked up on a sloping rack immediately behind the swaging machines. Figs. 4 and 5 illustrate the roll swager and the pneumatically operated dies for the tube ends. The front view, fig. 4, shows a tube just withdrawn from the oil-fired heating furnace at the left and placed in the roll swager at the center of the illustration. At the right is the air-operated swaging die. A better view of this is given in fig. 5 with a tube in place for working under the dies.

The machine consists of a short-stroke cylinder and piston, placed in inverted position in a framework built up of a top plate, pipe and through bolts on an old machine bed. The air pipes may be seen at the right-hand side of the structure. The machine is controlled by pressure of the foot upon a lever near the floor, so that the operator has both hands free to move the tube about under the dies as is required for the operation. The machine in fig. 6 is for trimming the tubes to length. It is another home-made device built up on a long bed, with supporting rollers at each end to receive the tube and hold it in horizontal position for the application of the trimming knife, which is a revolving disc about 6 in. in diameter. This disc is mounted upon the end of a spindle that is gear driven from an electric motor at the rear end of the head, as indicated in the engraving. The lever for forcing the cutting or trimming disc into the tube is at the top of the machine with the handle bent forward to convenient position for the operator.

Fig. 7 shows the apparatus for testing the tubes under water pressure. The outer end of the tube rests against a closing gasket on a fixture adjustably mounted upon the long bed of the machine. The other end is closed by a pack-

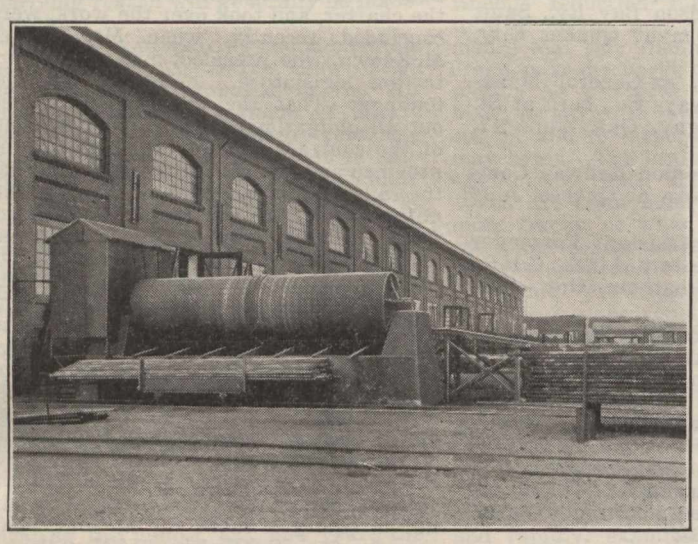

Fig. 1. Tumbling apparatus for tubes.

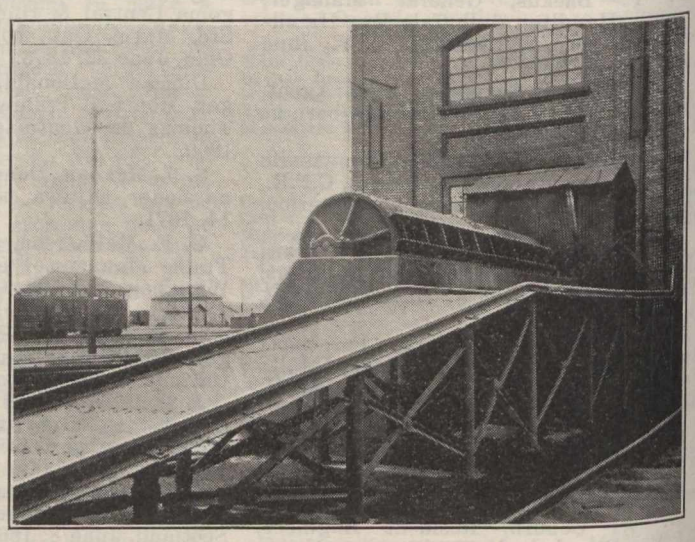

Fig. 2. Loading side of tumbling apparatus.

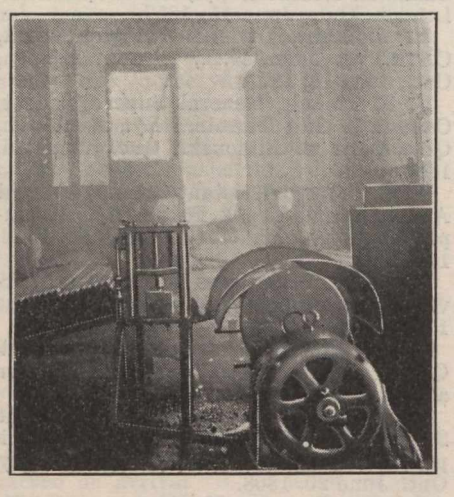

Fig. 7. Flue swaging equipment.

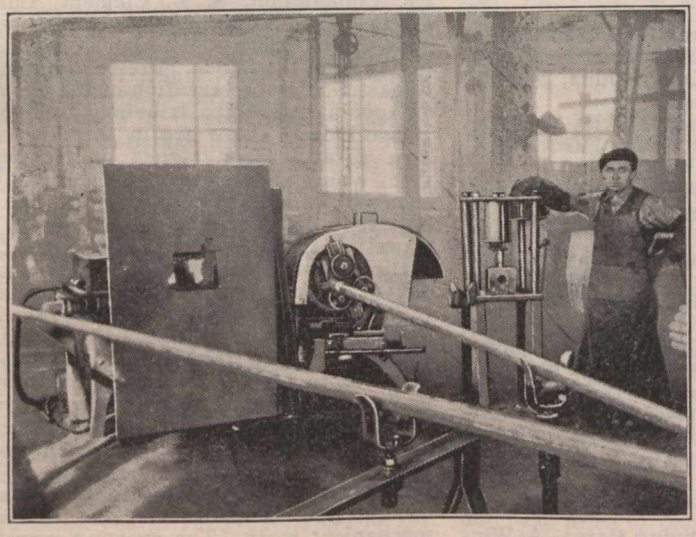

Fig. 4. Heater and swagers.

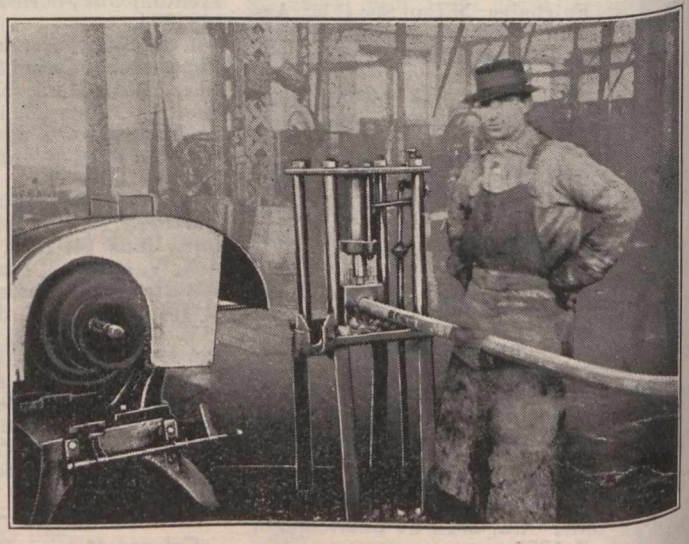

Fig. 5. A tube in the swaging dies.

ing ring in the cylinder head. Water is admitted by the valve near the operator's hand. The tubes as tested are placed upon the skeleton truck, which will be seen immediately behind the workman. This holds a large number of tubes and is of such form and weight as to be easily moved about with a full load of tubes. It is one of a number of very handy appliances for handling work of various kinds about different departments in this plant.

The foregoing article is reproduced from the American Machinist, to which we are indebted for the photographs from which the illustrations were made.

Standardization of Locomotives for United States Railways.

Under authority from the U.S. Director General of Railroads, a committee of 11 railway officials and representatives of the three principal locomotive builders in the U.S., has prepared standard specifications and drawings for 12 types of locomotives to be used in ordering for all U.S. railways. They are as follows:—

Two sizes of the mikado type, 2-8-2, based respectively on 55,000 and 60,000 lb. per axle; the lighter of these has a weight in working order of 290,000 lb., and the heavier 325,000 lb.

Two sizes of the mountain type, 4-8-2, based respectively on 55,000 and 60,000 lb. per axle, the lighter having a total weight in working order of 320,000 and the heavier of 350,000 lb.

Two sizes of the Pacific type, 4-6-2, based respectively on 55,000 and 60,000 lb. per axle, the former having a weight of 270,000 lb. and the latter 300,000 lb. in working order.

Two sizes of the Santa Fe type, 2-10-2, based respectively on 55,000 and 60,000 lb. per axle, the lighter having a weight of 360,000 lb. and the heavier 390,000 lb. in working order.

A 6-wheel locomotive, 0-6-0, with tender, 55,000 lb. per axle; weight in working order, 165,000 lb.

An 8-wheel switching, or hump, locomotive, 0-8-0, with tender, 55,000 lb. per axle; 220,000 lb. in working order.

A 6-couple Mallet locomotive, with trucks, 2-6-6-2, based on 60,000 lb. per axle, weighing in working order 540,000 lb.

The tenders have been standardized with tanks of 8,000, 10,000 and 12,000 gal. respectively.

No one railway will be compelled to order all of the 12 standards, and it is probable that even the large trunk lines will find that half of this number is sufficient for their needs. It will, however, greatly simplify the building of locomotives for the rehabilitation of the railway motive power, which is so badly needed, and also greatly reduce the cost of carrying spare parts by the different roads.

A Washington correspondent writes:—"As is always the case when any kind of standardization is proposed, there are those who fear that it will prevent improvements and discourage new ideas. That such fear is unfounded may be seen from the automobile industry, which, perhaps, has standardized more of its products than any other branch of manufacture. It is probable that for the duration ture. It is probable that for the duration of the war at least we can well afford to omit special new locomotive development; but when we return to normal conditions an experimenting department should be established for the purpose of trying out new devices for all the railways instead of a dozen or more railways spending money on the same experiments. The money that has been needlessly spent on experiments during the past 25 years would go a long way toward paying the war debt. When we consider that on the Santa Fe Ry. alone there have been at times over 300 different types of locomotives to keep in repair, the advantage of confining all experimental work of this kind to one department can easily be estimated."

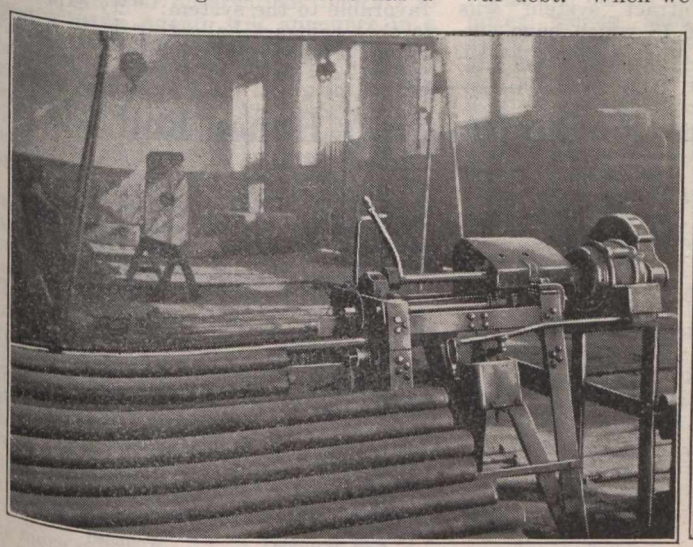

Fig. 6. Trimming machine.

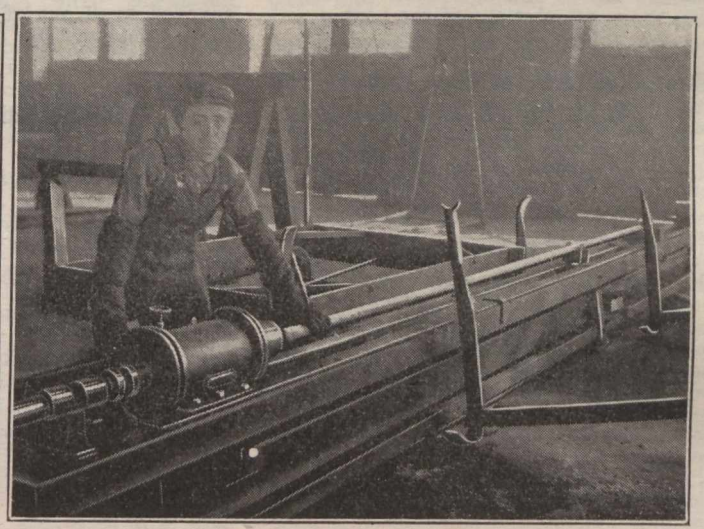

Fig. 7. Testing apparatus.

Locomotives Ordered for United States Railways.

The Director General of U.S. Railroads announced, on May 1, that he had awarded contracts for the immediate construction of 1,025 locomotives. Deliveries are to begin in July and continue monthly during the remainder of the year.

The locomotives are to be of six standard types—one heavy and one light of each type—covering both freight and passenger service, and vary in weight from 290,000 lb. to 540,000 lb. The order involves an expenditure of approximately $60,000,000. The locomotives will be allotted, upon completion, to the various railway systems where they are most needed.

The awarding of this contract marks the establishment by the government of the standard type of locomotives, specifications for which have been developed and perfected by committees of experts, who for many weeks have devoted much time and study to the subject, particulars of which are given in another article in this issue.

The six standard types of locomotives, two sizes of each class, are expected eventually to supersede the many miscellaneous types and varieties of locomotives now in service, embracing ones built according to 500 or more varying specifications. This is the first time that any real forward step has been taken looking to the wide standardization of locomotives.

The contracts were awarded on terms much more favorable to the railways than the bids originally submitted by the builders. The order was distributed approximately evenly between the Ameri-Can. Locomotive Co. and the Baldwin Locomotive Works.

Orders for Freight Cars Placed by United States Government.

The Director General of U.S. Railroads announced, early in May, the allotment of orders for the construction of 70,000 additional steel underframe freight cars to various car building concerns on the same basis on which the order was placed a short time previously for 30,000 cars. These 70,000 cars include 15,000 40-ton double-sheathed box cars, 16,000 50-ton single-sheathed box cars, 15,000 50-ton composite gondola coal cars, 5,000 70-ton low-side gondola cars, 19,000 55-ton hopper coal cars.

The 70,000 cars have been apportioned among the following builders: Bettendorf Co., Bettendorf, Iowa, 3,000; Cambria Steel Co., Johnstown, Pa., 3,000; Haskell & Barker Works, Michigan City., Ind., 8,000; Keith Car Manufacturing Co., Sagamore, Mass., 1,000; Laconia Car Co., Laconia, N.H., 1,000; Lenoir Car Works, Lenoir, Tenn., 2,000; Liberty Car & Equipment Co., Chicago, Ill., 1,000; Magor Car Corporation, Passaic, N.J., 1,000; Mount Vernor Car Manufacturing Co., Mount Vernon, Ill., 4,000; Pacific Car & Foundry Co., Seattle, Wash., 2,000; Pressed Steel Car Co., Pittsburgh, Pa., 14,000; Pullman Co., Chicago, Ill., 8,000; Ralston Steel Car Co., Columbus, Ohio. 4,000; St. Louis Car Co., St. Louis, Mo., 1,000; Standard Steel Car Co., iPttsburgh, Pa., 15,000. Also, pending, to Barney & Smith Car Co., Dayton, Ohio, 2,000. It is possible that there may be some modi-

fications in the number and types of cars apportioned respectively among the above car builders before the final detailed contracts are executed.

These 70,000 freight cars, together with the 30,000 awarded a few days ago, will involve an aggregate cost of between $250,000,000 and $300,000,000. The orders were all placed upon the basis of the minimum bids as to costs for labor and overhead charges, with the understanding that any reduction in costs which may be obtained from these fixed prices will be divided equally between the Railroad Administration and the car builders, but any increase in these costs will be borne exclusively by the builders. The government will have supervision or control as to prices of the materials required in construction. The compensation of the builders will be approximately 5% on the cost, as estimated on the minimum bid.

The five types of cars represent the standard forms of freight cars adopted by the Railroad Administration. These standards are the result of the labors of a committee of experts who were working upon the problem for weeks. The adoption of these standard types, it is believed, will eventually substitute a few scientifically worked out designs for the numerous miscellaneous varieties of cars, representing probably more than a thousand different old styles and specifications now in use, the accumulations of the past.

Compensation for Government Employes Killed or Injured.

The following act, passed by the Dominion Parliament at its recent session, refers, among others, to government railway employes:—

1. (1) An employe in the service of His Majesty who is injured, and the dependents of any such employe who is killed, shall be entitled to the same compensation as the employe, or as the dependent of a deceased employe, of a person other than His Majesty would, under similar circumstances, be entitled to receive under the law of the province in which the accident occurred, and the liability for and the amount of such compensation shall be determined in the same manner and by the same board, officers or authority, as that established by the law of the province for determining compensation in similar cases, or by such other board, officers or authority or by such court as the Governor in council shall from time to time direct.

(2) Any compensation awarded to any employe or the dependents of any deceased employe of His Majesty by any board, officer or authority, or by any court, under the authority of this act, shall be paid to such employe or dependent or to such person as the board, officer, or authority or the court may direct, and the said board, officer, authority and court shall have the same jurisdiction to award costs as in cases between private parties is conferred by the law of the province where the accident occurred.

(3) Any compensation or costs awarded hereunder may be paid by the Minister of Finance out of any unappropriated moneys in the Consolidated Revenue Fund of Canada.

(4) Provided that no employe on the Canadian Government Railways, who is an employe within the meaning of the Intercolonial and Prince Edward Island Railways Employes' Provident Fund Act, shall be entitled to compensation under this act for or on account of any injury for which an allowance is provided under the provisions of the said Provident Fund Act, unless such employe has, prior to the date of the injury for which compensation is sought, given notice in writing to the General Manager of the said railways under whom he is employed, electing to accept the compensation under this act instead of such allowance, and no person who has so elected shall be entitled to any such allowance; and provided further, that no dependent of any such employe who is killed shall be entitled to any compensation under this act unless such employe has made election as aforesaid.

2. The Governor in council may make regulations as to the title of the defendant and the effecting of service of process in proceedings under this act.

Contract System for Ballasting Track Disapproved by Engineers.

That track ballasting by contract is inadvisable, especially on lines under operation, is the conclusion arrived at by the committee on ballast and presented with its report at the American Railway Engineering Association's recent annual meeting.

Enquiry was made of more than 100 railways. The contract system was favored by 9 out of 18 which have employed this method on new construction, and by 2 out of 6 which have employed it on lines under operation. Of 86 and 87 which have not used the method under these two conditions, only 13 and 8 respectively were in favor of trying it.

Two advantages are assigned to the contract system: 1, flexibility of supply and control of labor owing to freedom in fixing rates of pay; 2, possibility of a low cost where lack of proper equipment would make the work expensive if done by company forces. Disadvantages comprise loss of control over the work; less thoroughness even under close inspection; possible increase in ultimate cost and disputes over the work. On operated lines there are the additional advantages of difficulty of ensuring proper maintenance of surface, less complete co-ordination between the constructing and operating forces, some added danger due to loss of direct control, greater interruptions to traffic and claims for extras on account of interruptions to the work.

According to the report, those who advocate the contract system do so largely as an emergency measure, because of the greater flexibility of a contractor's organization in changing the rates of pay and so securing labor in time of stress. The committee considers that the matter is best summed up in the following remark that was made by one of the engineers favorable to the system: "My experience is that contract ballasting is to a large extent a necessary evil."

Canadian Pacific Railway's Honor Roll 34.

Beaton, John R.	Brakeman	Medicine Hat	Wounded
Bernard, Austin	Stationary fireman	Regina	Killed in action
Chagnon, Jack	Trainman	Winnipeg	Gas poisoning
Franklin, Vivian	Sheeter	Winnipeg	Wounded
Gardiner, Edward May	Dump foreman	Savona	Wounded
Hand, Albert	Collector	Winnipeg Terminals	Wounded
Hanna, John	Oiler	Montreal	Wounded
Hart, John Edward	Checker	Winnipeg	Wounded
Haskins, Walter S.	Call boy	Chapleau	Killed in action
Haywood, John Robert	Humpmaster	Fort William	Killed in action
Hulme, Cyril	Apprentice	Ogden Shops	Died of wounds
Jackson, Fred	Apprentice	Winnipeg Shops	Wounded
Jefferson, Wm.	Checker	Regina	Wounded
King, Wm. Stuart	Freight solocitor	Winnipeg	Wounded
Laird, Thomas	Car repairer	Winnipeg	Wounded
Larman, William Arthur	Locomotive fireman	Kenora	Wounded
Leitch, John Franklin	Yardman	Winnipeg	Wounded
Leonard, George	Examiner	Vancouver	Killed in action
Linow, Nicholas	Deckhand	B.C. Lake Steamers	Wounded
Livingston, David A.	Assistant engineer	Golden South	Wounded
McDonald, George	Locomotive fireman	Winnipeg	Gas poisoning
McDonnell, Robt. Craig	Clerk	Fort William	Wounded
McGregor, Norman Donald	Conductor	Moose Jaw	Wounded
McLeod, Robt. Kenneth	Locomotive fireman	Moose Jaw	Wounded
McMorland, Andrew	Yard foreman	Winnipeg	Wounded
McTague, Robert M.	Asst. extra gang foreman	Algoma District	Wounded
Mason, Charles P.	Saw filer	Winnipeg	Wounded
Mayo, Guy Sherwin	Sergeant	Moose Jaw	Wounded
Mersereaux, Lorne A.	Clerk	McAdam Junction	Wounded
Mulhearn, Wm. Edward	Pipe fitter	Winnipeg	Killed in action
Neale, Arnold Selwyn	Section foreman	Markinch	Wounded
Nelson, Thos. Wm.	Trainman	Edmonton	Wounded
Nottman, James Dixon	Waiter	Montreal	Wounded
Packham, Benjamin P.	Engineer	Sutherland	Wounded
Patterson, John S.	Trainman	Winnipeg	Gas poisoning
Pelletier, Henri	Foreman	Angus	Gassed
Pennington, George	Clerk	Saskatoon	Wounded
Philip, John R. D.	Draftsman	Kamloops	Killed in action
Relph, William C.	Freight carpenter	North Bay	Wounded
Renwick, Herbert A.	Clerk	Calgary	Wounded
Rewse, B. W. S.	Resident engineer	Weyburn West	Killed in action
Ridley, Stanley	Stower	Moose Jaw	Killed in action
Robbins, Herbert Wm.	Car cleaner	Strathcona	Wounded
Robertson, John	Trucker	Revelstoke	Wounded
Robison, Stephen F.	Instrumentman	Calgary	Presumed dead.
Ross, Harold	Clerk	Toronto	Gassed
Sampson, Thos. H.	Apprentice	Angus	Wounded
Seright, Samuel	Machinist's app'tice	East Calgary	Gassed
Skelton, Daniel A.	Laborer	Angus	Wounded
Spick, Arthur	Car repairer	Emerson	Killed in action
Stacey, Austin R.	Clerk	Weyburn	Wounded
Starkey, Edward	Machinist	Ogden Shops	Killed in action
Stewart, Alexander A.	Clerk	Montreal	Wounded
Sutherland, Wm. E.	Accountant	Winnipeg	Wounded
Tattersall, Thomas H.	Waiter	Winnipeg	Wounded
Thomas, John R.	Clerk	Angus	Gas poisoning
Thorne, Wm. Benner	Clerk	Winnipeg	Killed in action
Tremblay, Ernest B.	Trainman	Schreiber	Wounded
Trupp, James E. R.	Clerk	Hardisty	Wounded
Tuff, John Arthur	Conductor	Bredenbury	Wounded
Turnbull, A.	Steam fitter	London	Concussion
Ward, Arnold	Porter	Calgary	Wounded

Shown on Honor Lists to May 1: Killed 620; Wounded 1,452; Total 2,027.

fore entering train."

In connection with this, it was suggested that assistant superintendents or trainmasters be instructed to see all passenger conductors, advising them how anxious the railways are to carry out the provisions of the notice without any friction or trouble with passengers. It was pointed out that on one road where an effort was made to enforce the rule, the conductors, when finding that passengers were resolved not to purchase tickets at the station, requested them to stand aside and did not allow them to enter the train until all passengers with tickets had entrained. This had the effect in some cases of passengers going back for tickets and had an educational value, because, very often, they missed getting comfortable seats, people with tickets having the first choice.

The following circular was issued to trainmen, ticket agents and other employes concerned:—"It is desirable that increased efforts be made by railway employes to have passengers purchase tickets before arrival of trains for which ticket offices are open, and for this purpose the following instructions will take effect, commencing May 15.

"In addition to having ticket offices open as regulations require, and as frequently as their observations indicate to be necessary, agents will announce in a distinct and sufficiently loud voice, the following:—'Please purchase your tickets at office and have them ready to present when entering train.' At the larger stations where station masters or station police are employed, they, instead of the agent, will make the announcement.

"Conductors and other employes of trains whose usual duty is to receive the passengers, while standing in their usual positions on station platform, will courteously request passengers to present their tickets before they attempt to enter train. If passengers do not present tickets, courteously request them to procure them at the ticket office, and to enable them to do so, train is to be held a reasonable time, if necessary. All vestibule doors and traps, except those used for receiving and discharging passengers, must be kept closed while train remains at stations. When two or more cars in train are open for use by passengers, two or more vestibule doors must be open for the convenience of passengers. If, after the foregoing efforts are made, a passenger should insist upon boarding a train, indicating a willingness to pay fare on board, no physical obstruction should be offered. If passengers state that they could not procure tickets at stations where ticket offices should be open, conductors will report to proper officer."

The Toronto Terminal Transportation Association is now known as the Toronto sub-committee of the Canadian Railway War Board, reporting to the Ontario sub-committee, which in turn reports to the administrative committee. This has been done to co-ordinate the Toronto association's activities with those of the Canadian Railway War Board's various committees. No arrangements or regulations decided upon by the Toronto sub-committee are effective until approved by the administrative committee.

War Society Shipments.—The question having been presented to the board as to the continuation of practice of free handling of goods on account of various patriotic, red cross and relief societies connected with war work, it is recommended to members that they continue the free handling of such shipments. The organizations in connection with whom the board has been addressed are as follows: France-Amerique Society, St. John Ambulance Association, Serbian Relief Fund Committee, Secours Nationale, Belgian Relief Fund, Red Cross Societies.

Penalties for Non-Registration of Persons Over 16.

The order in council passed April 22 providing for the registration of all males and females in Canada over 16 years of age, on a day to be fixed by proclamation, provides various penalties for those who do not comply, among others the following:—

"Sec. 34. (e) he shall, for so long as he remains unregistered, forfeit his right and be disentitled to purchase, receive or have in his possession any railway, steamboat or other public conveyance ticket, other than a tramcar or street car ticket, or to travel by any railway, steamboat or other public conveyance, except a tramcar or street car, unless for the purpose of any prosecution or execution of sentence under these regulations."

It is further provided as follows:—

"35. Any person who sells, gives or delivers any railway, steamboat or other public conveyance ticket, other than a tramcar or street car ticket, to an unregistered person after the time when the latter person should have registered, knowing such person to be unregistered; and any person in charge of any railway, steamboat or other public conveyance, except a tramcar or street car, who permits any unregistered person to travel thereby after the time when he should have registered, knowing such person to be unregistered, shall be guilty of an offence, and liable to a fine not exceeding $100."

"37. Every person who shall have registered shall at all times thereafter carry upon his person his registration certificate, and shall produce it for inspection upon reasonable demand to any peace officer, police officer or constable; who may in particular, without limiting the generality of this section, require any person present or attending at any public assembly, place of public resort or entertainment, ticket or telegraph office, or post office, or being in or upon any car, train or steamboat, to produce his registration certificate upon that occasion; and, if any person so required shall, without reasonable excuse, refuse, neglect, or fail to produce his registration certificate, he shall incur a penalty of $20, and may, if a male person, be taken immediately before a justice of the peace to be dealt with according to law."

Taxes on Parlor Car and Sleeping Car Fares.—The Special War Revenue Act, 1915, provided in sec. 9, subsec. 3, that every purchaser of a sleeping car berth, or parlor car seat, should, in addition to the regular charge, pay a tax of 10c for each berth bought and 5c for each seat bought. An amending act passed at the Dominion Parliament's recent session has raised the tax from 5c to 10c for each seat in a sleeping or parlor car, and to 10% of the price of each sleeping car berth, the latter tax to be not less than 25c in any case.

The Canadian Industrial Reconstruction Association has been organized, to maintain industrial stability, and to secure wise consideration and prudent treatment of problems of reconstruction. Lord Shaughnessy, President, C.P.R., is Honorary President of the association, and H. G. Kelley, President, G.T.R., and E. W. Beatty, K.C., Vice President and General Counsel, C.P.R., are members of the Montreal executive committee.

Canadian Pacific Railway Construction, Betterments, Etc.

Eastern Lines.—It is intended to relay 135 miles of track with new steel rails, to put in 720,000 new tie plates, and 52,000 new rail anchors, and to reballast approximately 400 miles of track. Automatic signals will be installed at Bolton, Ont., and on the main Toronto-Windsor line, between Guelph Jct. and Galt, Ont., and an interlocking plant will be installed at Kempton, Ont. Nine section houses will be built; the locomotive house at Sherbrooke, Que., will be extended; the locomotive house and machine shop at Toronto will be extended; the coaling plant at Bay Shore, St. John, N.B., will be extended, and coaling plants will be built at Mattawamkeag and Fredericton Jct., Sherbrooke and Sortin, Que., and Renfrew and Parkdale, Ont. Additional tracks will be laid at Washburn Jct., Me.; West St. John, St. Martins Jct., N.B.; Shawinigan Falls, Que.; Port Hope, John St., Toronto, and Windsor, Ont. It is estimated that $1,100,000 will be spent on tie renewals, $335,000 in improving bridges and culverts, and $240,000 upon new sidings.

Chateau Frontenac.—The company is carrying out an extensive plan of alterations and improvements at the Chateau Frontenac, Que., including the renovation and redecoration of the entire interior, with the exception of the wing added recently. Every bedroom is being renewed, and 48 additional bathrooms are being added. All plumbing and heating pipes are being renewed, and new installations of electric wiring and lighting and telephone equipment are being made. Two passenger and two freight elevators have been replaced by new and improved elevators, and an additional elevator for freight purposes has been added in the new wing. The work is being done in sections, so as to avoid inconvenience to guests, and is under the charge of D. H. Mapes, Engineer of Buildings. (April, pg. 149.)

Saskatchewan District.—Tenders are under consideration for altering and enlarging the icehouse at Moose Jaw, Sask.

Alberta District.—Tenders are under consideration for the construction of concrete piers and abutment at the Old Man River bridge near Macleod, Alta.

The Board of Railway Commissioners has directed the company to build a transfer track from near Tudor, on the Bassano-Irricana Branch, to a connection with the Canadian Northern Ry. west of Baintree on the line into Calgary. This will enable coal shipments from the Drumheller field to be distributed over the C.P.R. lines from Baintree, instead of from Calgary as at present.

British Columbia District.—The Vancouver City Council has authorized the company to erect an addition to the passenger car shops at the foot of Drake St., to cost $11,500.

The Dominion Government has advised the Vancouver City Council that permission was never granted for the erection by the C.P.R. of the bridge across the Kitsilano River, which was originally built in 1886, and after being disused for some years, was rebuilt by the company as a part of the Vancouver & Lulu Island Ry., which was subsequently leased to the British Columbia Electric Ry. The bridge question arises in connection with the removal of the span to provide for the passing through of vessels built at the Coughlan yards. The bridge is a fixed span, which has to be removed to enable vessels to pass through.

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

Alberta & Great Waterways Ry.—Owing to the rapid break up of the ice on the Christina River, at the end of April, the company's temporary trestle bridge at Conklin was swept away. The train which was between Conklin and the end of track was held up until the bridge was restored. (May, pg. 186.)

Capilano Timber Co.—It was expected that the first six miles of the company's logging railway from North Vancouver into the hill country towards Capilano, would be completed and ready for operation May 30. (Mar., pg. 99.)

Edmonton, Dunvegan & British Columbia Ry.—The Edmonton, Alta., City Council has authorized the company to build a platform for the accommodation of its traffic at 121st St. and Nelson Ave., and has authorized the utilities committee to supervise the construction of the necessary spur line there. This is a temporary arrangement for a year. (May, pg. 186.)

Esquimalt & Nanaimo Ry.—The Board of Railway Commissioners has given judgment in connection with the question of general traffic rights over the Johnson St. bridge, Victoria, B.C. An order in council passed in 1887 directed the company to provide general highway facilities for the public over the bridge, but nothing was done, as there was no imperative necessity to provide for the traffic. Owing, however, to the development of the Songhees Reserve, and surrounding district, the city desires to have traffic facilities provided in connection with the company's proposed replacement of the present structure. The judgment states that all the documents and exhibits refer to plans for a bridge for vehicular and pedestrian traffic, and that provision has only been made for pedestrian traffic, which must be maintained over any new bridge. As to vehicular traffic, there being a conflict between the company and the city as to the plans, the board felt that application should be made to the Public Works Department, the board apparently not having jurisdiction to order the provision of the accommodation sought. The city council has since memorialized the Public Works Department, asking that it will compel the E. & N.R. to carry out the obligation as to the making of provision of facilities for vehicular and passenger traffic, imposed by the order of 1887.

Grand Lake Ry. & Transportation Co. The Quebec Legislature has granted a subsidy of $5,000 a mile for 10 miles of railway from any point on the Bell River to Grand Lake. This subsidy is to be paid to the company by the Minister of Lands and Forests, by deducting for not more than 10 years, 50% of the duties due to the government for the right to cut, on the timber cut by the company in the region to be crossed by the railway. (June, 1917, pg. 225.)

Grand Trunk Pacific Ry.—Under an agreement with the Province of British Columbia, the company undertook to provide highway accommodation on its railway bridge across the Fraser River at Fort George, and to maintain the provincial portion in good order. The cost of the highway portion of the bridge, according to the company, was $371,000, towards which the province paid $150,000 on account on June 12, 1916. Since then negotiations have been in progress as to the payment of the balance. An agreement was reached under which the province was to pay a further sum of $200,000 in full settlement of all claims. The British Columbia Legislature has authorized the payment of this amount in full settlement of all claims upon the signing of an agreement defining the rights of the province in and to the bridge.

It is reported from Prince Rupert that arrangements are in progress for starting work on enlarged terminal buildings there, including a new station, locomotive house, machine shops and a wharf. (May, pg. 186.)

Hudson Bay Ry.—Senator Casgrain suggested in the Senate, on May 15, that all construction in connection with this project be discontinued during the war at any rate, and expressed his continued opposition to the entire project, concluding with the statement that some members of the house, if they lived long enough, would see that he had reasons for opposing the enterprise. Sir James Lougheed, in reply, said he believed that when the Hudson Bay route came to be operated, it would be demonstrated to be one of the most successful of Canada's transportation systems. No construction on the road itself had been done during the year. A bridge had been completed at the second crossing of the Nelson River, but no additional track had been laid for over a year. There had been completed 332 miles of the line, and track had yet to be laid on 92 miles. Of the completed mileage, trains had been operated on 214 miles, a daily train service being run on part of the line. The part of the line operated had been self sustaining. The line was being operated by the contractors and the government. When the line was finally completed it would, he believed, be found of inestimable advantage to the people of the country through which it runs. The last serious transportation of materials to Nelson occurred in 1914. In that summer 36 voyages were successfully made and many tons of freight carried by ordinary tramp steamers without hazard or difficulty. With specially constructed ships the season, it was believed, could be considerably prolonged. During six weeks of this period engineers and navigators reported that the navigation to the bay was safer than the navigation of the St. Lawrence to Quebec and during the remaining six weeks the navigation of Hudson Strait was as safe as the route to Quebec.

The Minister of Railways stated in the House of Commons May 17, that there had been expended upon the Hudson Bay Ry. up to Feb. 28, $20,161,000, of which $13,814,000 was on account of the railway and $6,347,000 on account of the harbor and terminals at Port Nelson, Man. The latter sum includes the expenditures incurred in the purchase of steamships which are now in general service throughout the year, as well as the valuable plant at Port Nelson. The north and south arms of the bridge across the Nelson River at Kettle Rapids were connected in Dec., 1917, so that track laying could be continued this season. Grading between Kettle Rapids and Port Nelson has been fully completed, and train filling and ballasting had been gone on with on the line up to Kettle Rapids. At Port Nelson a restricted programme was followed, in which materials and supplies on hand were utilized. Owing to the general shortage of ocean tonnage, no further shipments of supplies were made to Hudson Bay this season. The island cribwork has been extended and dredging has been continued.

Intercolonial Ry.—We are officially advised in respect to a press report that it is proposed to expend about $100,000 on improvements on the railway yards at Levis, Que., that the only work at present proposed to be done consists, in addition to some slight track changes in the Laurier Ave. yard there, of some alterations to the interior of the old station building, in order to improve the facilities for handling passenger business. (May, pg. 186.)

Kettle Valley Ry.—Arrangements for starting work on the construction of the branch from near Princeton, B.C., to the Canadian Copper Co.'s mines at Copper Mountain are reported to have been completed by W. P. Tierney, contractor, and preliminary work has been started. The branch will be 15 miles long, and the work will include several open cuts of considerable height, one big fill, as well as a number of small ones, 27 lengths of trestle work, and the boring of four tunnels of considerable length. It is expected to have the branch completed within a year. (May, pg. 186.)

The Magdalene River Ry. was originally projected in 1907, when the Quebec Legislature incorporated the company to build a railway from near Cap a la Ours to the Little Falls of the Magdalene River, and thence to a connection with the Atlantic, Quebec & Western Ry.'s projected inland extension. In 1916 the legislature passed an act confirming the original charter powers. The legislature last session authorized the company to build a line from the prevailing authorized line to the Great Falls on the Magdalene River, and by the valley of the Dartmouth River to deep water in Gaspe Basin, and to connect there with the Atlantic, Quebec & Western Ry. This line of railway need not be completed until 1929, and in connection with its completion, is authorized to operate its line on all wharves, piers or other constructions to deep water in Gaspe Basin, and to build and maintain, if necessary, its own wharves, piers and deep water facilities. The provisional directors were: C. W. Mullin, S. H. Boardman, Bangor, Me.; T. B. Launing, Boston, Mass.; J. O. Drouin, E. Brassard, Montreal. The notices in connection with the recent application were signed by F. Murphy, New Carlisle, Que., as Secretary of the company. (Jan., p. 12.)

National Transcontinental Ry.—Tenders were received to May 29 for the construction of concrete culverts, stream tunnels and concrete trestles on the Fort William and Raith subdivisions, including 3 concrete trestles, two 10 x 10 ft. stream tunnels, 4 reinforced culverts, the longest being 12 ft., and one double 16 ft. culvert. (Jan., pg. 12.)

The Minister of Railways stated in the House of Commons, May 17, that it is impossible for the government to go into the question of widening the gauge of the P.E.I.R. while the war continues. It is not merely a question of widening the gauge, but it practically means the entire reconstruction of the railway and the provision of new equipment at an expenditure of at least $2,000,000, which cannot be entertained at present.

The total amount expended upon the car ferry works is $2,875,000. The department asked a further appropriation of $65,000 to cover certain minor additions which had been deferred until actual operating conditions could be observed. The main contracts for the construction

of terminals were completed during 1917, and the car ferry steamship Prince Edward Island was placed on the route in the beginning of Oct., 1917. All freight offering since that date has been handled satisfactorily by the new route.

Pacific Great Eastern Ry.—The contract for the erection of the new bridge over the Capilano River has been let to Robertson & Partners, Limited, who expect it completed by July 1. The line is being operated to Ambleside, and it is exepcted to reopen traffic to Whytecliffe, 13 miles, soon after the Capilano bridge is completed.

In connection with the line from Squamish, which is in operation to Clinton, 167.7 miles, it has been announced by the British Columbia Government that it is not proposed to do anything more at present than to complete the line to Soda Creek, where there is a navigable stretch of the Fraser River to Fort George. Grading has been completed to Soda Creek, but there are a number of small bridges to be erected. Rails have been laid for a few miles beyond Clinton, and it is expected that deliveries of the 20,000 tons of steel rails on order in the U.S., will be made at an early date. It is hoped to complete this work by the end of the year, and to have the line in operation with a river connection to Fort George, in the spring of 1919. (May, pg. 187.)

Prince Edward Island Ry.—C. A. Hayes, General Manager Canadian Government Ry.'s Eastern Lines, concluded a three day inspection of the line recently. Before leaving the Island he met the Charlottetown Board of Trade and discussed the commercial aspects of the suggested standardization of the gauge of the railway. He stated that the practical side of the matter would have to be fully considered before any definite decision was reached. (May, pg. 187.)

Quebec & Atlantic Ry.—The Quebec Legislature has incorporated a company with this title to build a railway from Quebec to Chicoutimi, thence to Cape St. Charles on the Labrador coast, together with branch lines north and south; and also to secure a connection with the National Transcontinental Ry. The company is empowered to carry on a lumbering business within the counties of Quebec, Montmorency, Charlevoix, Saguenay, Chicoutimi, Lake St. John, and in the territory known as New Quebec; it may also operate sawmills north of the St. Lawrence River, and eastward of the St. Charles River; carry on farming and mining operations, own and operate steel plants, construct canals, build and operate steam and other vessels, wharves, docks, etc., and subscribe for stock in such companies. The authorized capital stock is $1,000,000, in ordinary and preferred stock, as may be deemed advisable; the company may issue bonds on its railway undertaking to the extent of $60,000 a mile, and such securities as may be necessary for its other undertakings. The company's office is to be located in Quebec. The provisional directors are: H. Lavigueur, N. Drouin, A. Picard, L. H. Gaudry and P. J. Cote, Quebec.

Quebec Bridge.—In the Dominion estimates for the year, $700,000 is provided on construction account. In the discussion in the Commons it was stated that, although the Canadian Government Railways were operating trains over the bridge, it had not been taken over from the contractors—the St. Lawrence Bridge Co. The Minister of Railways stated that none of the other railways converging upon Quebec had made applications for running rights over the bridge. It was not expected that such rights would be applied for until after the war. (Feb., pg. 57.)

Quebec & Saguenay Ry.—It was reported in Montreal, May 6, that track had been laid to Baie St. Paul, Que., and that it was expected to have track laid to Murray Bay, 56 miles, by Aug. 30.

River Rouge Ry.—The Quebec Legislature has incorporated a company with this title to build a railway from Amherst Tp., Labelle county, southerly through Amherst, Ponsonby, Little Nation, Arundel, Harrington and Grenville townships to the Ottawa River between Montebello and Grenville. The authorized capital stock is $300,000, and the office is to be in Montreal. The provisional directors are: A. Orsati, J. R. Meadowcroft, A. H. Ross, D. E. Parker, A. G. Spencer, Montreal. (Mar., pg. 98.)

Roberval-Saguenay Ry.—A press report states that the company is about to invite tenders for the building of a small extension to its lines. J. F. Grenon, Chicoutimi, Que., is Chief Engineer.

Roberval-Saguenay Ry.—The Quebec Legislature has authorized the granting of a subsidy of 3,000 acres of land a mile, not convertible into cash, for the construction of the following lines of railway by the Ha Ha Bay Ry., which is now merged in the R.-S. Ry.—An extension of the main line from Mathias Jct. to the wharf at Bagotville, 0.44 of a mile; a branch from La Brosse Jct. to Chicoutimi Basin, 3½ miles; a branch from Laterriere to Lake Kenogami, 12 miles; a branch from Laterriere to Riviere du Moulin, half a mile ;a branch from St. Alexis, 1½ miles; and an extension to deep water at Port Alfred, half a mile. (Jan., pg. 12.)

Toronto, Hamilton & Buffalo Ry.—The proposal to apply to the Dominion Parliament at the recent session for authority to extend the line from Hamilton to Toronto was abandoned. (Mar., pg. 98.)

Canadian Northern Railway Construction, Betterments, Etc.

A press report states that a contract has been let to Jos. Gosselin, Quebec, for the erection of the substructure of a bridge across the St. Maurice River, at Grand Mere, Que. The superstructure will be erected by the Dominion Bridge Co., Montreal. The estimated cost of the entire work is $170,000.

Satisfactory progress is reported to have been made with the company's terminal facilities at Leaside, Toronto. The buildings under construction include a 10-stall locomotive house with turntable, water tank and coaling station, locomotive repair shop, freight and passenger car repair shops, planing mill, transfer table, icehouse, and general offices.

M. H. MacLeod, General Manager, Western Lines, was in Port Arthur, May 3, in consultation with the city council in connection with trackage matters at the Port Arthur Pulp & Paper Co.'s plant.

The Fort William, Ont., City Council, on May 14, authorized the company to build a spur line across Cameron St. to reach the freight sheds proposed to be erected near the new station building.

A press report states that six work trains will be put on during the summer between Port Arthur and Rainy River, Ont.; that a considerable mileage will be relaid with heavier rails, and that large quantities of ballast will be spread. The same report states that a new brick station will be built at Rainy River.

A press report states that during this year about $2,000,000 will be expended upon betterments of the company's lines west of Winnipeg, and that the major part of this work will be done on the lines in Saskatchewan and Alberta. The line from Battleford to Edmonton, 248 miles, and from Edmonton to Edson (a station on one of the sections of the Grand Trunk Pacific Ry., linked up when track was taken from these two companies' lines for use in France), will be ballasted. There will be considerable sums expended upon station buildings, works of water supply, building section houses, the laying down of passing tracks, and increasing yard and siding accommodation all along the lines. New 80-lb. rails will be laid from Manson to Hanna, 42 miles, and 25 miles of second track work will be built from Drumheller, easterly, to provide for the increasing traffic from the collieries there. In the vicinity of Edmonton, work is reported to have been restarted on the filling in of the trestle at the west end of the bridge across the Saskatchewan River at Fort Saskatchewan, and it is reported filling in on all the trestlework on the line right up to the Edmonton city limits will be completed this season.

The Medicine Hat, Alta., City Council has been advised of the passing of an order in council authorizing the company to proceed with the construction of the Hanna-Medicine Hat branch. Hanna is situated at mileage 262 on the line from Saskatoon to Calgary, 52 miles west of Drumheller, where the line south from Vegreville, runs in, and projected branch runs southerly and easterly. A press report states that if rails can be obtained, track will be laid to the South Saskatchewan River this year. (May, pg. 196.)

Tenders were received to May 27 for the excavation of a reservoir at McCreary, mileage 142.1, Dauphin subdivision, Man.

Nelson & Fort Sheppard Ry. Land Grant.—The British Columbia Legislature has passed an act defining the lands granted as a subsidy in aid of the building of this railway. Under the terms of the N. & F.S. Ry. Subsidy Act of 1892, provision was made for the granting of lands in the West Kootenay electoral district as a subsidy in aid of construction, and on Mar. 8, 1895, a crown grant for Township 9A, Kootenay District, with the exception of certain areas specifically named and "all other lands which, prior to Mar. 23, 1893, were alienated by the Crown or held in presumption, uncompleted sale or lease, or as mineral claims." Doubts have arisen as to certain properties, and both the Crown and the company have erroneously assumed ownership of certain properties in the district. A map has been prepared of all the land within the grant, on which are shown all the areas claimed by the company under the grant of 1895, and of the lands excepted under the grant. Any claims to possession of any of these lands founded on the strength of a grant or presumtpion prior to 1893, are to be made within three months, and will be pronounced upon by a commissioner. After the expiration of three months all claims for such lands will be barred.

The Saskatchewan Co-operative Elevator Co. has awarded a contract to the Fegles-Bellows Engineering Co., Fort William, Ont., for the construction of a hospital elevator at Port Arthur, Ont., to be completed by the autumn. The working house will have storage capacity for about 200,000 bush., and the storage annex will have capacity for 450,000 bush. It will be of reinforced concrete construction, with electrically driven equipment.

Railway Rolling Stock Orders and Deliveries.

The G.T.R. has received 240 box cars, 80,000 lb. capacity, from American Car & Foundry Co.

The Bengal & Nagpur Ry., India, has ordered 160 cars from National Steel Car Co., Hamilton, Ont.

Canadian Government Railways have received 5 mikado locomotives from Canadian Locomotive Co.

The C.P.R. has ordered 136 box cars and 10 mikado type locomotives, to be built at its Angus shops, Montreal, and 12 vans at its Winnipeg shops.

The Canadian Northern Ry. has received the balance of the 500 box cars ordered by the Dominion Government last year from the National Steel Car Co.

The C.P.R., between Apr. 15 and May 15, received 2 steel baggage and express cars, 101 freight refrigerator cars, and 2 decapod locomotives, from its Angus shops, Montreal.

The Argentine Government is reported to be in the market for $5,000,000 worth of railway material, and it is stated that the purchases will be made in Great Britain and the U.S.

The Timiskaming & Northern Ontario Ry. has ordered a steel snow plough from Canadian Car & Foundry Co. We are advised that it will be similar to those built recently by the company for the C.P.R. and Canadian Government Railways.

The Dominion Government has, we are officially advised, ordered 15 additional Pacific type passenger locomotives, and 20 additional switching locomotives, from Montreal Locomotive Works, the prices being arranged on the same basis as those already on order, particulars of which were given in our May issue. Delivery is to be made not later than Dec. 31.

United States press reports stated recently that the Canadian Car & Foundry Co. was in line for a substantial part of the large order for cars to be placed by the U.S. Government. It has since been stated that the reason that the order did not materialize, was that U.S. car building companies had made strong objection to any part of the order being placed outside the U.S.

The locomotive building companies which have been given orders for locomotives recently by the Dominion Government, for the Canadian Government Railways, Canadian Northern Ry. and Grand Trunk Ry., are experiencing some difficulty in getting sufficient plates rolled in the United States, owing to the U.S. Government giving priority to shipbuilding requirements. The Dominion Government has taken the matter up with the U.S. Government and it is expected that it will be possible to obtain sufficient plates to enable the locomotives to be built within the contract time.

Jacques Bureau, M.P., stated in the House of Commons recently, in the discussion in connection with railway rolling stock orders, that he had a letter from a person in Three Rivers, Que., who had had considerable experience in car building, and who was prepared to deliver 10 freight cars a day, beginning in five months from date of order, provided the order was of sufficient size to justify him in starting manufacturing. We are informed that the person referred to is Mr. Ditchfield of the Mechanical Engineering Co., Three Rivers, and who was at one time with the Canadian Car & Foundry Co.

The Canadian Government Railways' ballast cars, 450 of which have been ordered from the Hart-Otis Car Co., as mentioned in our last issue, will be designed to carry 100,000 lb. with a 10% overload. They will be equipped with Simplex couplers, 5 by 7 in. shank; Yost friction draft gear with M.C.B. springs; McCord journal boxes and M.C.B. journal bearings, 5½ by 10 in.; Simplex truck bolsters, and cast iron wheels, 33 in. diar. They will be built of wood, and 250 will be with side dump only, and the balance with side and center dump. Following are the chief dimensions:—

Length over end sills	36 ft. 8 in.
Width over side sills	8 ft. 9 in.
Length inside as hopper car	20 ft. 10 in.
Length inside as gondola car	34 ft. 8 in.
Width inside	8 ft. 8 in.
Width over all	10 ft. 3¾ in.
Width at top	9 ft. 9⅞ in.
Height from rail to top of floor	4 ft. 4¼ in.
Height from rail to top of car	8 ft. 4¼ in.
Height inside	4 ft.
Truck centers	26 ft. 8 in.
Wheel base of truck	5 ft. 6 in.
Total wheel base of car	32 ft. 2 in.
Length of hopper door opening	16 ft. 8½ in.
Width of hopper door opening	2 ft. 1 in.

Following are chief details of the 25 general service, and 25 water service, tank cars, which the Dominion Government has ordered from Pressed Steel Car Co., as mentioned in our last issue:—

Length over striking plates	36 ft. 6 in.
Center to center of trucks	26 ft.
Width over running boards	10 ft. 1 in.
Width over all	10 ft. 2¼ in.
Height from rail to center of tank	7 ft. 6 in.
Height from rail to bottom of center sills	26 ft. 6 in.
Height from rail to center of draft gear	2 ft. 10½ in.
Length over tank heads	33 ft. 6 in.
Diam. of tank inside at heads	7 ft. 2 in.
Length over running boards	32 ft. 6 in.
Height from rail to top of running boards	3 ft. 11⅛ in.
Height from rail to top of brake mast	7 ft. 9¼ in.
Truck wheel base	5 ft. 6 in.
Journals	5½ by 10 in.
Tank capacity	8,000 imp. galls.
Height from rail to highest point on dome (general service)	13 ft. 3¼ in.
Diam. of dome (general service)	5 ft.
Height from rail to highest point on manhole (water service)	12 ft. 4½ in.
Diam. of manhole (water service)	1 ft. 7 in.
Air brakes	Westinghouse K.C. 1012 with J.M. expander rings
Couplers	M.C.B. cast steel, type D
Body center plates	cast steel
Bolsters	Simplex
Brake beams	M.C.B.2
Brake shoes	Dominion steel back
Journal boxes	McCord malleable
Journal wedges	cast steel
Wheels	M.C.B. grey iron
Journal bearings	M.C.B.

The Timiskaming & Northern Ontario Ry. snow plough, which has been ordered from the Canadian Car & Foundry Co., will be fitted with spring draft gear and Simplex couplers. The front end will have a draw bar casting designed to receive M.C.B. knuckle; the wings are to be flared at top and bottom for elevating the snow, and will be operated by air, and the apron at front will be arranged for operation by hand as well as by air. The leading trucks, which will be of the arch bar design, will carry wheels 28 in. diar., McCord journal boxes, 5 x 9 in. M.C.B. axles, brasses and wedges, Simplex bolsters with rollers and friction surfaces to take care of lateral movement when going round curves at high speed, and ice cutters operated by air and springs. The rear truck will have cast iron wheels 33 in. diar., Simplex brake beams and 4¼ x 8 in. axles. The chief dimensions will be as follows:—

Length over all	32 ft. 1 9/16 in.
Width over side sills	8 ft. 9⅛ in.
Height rail to top of eaves angle	11 ft. 3 in.
Height rail to top of cupola, about	14 ft. 10 in.
Width over wings extended	16 ft.
Extreme width, cupola	9 ft. 8½ in.
Extreme length, cupola	4 ft. 11¼ in.
Truck centers	18 ft.
Wheel base, leader truck	4 ft. 2 in.
Wheel base, rear truck	5 ft. 3 in.
Weight, approximate	60,700 lb.

Railway Finance, Meetings, Etc.

New Brunswick & Prince Edward Island Ry.—The Minister of Railways stated in the House of Commons, May 2, that this railway, running between Sackville and Cape Tormentine, N.B., was acquired by the Dominion Government as and from Aug. 1, 1914, the purchase price being $270,000. There had been paid $180,000 on account of principal and $18,552.32 on account of interest. The reason for the non payment of the balance of the purchase money was the inability of the company, in view of certain outstanding bonds, to give a clear title to the property.

Maritime Coal, Ry. & Power Co.—Following are the officers and directors for this year:—President, W. Hanson; Vice President, A. E. Dyment; other directors, Senator Mitchell, A. MacLaurin, D. W. Campbell, E. Hanson, W. L. Magden, and W. H. Tothe; Secretary, R. Wilson, Jr.

Nakusp & Slocan Ry.—Under the terms of the Railway Aid Act of 1893, and Nakusp & Slocan Ry. Act of 1894, the Province of British Columbia guaranteed bonds of this railway for £131,400 at 4%, the bond issue falling due July 1, 1918. The legislature has authorized the payment of the principal of the bonds out of th econsolidated revenue fund of the province, in the event of the company failing to pay it.

New York Central Lines.—There was deposited with the Secretary of State at Ottawa, April 6, an agreement between the Guaranty Trust Co., New York, and the New York Central Rd., the Michigan Central Rd., the Cleveland, Cincinnati, Chicago & St. Louis Rd., the Pittsburg & Lake Erie Rd., and the Toledo & Ohio Central Rd., under the provisions of the New York Central Lines Trust of 1913.

Timiskaming & Northern Ontario Ry. Passenger receipts for March, $51,403.97; freight receipts, $214,884.14; total revenue, $266,288.11, against $47,554.71 passenger receipts; $127,641.23 freight receipts; $175,195.94 total revenue for Mar., 1917. Aggregate total revenue for three months ended Mar. 31, $575,182.39, against $459,515.98 for same period 1917.

United States & Canada Ry.—Following are the officers and directors for this year:—President, H. G. Kelley; Vice President, U. E. Gillen; Secretary-Treasurer, F. Scott; other directors: J. E. Dalrymple, W. T. Ardley, J. A. Yates, F. J. Watson, G. E. Britton, W. J. Snarth. This is a G.T.R. subsidiary, owning the line from Massena Springs, N.Y., to the International Boundary at Fort Covington, about 21 miles.

White Pass & Yukon Route.—Earnings for February, $8,256, against $18,441 for Feb., 1917. Aggregate earnings for two months to Feb. 28, $19,161, against $39,207 for same period 1917.

Locomotive Headlight Regulations.—General order 199, passed by the Board of Railway Commissioners July 24, 1917, and published in Canadian Railway and Marine World for Sept., 1917, required each railway company to equip its locomotives used in road service, between sunset and sunrise, with headlights which will enable persons with normal vision, in the cab of a locomotives, under normal weather conditions, to see a dark object the size of a man for 1,000 ft. or more ahead of the locomotive, such headlight to be maintained in good condition. By general order 225, passed April 4, 1918, general order 199 has been amended by substituting 800 ft. for 1,000 ft.

Mainly About Railway People Throughout Canada.

E. W. Williams, Travelling Inspector, G.T.R., London, Ont., returned to duty during May, after an absence through illness.

Ashmore Kennedy, C.P.R. locomotive man, Winnipeg, has been re-elected Assistant Grand Chief of the Brotherhood of Locomotive Engineers for six years.

Hon. J. D. Reid, Minister of Railways and Canals, and Hon. F. B. Carvell, Minister of Public Works, left Ottawa on May 25 for a fishing trip up the Gatineau River.

Lord Shaughnessy, K.C.V.O., has been given the degree of Doctor of Laws by McGill University, Montreal, for his distinguished services to Canada and the Empire.

T. Duff Smith, Fuel Agent, Grand Trunk Pacific Ry., addressed the Canadian Society of Civil Engineers', Manitoba Branch, at Winnipeg, recently, on the subject of coal.

C. N. Monsarrat, M.Can.Soc.C.E., Chairman of Quebec Bridge Commission, has also been appointed Consulting Engineer of the Dominion Government, with office in Ottawa.

W. A. Mather, Assistant General Superintendent, British Columbia District, C.P.R., Vancouver, who has been suffering from neuritis, was reported during May to be improving rapidly.

Sir Edmund B. Osler, President, Dominion Bank, and a director of the C.P.R., has been elected a director of Imperial Oil, Ltd., in place of the late T. H. Smallman, Vice President, London, St. Ry.

Hon. F. Cochrane, M.P., formerly Minister of Railways and Canals, received word, May 23, that his brother, James Cochrane, who farmed at Clarenceville, Que., had been killed in a motor accident near Milton, Vt.

A. McL. Campbell, of the C.P.R. accounting staff at Montreal, was presented with a club bag by his associates, May 15, on leaving to take up his duties as general accountant, Lake Erie & Northern Ry. and Grand River Ry., at Galt, Ont.

Col. F. Firebrace, of Crawley Down, Sussex, Eng., who died recently, was Chairman of the Great Indian Peninsula Ry., and a director of the Grand Trunk Ry. for 22 years. He left an estate of £24,297 gross value.

C. Graham Drinkwater, B.Sc., Vice President, Canadian Fairbanks-Morse Co., Montreal, has been elected by McGill University graduates, as a representative fellow in the applied science faculty, for three years from Sept. 1 next.

J. J. Cunningham, who died at Brantford, Ont., May 19, was formerly in the G.T.R. Freight Department in Montreal, retiring several years ago. He came to Canada in 1872, prior to which he had spent some years in railway service in Ireland.

V. R. Hawthorne, who has latterly been engaged in work for the American Railway Association, has been appointed Secretary of the American Railway Master Mechanics' Association and the Master Car Builders' Association, vice J. W. Taylor, deceased. He was formerly in the Pennsylvania Rd. service.

Howard P. Creighton, who has been appointed Bridge and Building Master, C.P.R., Schreiber Division, Algoma District, Schreiber, Ont., was born at Bristol, Que., Mar. 16, 1888, and entered C.P.R. service in May, 1908, since when he has been, to Apr., 1910, bridge man, Ottawa, Ont.; May, 1910, to Aug., 1912, bridge man, Chapleau, Ont.; Aug., 1912, to May, 1918, bridge foreman, Chapleau, Ont.

Brigadier-General H. N. Ruttan, M.Can. Soc.C.E., of the Canadian Militia, and formerly general officer commanding military district 10, at Winnipeg, has retired from the militia service, and has been granted six months leave with full pay and allowances. He has been connected with the militia since early life, and was for 30 years City Engineer at Winnipeg, retiring a few years ago with a pension.

James Boyd, Assistant Engineer, Hamilton Division, G.T.R., who died at Hamilton, Ont., May 20, aged 41, was born at Airdrie, Scotland. After graduating from Glasgow University, he spent 10 years in North British Ry. service there, and came to Canada in May, 1910, when he entered G.T.R. service as Assistant to Resident Engineer, Middle and Southern Divisions. He was appointed Assistant Engineer, Hamilton Division, Feb., 1913. He was a member of the Engineers Club of Toronto, of the American Railway Association, and also of the 13th Regiment of Hamilton.

Henry K. York, who has been appointed Car Foreman, C.P.R., Alyth, Alta., was born at Victoria Corner, Carleton County, N.B., Mar. 20, 1881, and entered C.P.R. service, Dec. 3, 1903, since when he has been, to June 30, 1904, car repairing, Fort William, Ont.; June 30, 1904, to Feb. 28, 1905, air brake tester, Fort William, Ont.; Feb. 28, 1905, to May 20, 1906, car inspector, Fort William, Ont.; May 20, 1906, to May 1, 1908, Assistant Car Foreman, Fort William, Ont.; May 1, 1908, to June 30, 1910, Car Foreman, Ignace, Ont.; June 30, 1910, to Apr. 27, 1914, Car Foreman, Kenora, Ont.; Apr. 27, 1914, to Nov. 30, 1917, Car Foreman, Transcona, Man.; Nov. 30, 1917, to Mar. 31, 1918, Car Foreman, Swift Current, Sask.

Jos. W. Taylor, Secretary, American Railway Master Mechanics' Association and Master Car Builders' Association, and also Secretary of the Western Railway Club, died suddenly at Chicago, Ill., Apr. 24, from organic heart disease. He was born at Saltsburg, Pa., Mar. 9, 1862, and entered railway service with the Erie Rd. as locomotive fireman. He was subsequently in Westinghouse Air Brake Co.'s service at Chicago, and about 19 years ago he gave up his position to devote his time to the secretarial work of the mechanical associations named. A great deal of credit is due to him for the successful organization of the work of the associations, which has increased in volume and importance each year, with the growth of membership.

J. B. Blair, whose appointment as Superintendent, Farnham Division, Quebec District, C.P.R., Farnham, Que., was announced in our last issue, was born at Whitby, Ont., Nov. 17, 1876, and educated at the Dufferin and Normal Schools, Toronto. He entered railway service in May, 1894, since when he has been, to June, 1914, consecutively in various capacities in train service, with the New York, Ontario & Western Ry., Norwich, N.Y.; Chicago & North Western Ry., Chicago, Milwaukee & St. Paul Ry., and Southern Ry.; June, 1914, to Jan., 1916, General Yardmaster, C.P.R., Windsor, Ont.; Jan. to Feb., 1916, Assistant Superintendent, C.P.R., London, Ont.; Feb., 1916, to Apr., 1918, Assistant Superintendent, Montreal Terminals Division, Quebec District, C.P.R., Montreal.

William Tansley, who has been appointed Car Service Agent, New Brunswick District, C.P.R., St. John, N.B., was born at Shelburne, Ont., Dec. 27, 1872, and entered C.P.R. service in Sept., 1889, since when he has been, to 1900, operator and agent at various points on the Ontario Division; 1901 to 1907, dispatcher, Toronto; 1907 to 1912, Chief Dispatcher, Toronto; 1912 to 1914, Assistant Superintendent, Havelock, Ont.; 1914 to 1915, Assistant Superintendent, Toronto; May 18 to July, 1915, Assistant Superintendent, Smiths Falls, Ont.; July to Dec., 1915, acting Superintendent of Car Service, Eastern Lines, Montreal; Dec., 1915, to Feb., 1916, Assistant Superintendent, Montreal Terminals; Feb., 1916, to Jan., 1917, Assistant Superintendent, London, Ont.; Jan. to Apr., 1917, acting Superintendent, London, Ont.; Apr., 1917, to Apr., 1918, Superintendent, Laurentian Division, Quebec District, Montreal.

E. L. Lancelot, who has been elected a member of the Canadian Society of Civil Engineers, was born at Port Arthur, Ont., Jan. 14, 1883, and entered railway service in 1898, as rodman on location and construction, Restigouche & Western Ry. in New Brunswick. In 1901 he was clerk to the first field engineer, Dominion Iron & Steel Co., Sydney, N.S.; 1902 to 1903, draftsman and instrument man, Bangor & Aroostook Ry., Houlton, Me.; 1903 to 1904, instrument man, Chicago, Indianapolis & St. Louis Ry., Matoon, Ill.; 1904 to 1905, Resident Engineer on construction, Toronto-Sudbury line, C.P.R., French River, Ont.; 1905 to 1906, chief draftsman, Construction Department, C.P.R., Toronto; 1906 to 1908, Assistant Division Engineer, Toronto-Sudbury line and Muskoka yards; 1909 to 1910, Resident Engineer on waterworks construction, Wetaskiwin, Alta.; 1910 to 1915, with The John Galt Engineering Co., Calgary, Alta., for the latter portion, as Vice President and Secretary; 1915, topographer, Dominion Government survey of Milk River, Alta.; and from 1916, Special Inspector, Irrigation Branch, Interior Department, Calgary, Alta.

John M. Rapelje, whose appointment as acting Vice President in charge of operation of lines east of St. Paul, Minn., Northern Pacific Ry., was announced in our last issue, was born at Chippewa, Ont., Jan. 22, 1857, and entered railway service in Aug., 1879, since when he has been, to May, 1882, consecutively, brakeman, G.T.R., and fireman, Atchison, Topeka & Santa Fe Ry.; May, 1882, to Nov., 1887, conductor, C.P.R.; Jan., 1888, to June, 1898, conductor, Yellowstone Division, Northern Pacific Ry.; June, 1898, to June, 1902, Trainmaster, and again conductor, same division; June, 1902, to Apr., 1905, Trainmaster, same division; Apr., 1905, to July, 1908, Superintendent, same division, Glendive, Mont.; July, 1908, to May, 1910, Superintendent, Rocky Mountain Division, same road, Missoula, Mont.; May, 1910, to Apr., 1912, Superintendent, Idaho Division, same road, Spokane, Wash.; Apr., 1912, to May, 1914, General Superintendent, Mandan, N.D., to Paradise, Mont., same road, Livingston, Mont.; May to Oct., 1914, Assistant General Manager, same road, St. Paul, Minn.; Oct., 1914, to Apr., 1918, General Manager, lines east of Paradise, Mont., same road.

Freight and Passenger Traffic Notes.

The Greater Winnipeg Water District Board has fixed the rates on its railway on the same basis as the other railways centering on Winnipeg.

The Canadian Northern Ry., according to a Vancouver dispatch, will not increase the number of trains in and out of that city over the summer schedule from 1917.

A Vancouver, B.C., press report states that it is likely that the train which was run from St. Paul, Minn., to Vancouver during last summer will not be operated this year.

The Marsh Navigation Co. is operating a passenger and freight steamboat service on Lake Timagami, connecting with the Timiskaming & Northern Ontario Ry. at Timagami, Ont.

The Edmonton, Dunvegan & British Columbia Ry. train leaves Edmonton at 4.50 p.m. Mondays and Thursdays for the Grande Prairie and Spirit River, returning at 7.15 p.m. on Wednesdays and Saturdays.

The Quebec & Saguenay Ry. is reported to have started a daily train service from Quebec to the St. Francis River, Que., and expects to put on a freight service as far as Baie St. Paul, Que., 16 miles beyond the St. Francis River, at an early date.

The C.P.R. has resumed running observation cars on trains 1 and 2 between Montreal and Vancouver, and on trains 3 and 4 between Toronto and Vancouver. These cars were taken off during the winter as a part of the fuel conservation plans.

The car ferry service schedule between Borden, P.E.I., and Tormentine, N.B., for the summer season commenced May 1, leaving Borden daily at 8.55, reaching Tormentine an hour later, and returning leaving Tormentine at 3.30 p.m., reaching Borden at 4.30 p.m.

The Canadian Government Railways on May 1, cancelled all fares and arrangements for the granting of Saturday to Monday excursion tickets on Intercolonial and Transcontinental Divisions, except so far as Quebec, Levis and eastern points, to be found in tariff 136, are concerned.

The White Pass and Yukon Route summer service from Skagway to Dawson City, Yukon, and points in Alaska, by train and boat, shows no change from previous years. A daily train service is given during the season, while up to May 1, the service was twice a week by train and stage.

The Moncton & Buctouche Ry. resumed operations recently, one train a day, except Sundays, in each direction having been put on by arrangement with the Railways Department, as follows: Leave Buctouche, N.B., 8 a.m., arrive Moncton 10.30 a.m.; leave Moncton 3.35 p.m., arrive Buctouche 6.05 p.m.

The C.P.R. is carrying on an advertising campaign in connection with its Rocky Mountain tourist district. In addition to an attractive series of booklets, and several moving picture films taken last year, a new moving picture film of the route from Swift Current into the heart of the Rockies, will, it is reported, be taken this year.

The Lacombe & Blindman Valley Electric Ry. is operating a train service from apposite the C.P.R. station at Lacombe to Bentley, Alta., leaving at 9 a.m. Mondays, Tuesdays, Thursdays and Saturdays, and at 2 p.m. Wednesdays and Fridays, returning at 3 p.m. and 5 p.m. respectively. Although called an electric railway, it is not one.

The G.T.R. has been ordered by the Board of Railway Commissioners to make connection between its eastbound passenger trains due to leave Cornwall, Ont., at 4.15 and 4.45, and arriving at Coteau Jct., Que., 5.18 and 5.30 p.m., respectively, and train due to leave Montreal at 5 p.m., due at Coteau Jct. at 6 p.m., and arriving at Ottawa at 8.45 p.m

The C.P.R. has been ordered by the Board of Railway Commissioners to restore its train service between Moose Jaw and North Portal, Sask., covering train 315, leaving Moose Jaw at 8 a.m. and arriving at North Portal at 1.55 p.m., and train 316, leaving North Portal at 4.30 p.m. and arriving at Moose Jaw at 10.30 p.m., daily except Sundays.

The Edmonton, Dunvegan & British Columbia Ry., started recently running its trains from its own terminal, which is five miles outside Edmonton, Alta., over the Grand Trunk Pacific Ry. tracks to 121st St., where passengers are transferred to the Edmonton Radial Ry. A round trip gas car service is being given between 121st St. and Westlock, 52.2 miles, on Mondays, Wednesdays and Fridays.

The C.P.R. will on June 2, resume its seven day a week service between Montreal and Winnipeg and Toronto and Winnipeg, continuing through to Vancouver. Observation cars of the Mount class, consisting each of one drawing room, three compartments, buffet, lounge room and observation platform, will be run on these trains. The seven day a week service between St. Paul, Minn., and Vancouver will also be resumed on the same date.

The G.T.R. has been ordered by the Board of Railway Commissioners to operate its trains 389 and 390 between Lindsay and Haliburton, Ont., three times a week, viz., on Tuesdays, Thursdays and Saturdays, leaving Lindsay at 11 a.m. and arriving at Haliburton at 2.05 p.m., and leaving Haliburton at 3 p.m. and arriving at Lindsay at 6 p.m. The present schedule between Lindsay and Kinmount Jct. on Mondays, Wednesdays and Fridays is to be maintained, and connection made at Kinmount Jct. with the C.P.R. train.

The Canadian Railway Club's annual meeting was held at Montreal, May 14, the report for the past year showing considerable progress, both in membership and finances. The officers, etc., for the current year were elected as follows:—President, C. W. VanBuren, General Master Car Builder, C.P.R.; Vice Presidents, T. C. Hudson, Master Mechanic, Canadian Northern Ry., Joliette, Que., and J. Hendry, Master Car Builder, G.T.R.; Treasurer, E. E. Lloyd, Auditor of Disbursements, C.P.R.; Secretary, Jas. Powell, Chief Draftsman, G.T.R. The executive committee is as follows:—W. H. Winterrowd, Chief Mechanical Engineer, C.P.R.; C. H. N. Connell, Division Engineer, C.N.R.; A. Crumpton, Assistant Valuation Engineer, G.T.R.; E. A. Nix, Assistant Works Manager, C.P.R.; W. H. Sample, Superintendent of Motive Power, G.T.R.; B. F. Shortley, Terminal Agent, Canadian Government Railways; audit committee: D. R. Arnold, Sales Manager, Canadian Car & Foundry Co.; G. Whiteley, Assistant Superintendent of Motive Power, C.P.R.; G. M. Wilson, Master Mechanic, G.T.R.

Grand Trunk Railway Annual Report and Meeting.

The report for 1917 which was presented at the recent annual meeting in London, Eng., shows an increase in gross receipts of £905,742, or 9.22%, the largest traffic carried in the company's history, although train mileage decreased by 3,051,932 miles, or 13.34%. There was, however, a large increase in operating expenses, totalling £1,774,807.

The passenger revenue decreased £121,482, the decrease in passengers carried being 999,727, the average fare being 1.28d higher. Mails increased £21,130, and freight and live stock £952,400, and other receipts £53,694. The average rate per ton mile on the entire freight business was 0.76c, compared with 0.67c in 1916.

Of the additional working expenses, £326,764 was for maintenance of way and structures, £421,487 for maintenance of equipment, £4,924 in traffic expenses, £994,220 in conducting transportation, £731 in miscellaneous operations, £4,199 in general expenses and £24,542 in taxes. The total expenditure of £9,002,894 was an increase of £1,774,867, representing 83.94% of the gross receipts, against 73.60% in 1916. The train mile cost was 108.95d, against 75.80d in the previous year. The surplus for 1917 was £26,279, against £802,081 in 1916. Adding the balance at credit of the net revenue account at Dec. 31, 1916, or £20,027, there is a balance of £46,307 carried forward to the current year.

The total charges on capital account were £444,856, of which £42,329 was for the acquisition of securities of the Lachine, Jacques Cartier & Maisonneuve Ry. and the Montreal & Southern Counties Ry. (electric). The expenditure on capital account for new works, machinery and tools, increased weight of rails, new rolling stock and land purchased, was £402,527.

During the year, E. J. Chamberlin, who was appointed President, May 24, 1912, for five years, and continued in office to Sept. 1, retired, but he continues with the company as a director. H. G. Kelley, then Vice President, was elected President, Sept. 1. The directors reported the death of Col. F. Firebrace, R.E., one of the directors for 22 years, and also the resignation of S. Baldwin, M.P., owing to his having accepted office under the British Government. H. G. Kelley, President, was elected one of the directors.

Alberta Workmen's Compensation Act. The act passed by the Alberta Legislature for the provision of compensation to workmen who are injured in the course of their work, does not come into operation until Jan. 1, 1919, so far as the following trades or occupations, among others, are concerned: engineering, transportation, operation of electric power lines and power plants, waterworks and other public utilities, navigation, operation of boats, ships, tugs and dredges, operation of grain elevators and warehouses, telegraph systems. The act does not apply to railway companies, except so far as their employes are engaged in any employment specifically mentioned in schedule A, which is now in operation, or in schedule B, which comes into operation in 1919.

Port Huron Car Shops, G.T.R—The construction of these shops having been completed, they have been taken over by J. Coleman, Superintendent Car Department, and a large working force, which it is said will eventually number about 600, is being installed.

Canadian Transportation Men, Engineers, Etc. in the War.

Canadian Railway and Marine World is desirous of publishing all the information possible about the war work of Canadian transportation men, engineers, etc., and invites its readers to send in information for use in this connection. No doubt a large number of our readers receive many letters from the front, etc., extracts from which would prove of interest in these columns. We should be glad to be favored in this respect.

The Timiskaming & Northern Ontario Railwaymen's Patriotic Association, to Jan. 31, contributed $21,709.72 to the Red Cross; $25,767,23 to the Canadian Patriotic Association, all from employes, and in addition, $11,666.65 to the Red Cross; $13,333.35 to the Canadian Patriotic Association, and $13,765.16 to enlisted employes, from the Commission.

Canadian Railway Troops in Action.

The following is a dispatch from Roland Hill, at the war correspondents' headquarters in France, to the Dominion Government, which was given out at Ottawa, May 9:—

"In the defence of Marcelcave, and the Nesle-Amiens railway line, one battalion of Canadian Railway Troops, from York County, Ont., went into the battle line like veterans, and helped to stave off the German advance for five days. From Mar. 27, in spite of the fact that they had long marches and hard work in saving their construction equipment from the Huns in the Ham neighborhood, this battalion fought with the gallant 61st Division. Although they had many men who were trained in machine gun work, they were not, of course, equipped with this armament when they started for the support line. The Colonel foraged in Villers-Bretonneux and discovered a sympathetic Canadian who was quartermaster for an Imperial unit. Sixteen machine guns and two lorries filled with ammunition were obtained from him. Then the Canadians swung down the main road and into position, singing lustily, cheering up the tired British troops whom they joined.

"The spell in the line is best told in one of their Major's own words: 'All through our retirement the feeling of the men was keen to do something better than merely save equipment. We wanted to do something to help to stop the German advance, and now the opportunity had come. I never saw a happier crowd on their way to the trenches. After outfitting with machine guns we took up our position in support in a small wood about a quarter of a mile northwest of Marcelcave about five in the morning. Things were fairly quiet until 10, when a counter-attack by the 61st Division took place. About 1,200 men took part, and went doggedly at the Huns, but they were worn out by days and nights of continuous fighting, and the attack petered out just after 11 o'clock. The enemy immediately attacked again and captured Warfusee, on the left, and got a footing in Marcelcave, on our right.

"'We were then left in an advanced position in the wood and Hun guns began a terrific shelling of the place. No reserves could be spared, and as the holding of the wood began to be costly, we established scattered machine gun posts in it and our main body fell back to support lines they built themselves astride the railway. The men carried out this movement in extended order and as coolly as if they were on parade, in spite of heavy shelling from the Huns. In some mysterious way the men had obtained shovels and it was here that we demonstrated what a wonderful tool the shovel is in the hands of a C.R.T. sapper when he is under fire. The rapidity with which they dug cover was a marvel to all who saw those trenches dug. That night it started to rain and we salved tarpaulins from an abandoned aerodrome and made ourselves fairly comfortable. Our patrols kept well forward, but the Germans never continued the attack that night, although there was very heavy fighting to the north.

"'In the morning the enemy was actively preparing for an attack in the direction of Marcelcave. He came out on the roads freely and began digging positions, and we let him—for a little while. When he was in sufficient strength, we opened up on him with every gun and rifle we had. We killed scores of Huns, and he gave up his idea of attacking, thinking we were in greater force than we were. All that day the boys had fine sport with the machine guns. That night was again quiet, except where Fritz put up flares and we plastered him with bullets.

"'In the morning the Germans attacked in dense masses, and in spite of the fight the Gloucesters and Warwicks on our right put up they were forced back. The Boche followed up, and for over an hour all our machine guns poured into them, doing great execution. We fired all the ammunition we had and all we could carry up. It was a great day's sport, and we did tremendous damage to old Fritz. As soon as he finished his work on the right he turned his guns on us. A young Toronto captain and some volunteers with machine guns held the trenches whilst we retired again. But Fritz had had enough for the day, and never molested us that night. He seemed to be very nervous of the chances of a possible counter-attack. It was easy fighting then until we were relieved.

"'Our transport men were splendid all through and each night, and sometimes, when possible, in the day time, they ran their lorries up the roads close to our trenches and delivered hot meals to the men.'

"That is the modest account of what this York County battalion did."

PERSONAL NOTES.

G. McL. Brown, European Manager, C. P.R., London, Eng., who has been acting as Assistant Director of Movements, has been appointed Assistant Director General of Movements and Railways at the War Office, with the rank of colonel.

Flight-Lieut. Gordon Burchard, an instructor in the Royal Air Force, was killed at Camp Borden, Ont., May 23, owing to a cadet who he had taken up having fainted at the wheel, allowing the plane to crash to the ground. Before enlisting, he was on the Pullman Co.'s staff at Toronto.

Lieut. A. J. Cameron of the Canadian Railway Troops, has been awarded the Military Cross, for conspicuous gallantry and devotion to duty when in charge of a party repairing damage to a light railway by shell fire. When a dugout was hit, and the occupants buried, he called for volunteers, went through the enemy barrage and rescued five wounded and recovered five bodies.

Capt. Lloyd Fleming, who has been awarded the Military Cross, and promoted from lieutenant, is a son of R. J. Fleming, General Manager, Toronto Ry., and allied companies. He joined the Army Service Corps in Toronto, in Jan., 1916, as lieutenant, and later transferred to the Mechanical Transport Corps, and acted for some time at Ottawa as assistant instructor. In order to get overseas more quickly, he joined the Royal Flying Corps, and went to England in Nov., 1916, and to France after completing his flying course. He was subsequently sent to the far east, where he has since served with the Egyptian forces. In January, he accounted for five enemy planes in two weeks.

Major Chas. Flint, of the 4th Battalion, Canadian Railway Troops, who has been awarded the Croix de Guerre, is a B.A.Sc. of Toronto University. When he enlisted as a lieutenant he was in the C.P.R. engineering service at Winnipeg.

Sergt. J. Goulding of the Canadian Railway Troops, has been awarded the Distinguished Conduct Medal. On one occasion, although he and his party were three times shelled off the work, by his courage and skill he completed it under heavy fire, thereby enabling a navy gun to be put into the required position.

Capt. F. Harcourt, who is reported to have been appointed Assistant Commander of Labor Units in France, was formerly Harbor Engineer at Port Arthur, Ont.

Major D. Hillman, of Canada, has been gazetted as a lieutenant-colonel while employed as a railway construction engineer at the front.

Lieut. W. Johnston, Royal Naval Air Service, who was reported recently to have been killed whilst engaged in bombing the German warship Goeben in the Dardanelles, had, before enlisting, completed his final year at McGill University, under one of the C.P.R. engineering scholarships.

Major T. R. Loudon, A.M.Can.Soc.C.E., lecturer of Faculty of Applied Science, University of Toronto, and one of the partners in James, Loudon & Hertzberg, civil engineers, Toronto, has returned to Canada from France, on leave. He was invalided to England in January, and had been mentioned in dispatches. He joined the 1st Railway Construction Battalion as a lieutenant, and was promoted to captain, and to major, while in France.

General D. S. MacInnes, whose death by accident in France, was reported May 24, was brother of W. R. MacInnes, Freight Traffic Manager, C.P.R., Montreal, and a son of the late Senator MacInnes, who was a C.P.R. director for many years. No details of the accident have been given, but from the latest information, he was acting as Inspector of Mines on the British Headquarters Staff, and it is presumed that the accident occurred in the course of his duties. He commenced his military career in 1891 as second lieutenant, Royal Engineers, and in 1895 and 1896 served in the Ashanti expedition, during which he was mentioned in dispatches. From 1899 to 1902 he was in the South African war, and commanded the Royal Engineers through the defence of Kimberley. For services rendered in the Orange Free State and the Orange River Colony, he was mentioned in dispatches, and received the Queen's and King's medals. He served subsequently under the Dominion Government, and in 1905-07 was Deputy Assistant Quartermaster General, and in 1907, Chief Staff Officer of the Maritime Provinces, and occupied that position until his transfer to England to the General Staff.

Lieut. H. W. Morris, who was killed in action recently, was, prior to enlistment, travelling electrician in the Car Department, G.T.R., Montreal. He went overseas with the 3rd Canadian Field Artillery in Sept., 1914, and later won a commission and was attached to an infantry battalion. During an attack on strong enemy positions, his devotion to duty led to his being recommended for the Military Cross. However, he was killed in a subsequent engagement, the cross being sent to Canada and presented to his widow at Montreal.

Lieut. E. G. O'Brien, who was reported, Apr. 12, to have been slightly wounded in France, was, before enlisting, a C.P.R. car inspector at Montreal.

Lieut.-Col. J. V. P. O'Donahoe, D.S.O., whose death following wounds received from shrapnel at Passchendaele in April, was reported May 8, was born at Brockville, Ont., in 1881, and was, for some years, engaged in transportation service. Prior to 1905, he was in the Audit Department, Canada Atlantic Ry., now part of the G.T.R., and in 1905 was appointed private secretary to C. J. Smith, then General Manager, Richelieu & Ontario Navigation Co., Montreal, and from 1906 to Mar. 1, 1913, when Jas. Playfair and associates secured control, he was Manager's Assistant of that company. He subsequently became Assistant to the Vice President and General Manager, and Purchasing Agent, of the North Ry. project, and in Jan., 1915, was appointed to the military headquarters staff at Montreal. He went overseas in May, 1915, as junior Major of the 60th Battalion, and went to France with the rank of captain, and later obtained promotion as major and finally lieutenant-colonel. He was mentioned in dispatches several times, and was awarded the D.S.O. for gallantry on the Somme.

Sergt. C. H. Olson of the Canadian Railway Troops, has been awarded the Distinguished Conduct Medal for conspicuous gallantry and devotion to duty at all times. He has invariably displayed the greatest courage and coolness under direct and heavy shell fire, and his fine example has been of invaluable service in encouraging all ranks with him.

Lieut. R. S. Richardson, No. 13 Light Railway Operating Co., R.E., British Expeditionary Force, formerly Superintendent, Canadian Government Railways, Fort William, Ont., in writing from the front early in April said: "We made a nice retirement, getting out our equipment, and all of our men, but when we thought we were quite clear, on the seventh day, after running the gauntlet through many hot shelling and bombing districts, we lost 24 killed and 18 wounded. The poor, brave boys never grumbled, although badly cut up. We moved eight times in the 10 days and buried our dead."

E. J. Shea, formerly a clerk in the Superintendent's office, Canadian Ex. Co., Winnipeg, was reported recently to have been killed in action on Apr. 3. He went overseas about two years ago with Canadian cavalry.

Capt. Paul F. Sise, Vice President and Managing Director, Northern Electric Co., who went overseas with the 148th Battalion, and has for some time past been in the United States on special service, returned to Montreal early in May, to undertake the recruiting of young men, for the Hebrew Battalion now being raised in Canada and the U.S., for service with the British Expeditionary Force in Palestine.

E. A. Stewart, Chief Accountant, Montreal Tramways Co., was presented with a purse of money, May 3, on leaving the company's service to enlist with the McGill College section of the tank battalion.

Major J. J. Sullivan, of the Canadian Railway Troops, who has served a considerable time in France, and whose portrait was published in our April issue, has returned to Winnipeg, and will probably shortly resume his duties as a construction engineer and roadmaster, C.P.R.

W. Tourigny, formerly of the Maintenance of Way Department, C.P.R., is reported to have been wounded. He is a son of H. B. Tourigny, District Engineer, Public Works Department, Three Rivers, Que.

Lieut. R. P. Williams of the Canadian Railway Troops, was awarded the Military Cross recently for conspicuous gallantry and devotion to duty, in directing the work of repairing a light railway track during a heavy barrage. Owing to his efforts the line was kept open, and he volunteered for the work in the most forward area.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1916, rom July 1, 1917:

	Gross Earnings	Expenses	Net Earnings	Decrease
July	$3,844,900	$2,940,000	$ 904,900	$ 292,500
Aug.	3,405,200	2,812,000	593,200	478,800
Sept.	3,341,700	2,915,800	1,924,000	306,700
Oct.	3,941,600	3,350,500	591,100	629,200
Nov.	4,050,200	3,295,500	754,700	495,300
Dec.	3,273,200	3,207,900	65,300	758,500
Jan.	2,715,300	3,290,300	x575,000	1,057,100
Feb.	2,691,000	3,171,400	x480,400	588,600
Mar.	3,436,300	3,225,900	210,400	407,700
	$30,699,400	$28,209,300	$2,490,100	$5,014,400
Incr.	$ 603,400	$ 5,617,900	.....	.....
Decr.	.....	.....	$5,014,400	.....

x Deficit.

Approximate earnings for April, $3,949,100, against $3,313,500, and for three weeks ended May 21, $2,531,100, against $2,476,900 for same periods 1917.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, compared with those of 1917, from Jan. 1, 1918:

	Gross Earnings	Expenses	Net Earnings	Decrease
Jan.	$10,789,818	$9,621,824	$1,167,993	$1,263,485
Feb.	9,574,302	8,983,404	590,898	1,396,151
Mar.	12,427,915	9,435,134	2,992,781	944,536
	$32,792,035	$28,040,362	$4,751,673	$3,603,172
Inc.	$1,702,907	$5,306,079	.....	.....
Dec.	.....	.....	$ 3,603,172	.....

Approximate earnings for April, $13,007,000, against $12,036,000 for April, 1917, and for three weeks ended May 21, $8,989,000, against $9,262,000 for same period 1917.

Grand Trunk Railway Earnings.

Aggregate from Jan. 1 to Apr. 30:—

	1918	1917	Increase	Decrease
G.T.R.	$15,296,909	$14,617,203	$679,706	.....
G.T.W.R.	2,806,523	2,807,321	.....	$ 798
D.G.H. & M.R.	912,536	1,045,457	.....	93,397
	$19,015,968	$18,430,457	$585,511	.....

Approximate earnings for April, $6,118,935, against $4,885,211 for Apr., 1917, and for three weeks ended May 21, $4,492,138, against $3,917,291 for same period 1917.

Grand Trunk Pacific Ry. Earnings.

Approximate receipts for April, $505,316, against $454,011 for Apr., 1917; aggregate receipts from Jan. 1 to Apr. 30, $2,010,341, against $1,485,326 for same period 1917.

Liquor on a Locomotive.—Jno. Reading, locomotive man, and W. C. Tretheway, locomotive fireman, were each fined $250 and costs at Windsor, Ont., May 22, for having a bottle of intoxicating liquor on a C.P.R. locomotive.

Traffic Orders by the Board of Railway Commissioners.

Minimum Weight of Tan Bark.

General order 232. May 14. Re application of Canadian Manufacturers' Association for an order disallowing the increased carload minimum weights of tan bark, published in Supplement 8 to C.P.R. Tariff C.P.C. no. E-3225, and Supplement 1 to G.T.R. Tariff C.R.C. no. E-3477: It is ordered that the minimum carload weights of tan bark, when carried in box or stock cars under special commodity tariffs, be as follows:—For cars not over 30½ ft. long, inside measurement, 21,000 lb.; for cars over 30½ ft. and not over 34½ ft. long, inside measurement, 23,000 lb.; for cars over 34½ ft. and not over 36½ ft. long, inside measurement, 28,000 lb. And it is further ordered that general order 221 made herein be rescinded.

Protection of Old Rates on Grain.

General order 234. May 22. Re applications of United Grain Growers, Ltd., Northwestern Grain Dealers Association, Campbell Flour Mills Co., Quaker Oats Co., Cambridge Roller Mills, Northern Grain Co., et al, for a ruling in the matter of protection of the old rates on grain shipped prior to Mar. 15, 1918, to interior mills and elevators, with published transit privileges, and reshipped after the new rates came into effect; and re general order 212, Jan. 15, 1918, and orders in council pertaining thereto: Upon reading the applications and what was alleged in support thereof and the written argument filed by C.P.R. counsel, it is ordered as follows, with respect to carriers whose tariffs provide for the milling, malting, storage or cleaning of western grain in transit:—

1. That with respect to all grain originally shipped prior to Mar. 15, 1918, the said grain or the produce thereof reshipped within six months, from the stop over point, shall be entitled to the balance of the through rate existing at the time of the original shipment of the grain under the transit tariffs applicable.

2. That with respect to all wheat originally shipped on and after Mar. 15, 1918; the said wheat or the product thereof, reshipped from the stop over point west of Fort William, before June 1, 1918, to destinations west of and including Port Arthur and Armstrong, Ont., shall be entitled to the balance of the through rate to the said destinations existing at the time of the original shipment of the wheat under the transit tariffs applicable.

3. That with respect to all grain other than wheat, as referred to in sec. 3 hereof, originally shipped on and after Mar. 15, 1918, under the transit tariffs applicable thereto, which, or the product whereof, is reshipped from the stop over point within six months; the rate to be applied on the said reshipped grain or product may be the balance of the through rate existing from the original point of shipment of the grain to the final destination thereof, or of the products at the time of the reshipment from the stop over point.

4. That the charge for the terminal service at the stop over point, also the charge for the haul, if any, out of the direct line of transit, in accordance with the tariffs applicable, shall be additional in each case.

Increases in Electric Railway Freight and Passenger Rates.

Orders passed by the board, authorizing increases in freight and passenger rates on certain electric railways, are

given in the electric railway department of this issue on page 254.

Joint Rates On Canned Goods.

27160. April 26. Re complaint of Dominion Canners, Limited, Hamilton, Ont., and Board of Trade, Picton, Ont., regarding joint rates on canned goods, and re proposed Joint Class Freight Tariff of Canadian Pacific and Grand Trunk Railways. The matter having been heard at Ottawa, April 16, and upon its appearing that the parties will not be able to agree prior to April 30, it is ordered that, pending a hearing and until further order, the proposed Joint Freight Tariff of class rates, Canadian Pacific Ry. C.R.C. B-2459 and Grand Trunk Ry. C.R.C. B-3542, be suspended.

Specific Commodity Rates from Burritts, Ont.

27204. May 9. Re application of Provincial Stone & Supply Company, Toronto, for an order directing the C.P.R. to publish specific commodity rates from Burritts, Ont., to various points. Upon hearing the application at Toronto, Feb. 15, 1918, in the presence of counsel for the applicant company and the railway company, and upon the report and recommendation of the board's Traffic Officer, it is ordered that the application be dismissed.

Pacific Coast Terminal Rates.

27220. May 18. Re complaint of Nanaimo Board of Trade against withdrawal of Pacific coast terminal rates to Nanaimo and the substitution of an arbitrary over the Vancouver rates; and re order 24808, Mar. 10, 1916, dismissing the complaint: Upon rehearing the matter at Vancouver, June 26, 1916, the complainant and the C.P.R. being represented, and upon reading the further written submissions filed, it is ordered that the complaint be dismissed, with leave to the applicants to move for further consideration of the application as and when future traffic conditions may warrant.

The Prime Minister's Explanation of the Dominion Government's Railway Policy.

The Premier, Sir Robert Borden, made a general statement in the House of Commons May 15, with regard to the whole railway situation in Canada. He reviewed the history of railway development since 1903, at which time the Canadian Northern Ry., which had attained considerable development in the prairie provinces, began to expand easterly and westerly. Since then, not only had the C.N.R. expanded into a complete transcontinental system, but the Grand Trunk Pacific Ry. had been built from Winnipeg to Prince Rupert, and the National Transcontinental Ry. from Moncton to Winnipeg. Having explained the financial legislation which parliament had passed with a view of aiding the construction of these lines, and of safeguarding the country's interests in them, as well as the legislation passed in 1917, with respect to the Canadian Northern Ry., under which arbitration proceedings are being carried on to fix the value of the non-government owned shares of that system—which price is not to exceed $10,000,000—the Premier outlined the general future policy of the government with respect to the Canadian Northern, the Grand Trunk Pacific, and the Grand Trunk, suggesting the amalgamation of the whole, together with the National Transcontinental Ry., the Intercolonial Ry. and the Prince Edward Island Ry. as one state owned system under independent corporate management.

Pending the completion of the arbitration as to the value of the Canadian Northern stock—the time for making the award having been extended to June 1—the management of the line has not been disturbed, except that the government has had appointed three directors. This gives the government access to all the company's documents and records, and such being the case, there is no reason why the actual management should be changed in the meantime. In connection with a reconstituted board, it is not intended that either Sir William Mackenzie or Sir Donald Mann will be members; both had expressed their desire to be relieved from further responsibility after the government assumes full control, but Sir William Mackenzie has offered to make his services available in any way the board might determine, without remuneration or recompense. As to the immediate future, it is not intended to operate the Canadian Northern system directly under a government department, but through the corporate machinery by which it has been operated in the past. There will be a reconstituted board of directors, to which the best men obtainable will be appointed, and the government will not interfere with that board. Every means will be used by the government, and extra powers will be obtained, if necessary, in order that anything like political influence, patronage or interference shall be absolutely eliminated from the administration of the line.

The government has had under consideration the question as to whether it might not be possible in the immediate future to bring the National Transcontinental Ry., the Intercolonial Ry. and the Prince Edward Island Ry. under the same corporate ownership as the Canadian Northern. The matter has not yet received the mature consideration necessary, but it may be possible and desirable to bring these lines under the ownership of the corporation which will control the C.N.R. system. That suggestion is before the government, and so far as he has been able to give it consideration, it commends itself to his judgment.

With respect to the Grand Trunk Pacific Ry., he regards it as inevitable that, for many reasons, it should be taken over by the Dominion Government. It is a national enterprise to which the credit of the Canadian people had been committed, and it is expedient to sustain it and not permit it to go into liquidation. It is intimately connected with the Grand Trunk Ry. in the east; branches of the C.N.R. system in the west in many cases could be utilized as feeders without any great expenditure, but it is not self-sustaining. The G.T.P. Ry. could not be successfully operated without suitable arrangements with the C.N.R. and with the G.T.R. The G.T.P.R. cannot pay its interest charges, and it is utterly impossible for the G.T.R. to meet the obligations it has undertaken in respect to the G.T.P.R. It is, therefore, inevitable that the G.T.P.R. be acquired. As to the method of its acquisition, he has no doubt that the G.T.R. would be willing to hand it over if the Dominion Government would relieve the G.T.R. of the obligations it had incurred. There were several conditions to be taken into account before such a proposal could be entertained, and the government is discussing the whole situation with the G.T.R. management.

If the government took over the G.T.P.R., it would practically involve taking over the G.T.R. as well. He is of this opinion because the G.T.P.R. and the C.N.R. would lack the adequate eastern connections which the G.T.R. would give, and because even if relieved from its obligations as to the G.T.P.R., the G.T.R. has no very bright future prospects. It is very easy to say that the Dominion should acquire the G.T.R., but when the practical problem of how it is to be acquired is faced, it is not quite so simple. While it might be possible to force the acquisition of the G.T.R., it must be remembered that Canada for many years to come will be a borrowing country, and that if the government were to lay itself open to the charge of acting unfairly or unjustly towards those who have invested their capital in the country, it would lose in the end more than it would gain by any such injustice. So the government will have to act reasonably with the G.T.R., and further, it must be remembered that the G.T.R. has lines and terminals in the United States which are vested in U.S. companies, of which the G.T.R. controls the stock. So the acquisition of the G.T.R. must depend upon negotiations, and the government is conducting such negotiations. For the present they are confidential. The government has made what it considers to be a reasonable offer, somewhat along the lines suggested in the Drayton-Acworth report, but rather more favorable to the G.T.R. That company replied by making a counter offer, which the government could not ask parliament to accept. The government then suggested to the G.T.R. that, failing an agreement, the question of the annual payment be left to arbitration, without any limit being fixed. Whatever sum might be fixed to be paid by the government for a lease of the G.T.R. should be distributed among the holders of the various stocks by the directors of the G.T.R. themselves.

A sub-committee of the government has been dealing with the general railway problems of the country during the past six months, and two of the members of that committee will be in England during the summer. He has some reasonable hope that when parliament is again summoned the government will be in a position to place before it proposals which will involve the constitution into one state-owned system, all the chief railways of Canada, except the Canadian Pacific Ry. It might be possible, indeed he thought it probable, that at some later date, all the land transportation facilities of Canada in the shape of railways might, so far as operation is concerned, be amalgamated into one system and carried on under one management.

The Ministers of the Interior and of Immigration, Messrs. Meighen and Calder, will carry on negotiations in England during the summer in connection with the proposal to acquire the G.T. Pacific Ry. and the G.T.R.

Western Grain Unloading at Head of Lakes.—The Board of Grain Commissioners has ordered that all wheat shipped from country points after May 10, must be unloaded into terminal elevators at Fort William and Port Arthur, by the various railways, unless permits are granted by the board, to allow unloading at other destinations.

Arbitrators Value 600,000 Shares Canadian Northern Railway Stock at $10,800,000.

After sitting on 50 days in March, April and May, taking over 1,500,000 words of evidence, and filing 211 exhibits, the three arbitrators, Sir Wm. Meredith, Chief Justice of Ontario, representing the Dominion Government; Wallace Nesbitt, K.C., of Toronto, representing Mackenzie, Mann & Co., and Chief Justice Harris, of Nova Scotia, selected as the third, gave the following unanimous award on May 25:—

"That the value of the 600,000 shares of the Canadian Northern Ry.'s capital stock, as of the date of the agreement entered into on Nov. 15, 1917, between the King, Mackenzie, Mann & Co., Ltd., and the Canadian Bank of Commerce, was $10,000,000; that the parties shall respectively pay and bear their own costs of the arbitration, except that the Dominion Government shall pay the expenses of taking and transcribing the evidence, the remuneration of the secretary and messenger employed by us and the incidental expenses incurred by the secretary.

"The question to be determined by us was one of great difficulty, and one which, of necessity, admitted of great diversity of opinion. We heard much testimony and had the benefit of assistance of experienced and able counsel on both sides, and carefully investigated every matter which seemed to throw any light upon the question to be determined. As to whether or not there was a surplus of assets over liabilities, was naturally a subject which engaged much time and consideration. It is, of course, not a conclusive test as to the value of the stock, but it is an element which cannot be ignored. Its importance was perhaps emphasized by the fact that a Royal commission had reported the company's assets and liabilities to be about equal. This report, which was made in a proceeding to which the company and its shareholders were not parties, was admittedly based on a misconception of some of the facts, and there were omissions of both assets and liabilities. It should also be pointed out that the work of the Royal commission had reference to a date anterior to Oct. 1, 1917, and there were changes in the interval.

"In arriving at the surplus of assets over liabilities, the report of Prof. Swain as to the reproduction cost now of the physical property, based on pre-war prices, and also his estimate of the depreciation, has been adopted and after a careful examination we found the surplus of assets over liabilities of the company on Oct. 1, 1917, on a conservative basis, to be not less than $25,000,000, after deducting the full amount of depreciation found by Prof. Swain and making such reduction in the value of the land grants and other assets as seemed reasonable. It is to be pointed out that a valuation of the physical property of a railway company by the reproduction new method, less depreciation, is not to be regarded as an ascertainment of the actual value. It is only a means to that end, but as it was the best, and in fact the only estimate available, it has been adopted as a basis for the foregoing calculations.

"While the surplus of assets over liabilities is an element for consideration, as has been already pointed out, it is not conclusive as to the value of the company's stock. Its prospective earning power is perhaps more important than any other element in ascertaining such value, and in arriving at a conclusion, we have given careful consideration to the past history of the company, its earnings and expenditures, the present financial position of the company, the location of its lines and their construction, the other railways already existing in competition, the rate of interest on the company's funded and other debts, the probable future growth of the population and business of the country, and all other factors which seemed to us to have any bearing upon the question. It is apparent that there was great room for difference of opinion in a matter involving so many elements of uncertainty and speculation, but after taking into consideration all the circumstances which appeared to us to be entitled to weight in determining so difficult a question, we same to the conclusion we have mentioned."

Terms of Agreement.

The agreement, under which the arbitration was held, was entered into Oct. 1, 1917, between the King, represented by the Ministers of Finance and of Railways and Canals, Mackenzie, Mann & Co., Ltd., and the Canadian Bank of Commerce. Under authority of the act passed at the Dominion Parliament's 1917 session providing for the acquisition of the C.N.R.'s capital stock, the arbitrators were to determine the value of the 600,000 shares as at Oct. 1, 1917, and might consider the reproduction cost of the C.N.R. system, but should not include therein any increase in value, due to the war, of labor, material, or of property. Should the value of the 600,000 shares be determined as $10,000,000 or more, the price to be paid therefor was fixed at $10,000,000, but if the value determined should be less than $10,000,000, the value so determined is to be the price to be paid. The arbitrators' decision is to be final, if unanimous, but if not unanimous, is to be subject to appeal as provided in the act. The price determined is to be paid by the government within three months from the receipt of the award, less its proportionate share of the amount of any liabilities ascertained by the government to be outstanding against the C.N.R. system or any of its constituent companies, and undisclosed to, or in excess of the liabilities disclosed to, the arbitrators, apart from liabilities which will be properly chargeable to capital account, unless the corresponding value produced thereby has been taken into consideration as an asset of the company.

The agreement provided that immediately after its execution, at least five-sixths of the 600,000 shares be transferred to the Finance Minister, free of all encumbrances. Sixteen thousand shares, par value $1,000,000, deposited with the British Columbia Government as security for contracts made by the Canadian Northern Pacific Ry. with that government were to be transferred to the Finance Minister on an order from the owners. Unless the whole 600,000 shares are transferred to the Finance Minister, the Governor in council may declare any shares not transferred to be so transferred, and until all the shares are transferred the Dominion Government may retain, out of the purchase price decided by the arbitrators, the pro rata value of such shares, to be paid over as they are transferred.

During the debate on the Canadian Northern bill in the House of Commons recently, it was announced that Mackenzie, Mann & Co., had transferred to the government $51,000,000 of common stock, making with the $40,000,000 acquired by the government previously, $91,000,000 out of a total of $100,000,000.

The $10,800,000 award places a value on the 600,000 shares of $18 each, but as the amount to be paid is limited by the agreement to $10,000,000, it will be at the rate of $16.66 a share. Mackenzie, Mann & Co. are said to have 510,000 shares prior to transferring them to the government, a portion at least of which was pledged to the Canadian Bank of Commerce, and the other 90,000 were distributed among various holders.

It is said that the arbitration cost approximately $500,000.

Joint Traffic Arrangement at St. Leonards, N.B.

The Dominion Parliament was asked at its recent session to confirm an agreement, dated Mar. 8, between the Dominion Government and the Van Buren Bridge Co. The company owns a railway bridge across the St. John River, giving connection between a branch of the Bangor & Aroostook Ry. in the State of Maine, and the Province of New Brunswick, and a short piece of line connecting the bridge with St. Leonards, N.B. The Dominion Government holds, under an agreement to purchase, the International Ry. of New Brunswick, which connects with this piece of railway at St. Leonards, and also owns the National Transcontinental Ry., which passes through St. Leonards, but does not connect with the International Ry. or the Van Buren Bridge Co.'s line. The Dominion Government is thus maintaining two stations and staffs. The agreement provides for the leasing by the Van Buren Bridge Co. to the Dominion Government of certain lands lying between the International Ry. and the National Transcontinental Ry., together with all the railway tracks thereon, or crossing the C.P.R. or the N.T.R., from May 1 to Aug. 1, 1934, at a rental of $1,200 a year, in addition to the entire cost of maintenance and operation, and the cost of any additional tracks and interlocking plants that may be required. The agreement contains other sections as to interchange of traffic, etc.

The Minister of Railways, in the course of the discussion on the bill, stated that the object of the agreement was that International Ry. trains would pass over the two miles of track leased to the National Transcontinental station at St. Leonards, which would serve as a union station for both lines, thus effecting a saving in cost of operation. At present passengers going in on the N.T.R. have to drive or walk over to the International Ry. if they are going on to Levis or Moncton. Two miles of the present International Ry. would be taken up, and the present station abandoned, and all the International Ry. traffic would be taken to the N.T.R. station. Opposition to the agreement was made on behalf of people of St. Leonards, who claimed that they would be deprived of the present station in the village, and would have to go some distance to the proposed union station. The measure was, however, passed.

Canadian Car & Foundry Co., Ltd., has deposited plans with the Public Works Department at Ottawa, of a dock and ship launching track, to be built in the Kaministikwia River, Fort William, Ont.

Transportation Appointments Throughout Canada.

Canada Steamship Lines, Ltd.—JOHN V. FOY, heretofore General Passenger and Freight Agent, Kingston and west to the Detroit and Port Huron frontier, has been appointed General Passenger Agent, same territory; all communications dealing with passenger traffic matters are addressed to him. Office, Toronto.

L. J. BURNS, heretofore chief clerk to Assistant Traffic Manager, Toronto, has been appointed Division Freight Agent in charge of territory Kingston and west to the Detroit and Port Huron frontier. All communications dealing with freight traffic matters are addressed to him. Office, Toronto.

Canadian Government Railways.—R. Z. WALKER, heretofore agent, Fredericton, N.B., has been appointed Assistant Superintendent, District 2, Eastern Lines, vice M. M. McLearn, whose appointment as acting Assistant Superintendent, was announced in our last issue, and who has resumed his previous position as Chief Dispatcher at Truro, N.S. Office, Fredericton, N.B.

L. A. STEVENS, heretofore acting Locomotive Foreman, Fitzpatrick, Que., has been appointed Locomotive Foreman there.

A. E. BRYANT, heretofore Erecting Foreman, Canadian Northern Ry. Shops, Limoilu, Que., has been appointed Locomotive Foreman, C.G.R., Parent, Que., vice G. Wells, transferred.

L. SANTERRE has been appointed acting Locomotive Foreman, Doucet, Que., vice G. W. Bacheldor, transferred.

H. LOWTHIN, heretofore acting Locomotive Foreman, O'Brien, Que., has been appointed Locomotive Foreman there.

JAMES HALL has been appointed Locomotive Foreman, Armstrong, Ont., vice S. Jocelyn, acting Locomotive Foreman, transferred.

Canadian Pacific Ry.—C. GRIBBIN, heretofore Master Mechanic, Algoma District, North Bay, Ont., has been appointed Master Mechanic, New Brunswick District, vice C. Kyle, transferred. Office, St. John, N.B.

W. TANSLEY, heretofore Superintendent, Laurentian Division, Quebec District, Montreal, has been appointed Car Service Agent, New Brunswick District, vice W. Brown, transferred. Office, St. John, N. B.

J. H. BOYLE, heretofore Superintendent, Farnham Division, Quebec District, Farnham, has been appointed Superintendent, Brownville Division, New Brunswick District, vice H. J. Humphrey, transferred. Office, Brownville Jct., Me.

W. WELLS, heretofore Master Mechanic, Schreiber Division, Algoma District, Schreiber, Ont., has been appointed Master Mechanic, Farnham Division, Quebec District, vice J. Craig, who has resumed his former position as locomotive man. Office, Farnham, Que.

C. KYLE, heretofore Master Mechanic, New Brunswick District, St. John, has been appointed Supervisor of Apprentices, Angus shops, Montreal.

T. HAMBLEY, heretofore Master Mechanic, Sudbury Division, Algoma District, Sudbury, Ont., has been appointed Master Mechanic, Algoma District, vice C. Gribbin, transferred. Office, North Bay, Ont.

J. S. ALLEN, heretofore Locomotive Foreman, North Bay, Ont., has been appointed General Foreman, Locomotive Erecting Shop, North Bay, Ont.

W. J. McDIARMID has been appointed Locomotive Foreman, North Bay, Ont., vice J. S. Allen, transferred.

C. A. WHEELER, heretofore Locomotive Foreman, North Bay, Ont., has been appointed Master Mechanic, Sudbury Division, Algoma District, vice T. Hambley, promoted. Office, Sudbury, Ont.

H. P. CREIGHTON, heretofore bridge foreman, Chapleau, Ont., has been appointed Bridge and Building Master, Schreiber Division, Algoma District, vice E. T. Draper, transferred. Office, Schreiber, Ont.

T. V. BEARDMORE, heretofore Assistant Foreman, locomotive repair shops, Chapleau, Ont., has been appointed Locomotive Foreman, Schreiber, Ont., vice R. Gardiner, resigned.

J. MARSHALL, heretofore Assistant Car Foreman, Transcona, Man., has been appointed Car Foreman, Fort William, Ont., vice H. Dibley, transferred.

J. RAMSBOTTOM, heretofore in the passenger car yard at Winnipeg, has been appointed Assistant Car Foreman, Transcona, Man., vice J. Marshall, promoted.

P. F. WEISBROD, heretofore Superintendent, Calgary Division, Alberta District, Calgary, and who has been on leave of absence for some time, has been appointed station master, Winnipeg Terminals.

A. E. DALES, heretofore Master Mechanic, Calgary Division, Alberta District, Calgary, has resumed his former position as locomotive man, running out of Winnipeg.

H. DIBLEY, heretofore Car Foreman, Fort William, Ont., has been appointed Car Foreman, Swift Current, Sask., vice H. K. York, transferred.

H. K. YORK, heretofore Car Foreman, Swift Current, Sask., has been appointed Car Foreman, Alyth, Alta. This is a new position.

E. THACKER, heretofore in the passenger car yard, Winnipeg, has been appointed Car Foreman, Field, B.C.

Grand Trunk Ry.—H. G. KELLEY, President, G.T.R. and Grand Trunk Pacific Ry., has been elected a director of the G.T.R.

JOHN BOYD, heretofore Weighing Inspector, has been appointed Superintendent Weighing Department, Toronto, and his former position has been abolished.

J. S. LILLIE, heretofore Land Accountant, has been appointed Assistant Land and Tax Commissioner, Western Lines, Detroit, Mich.

Northern Navigation Co., Ltd.—R. V. ROBINSON, heretofore General Freight Agent, Sarnia, Ont., whose appointment as Freight Claims Agent, Canada Steamship Lines, Ltd., Montreal, was announced in our last issue, has also been appointed General Claim Agent, Northern Navigation Co., covering freight, marine and fire claims. Office, Montreal. The Freight Traffic Department is now under the Manager's jurisdiction.

Grand Trunk Pacific Ry. Hotels.—A press report from Winnipeg stated recently that the Fort Garry Hotel in Winnipeg, and the Macdonald Hotel in Edmonton were to be closed, it being stated that each was run at a loss of about $40,000 last year. We are officially advised that it is not the company's intention to close the hotels.

The Canadian Car & Foundry Co.'s plant at Fort William, Ont., was damaged by fire, May 23, the oil and paint store being destroyed, and the damage being estimated at $15,000.

Duplicate Pacific Coast Trains Abolished in the United States.

The Director General of U.S. Railroads has approved the recommendation of Regional Director Aishton for a reduction in the mileage of transcontinental passenger trains starting from Chicago aggregating 11,728,000 miles, the revised schedules to take effect on June 2.

This economy has been accomplished by abandoning duplicate service between Chicago and the Pacific coast cities and assigning to the short and direct routes to each city the fastest through service. Under this plan the Atchison, Topeka & Santa Fe Ry. will be the preferred route to Los Angeles; Chicago & North Western, Union Pacific and Southern Pacific to San Francisco; Burlington and Northern Pacific to Portland; and the Chicago, Milwaukee & St. Paul to Seattle. The fast trains will make the run in 72 hours to each city. There will be a secondary train carrying all classes of equipment scheduled in 72 hours. The other transcontinental roads will operate such service as may be necessary to accommodate their intermediate travel on reasonable schedules.

On the same date the mail schedules will be adjusted so that there will be a parity of mail service between Chicago and each of the rival commercial centers on the Pacific coast. The fast mail trains will cover the distance between Chicago and Pacific coast terminals in 65 hours.

The public will be adequately served under the new arrangement, although it is probable that more upper berths will be sold in the future than in the past.

The passenger committee for the western district has now started working on the rearrangement of the schedules to the southwest, where important economies can also be effected with out affecting public convenience.

Compensation of Railways for Carrying Mails.

On May 3, the Board of Railway Commissioners gave notice of its intention to hear in Ottawa, on May 16, the application of the C.P.R. and G.T.R., on behalf of themselves and other railways carrying mails, asking that fair and reasonable rates be fixed for such carriage, pursuant to the reference of the matter to the board by order in council of Mar. 7, 1917, for the determination as to the accuracy or inaccuracy of the claim made by the railways that the present rates are inadequate, and if it is found that they are inadequate, then to determine, as the result of evidence to be submitted by the Post Office Department and by the railways, what would be a fair rate of payment for service.

On May 14, notice was sent by the board to parties interested, that at the request of W. D. Hogg, K.C., and by consent of the C.P.R. and the G.T.R. counsel, the application would be heard on May 16. The notice added:—"Should the matter be set down for hearing at a subsequent date, due notice thereof will be given."

Canadian Railway and Marine World understands that the application for the abandonment of the hearing fixed for May 16 was made by the acting Postmaster General's request. The application has not been withdrawn and will probably be heard in the near future.

The Canadian Northern Ex. Co.'s service has been put in operation over the C.N.R., between Capreol and North Bay.

Canadian Government Railways Operating Results.

The Canadian Government Railways, as operated at Mar. 31, 1917, had a total length of 4,063.84 miles, extending from the Maritime Provinces in the east to Winnipeg in the west. The lines making up the system are the original government lines, the Intercolonial Ry., 1,518.39 miles; the Prince Edward Island Ry., 275.20 miles; acquired branches of the Intercolonial Ry., the New Brunswick & Prince Edward Island Ry., 36.05 miles; the International Ry. of New Brunswick, 111.30 miles, and the St. John & Quebec Ry., owned by the Province of New Brunswick and operated by the C.G. Rys., 119.87 miles; the National Transcontinental Ry., 1,811.28 miles, with the Lake Superior branch, 191.75 miles, which branch is leased from the Grand Trunk Pacific Ry.

Earnings.

Intercolonial	$16,767,386.89
Prince Edward Island	630,045.69
International Ry. of N.B.	116,678.67
St. John & Quebec	70,759.62
New Brunswick & P.E.I.	38,336.75
National Transcontinental Ry. and Lake Superior Branch	5,916,550.39
Total	$23,539,758.61

Working Expenses.

Intercolonial	$15,653,357.78
Prince Edward Island	833,853.02
International Ry. of N.B.	165,107.26
St. John & Quebec	98,300.42
New Brunswick & P.E.I.	72,357.80
National Transcontinental Ry. and Lake Superior Branch	7,206,922.20
Total	$24,029,898.48
Net percentage on operation	$490,139.87

Traffic Statistics.

	Intercolonial.	P.E.I. Ry.	New Brunswick. & P.E.I. Ry.	International	National Transcontinental	St. John & Quebec
Loco. mileage	11,178,943	458,376	65,611	86,516	3,942,535	77,597
Train mileage	8,557,782	368,495	40,101	78,894	3,367,485	72,531
Car mileage	131,874,021	2,143,610	238,604	683,821	69,429,569	396,623
Ratio of earnings to gross earnings..%	98.82	67.45	100	100	100	100
Ratio of expenses to gross earnings ...%	93.35	132.35	188.74	141.51	121.81	138.92
Expenses per train mile cents	181.45	159.46	180.44	209.40	214.01	135.53
Expenses per mile of line	$10,226.75	$2,135.15	$2,007.15	$1,483.44	$3.598.01	$820.06
Passengers carried	4,537,454	401,636	14,434	33,508	728,426	43,924
Total mileage	326,836,728	9,931,236	285,083	1,387,821	49,321,113	1,157,018
Total freight—tons	6,770,224	150,101	67,533	125,044	3,161,260	53,496
Freight mileage	1,809,471,327	5,740,617	1,437,952	6,364,955	1,185,789,413	2,118,153

The excess of earnings over working expenses on the Intercolonial of $1,114,-029.11 was partly absorbed by the payment of $1,200 rental of the Vale Ry. at New Glasgow, N.S.; $1,070,334.64 credited to the rail, fire and equipment renewal accounts as provided by the act of 1912, and the payment of $4,000 as compassionate allowances under special votes of parliament. The total operating deficiencies on the other lines were $1,604,168.98, to which is added $90,000 paid as interest on the purchase price of the International Ry. of N.B., $5,673.42 interest on the purchase price of the New Brunswick & P.E. I. Ry., pending payment, and $600,000 paid to the Grand Trunk Pacific Ry. for rental of the Lake Superior branch, making a total deficiency on operation of $2,299,842.40. The country is also called upon to find the interest on the public debt created by the issue of bonds to meet the construction cost of the Intercolonial Ry., the Prince Edward Island Ry. and the National Transcontinental Ry.

Following are statistics of the steamship traffic between Prince Edward Island and the mainland:—Passengers, 48,712; mileage, 1,903,929; freight tons, 75,314; mileage, 3,340,617.

Results for Year Ended Mar. 31, 1918.

The Minister of Railways in the House of Commons on May 17, in dealing with a vote for construction and betterments, including equipment, for the Canadian Government Railways, gave information as to the receipts and expenditure for the year ended Mar. 31, 1918, the figures for the last two months being estimated. The total mileage operated by the C.G.R. was 4,130.84. He said that during the past financial year, Canadian railways have been working at full capacity and the government railways have received their fair share of business. But though the earnings during that period reached high water mark, the actual net results were not such as he would have liked to report. The reason for this was that the costs of operation and maintenance had so largely increased. Fuel had almost doubled in price, living conditions, owing to the war, had necessitated very large increases of wages to all classes of labor; supplies of all kinds had very greatly advanced; equipment had at least doubled in price; but, taking everything into consideration, the results achieved had been equal to those of other railways. The total working expenses on all the government railways were $32,298,947.60, against $24,-627,271.48 for the year ended Mar. 31, 1917, and $17,797,061.11 for the year ended Mar. 31, 1916. The earnings for the year ended Mar. 31, 1918 were $27,004,-666.61, against $23,468,998.99 for the year ended Mar. 31, 1917, and $18,373,143.45 for the year ended Mar. 31, 1916. Although there was an increase of nearly $4,000,000 in the earnings for the year, the deficit was $5,294,280.99, compared with a deficit of $1,158,272.49 for the year ended Mar. 31, 1917, and a surplus of $576,082.34 for the year ended Mar. 31, 1916.

The deficit on the Prince Edward Island Ry. for the year ended Mar. 31, 1918, was $488,172, the largest in the history of the line. It had never been possible to make this railway pay.

A Railway Manager's Poem.

G. E. Graham, General Manager, Dominion Atlantic Ry., is the author of the following verses, which were sung at a public meeting recently at Kentville, N.S., where he is located.

Johnny get your hoe, get your hoe, get your hoe,
Make your garden grow, make it grow, make it grow,
Plant your seeds from sea to sea,
Let them work for liberty.
Hurry right away, don't delay, start today,
Forward to the land with a right willing hand,
So we'll help defeat the Hun,
Now we've got him on the run.

Over there, over there, over there,
Send the food, send the food, over there,
For our brave boys need it, our brave boys need it,
The calls are coming everywhere.
So observe and preserve
Preserve the food, save the food, and conserve,
So we'll help win the cause of freedom,
And we'll plant, save and send, till it's over, over there.

Acquisition of Maritime Province Railways by Dominion Government.

The supplementary estimates submitted to the House of Commons, May 20, provided $518,000 for the purchase of local lines in the Maritime Provinces, under the terms of the act relating to the taking over of lines built under corporate ownership. Following is the provision in the estimates:—

To provide for the purchase of the following railways at amounts not exceeding those set out in each case:—

Caraquet & Gulf Shore Ry.	$200,000
Elgin & Havelock Ry.	30,000
Kent Northern Ry.	60,000
Moncton & Buctouche Ry.	70,000
St. Martin's Ry.	65,000
Salisbury & Albert Ry.	75,000
York & Carleton County Ry.	18,000

We are officially advised that the Government has bought the Elgin & Havelock, Moncton & Buctouche, St. Martin's, Salisbury & Albert, and York & Carleton Railways. Amounts have also been provided to buy the Caraquet & Gulf Shore and Kent Northern Railways, and if the owners do not wish to sell at the amounts named, the government will not buy the lines.

When the items were under discussion in the Commons on May 23, the Minister of Railways said:—"The lines covered by these items have been operating for years at a loss, and it is really now impossible for them to operate on account of the loss they are making. We are now taking them over, and not at a price that any one would feel is exorbitant. For instance, in the case of the Elgin & Havelock, they have agreed to sell their line for $30,000. The rails alone on that line, if we were to sell them for scrap, are worth about $80,000. We are getting five of the railways mentioned at about one-third the value of the rails. For the Kent Northern, I have put in $60,000. They have not agreed to accept it. Neither have the Caraquet & Gulf Shore people agreed to accept the $200,000. To those two lines we have made these offers, which are on about the same basis as the others mentioned before. If they do not accept, we will not pay any higher price, and the amounts will not be paid. But I am placing them in the estimates to give the owners the opportunity, and to allow us to take over the lines, and thus close out the small lines which are so unsatisfactory in New Brunswick."

In reference to the Caraquet & Gulf Shore, the Minister of Public Works said: "We have offered them $200,000 for the railway. They cannot make 200,000 cents out of it for the next 10 years. We will not arbitrate. We will not pay any more. We think they will take it."

The supplementary estimates also provided $200,000 to bring the lines mentioned up to the Canadian Government Railways branch lines standard, in connection with which the Minister of Railways said:—"If we do not get the Caraquet & Gulf Shore or the Kent Northern, we will only need probably a third of the amount."

The Pullman Co.'s carrier business has been taken over by the U.S. Government, and placed under the U.S. Railroad Administration. It is stated that the company will be paid a rental based on the average of three years earnings prior to June 30, 1917, and that the manufacturing part of the business will not be interfered with.

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TORONTO, CANADA, JUNE, 1918.

PRINCIPAL CONTENTS.

Halifax Ocean Terminals Canadian Government Railways.

The Minister of Railways stated in the House of Commons, May 17, that it is expected to have the Halifax ocean terminals practically completed during this year. During the past year use was made of such portions of the terminals as were available, and had the works not been undertaken, it would not have been possible to handle the traffic which has developed at the port during the war. The present status of the works is as follows: Grading is practically completed; overhead bridges carrying streets across the railway are all practically completed. Sufficient trackage has been installed to serve the two temporary sheds built last year, and two large temporary sheds on pier A, which were rushed to completion after the explosion of Dec. 6, 1917, and which are now in use, together with a 100 car train track yard for serving the north end of the city. The placing of concrete blocks for quay walls is practically completed, and there remains only a small quantity of concrete work and granite facing in order to finish the quay walls. The filling has been proceeded with, but there still remains over 500,000 yards of filling to be placed behind the quay walls. Arrangements are being made for the erection of a temporary station and the construction of passenger car yard with car cleaning and repair facilities for the handling of the passenger traffic business of the city, as North St. station and facilities are not suitable for the carrying on of this work since the explosion. The North St. station was so badly damaged that business must be removed from it at the earliest possible moment. The contractor had stated that the new station would be ready for occupation by September.

Preventable Accidents to Railway Employes.

The Board of Railway Commissioners has issued a circular stating that it notes from its reports that a considerable number of accidents result from employes attempting to get on or off moving cars or locomotives, or attempting to crawl under moving cars, or to get through moving cars between or over couplers. The following detail shows the situation for 1916 and 1917, as disclosed in the board's reports:—

	1916.		1917.	
	K.	I.	K.	I.
Jumping off train in motion....	5	14	1	28
Attempting to board train.....	2	14	2	26
Adjusting couplers, coupling and uncoupling	5	39	5	53
Crawling under cars .....—		1	—	1
Crawling through cars over couplers	1	—	—	7
Caught while passing through cars between couplers	3	4	—	—
Riding on pilot of engine	2	2	1	3
	—	—	—	—
	18	74	9	118

The employes killed in 1916 from the classes of accidents above set out amount to 15% of the total employes killed, while for 1917 the figures are 5.7%. Those injured represent, for 1916, 9.5%, and for 1917, 10%. This represents a preventable injury; and the board desires each railway to bring this matter, by bulletin or other publication, properly before the attention of its employes, so as to prevent in so far as possible the occurrence of such accidents.

The board has also issued a circular stating that the following rule has been adopted by some railways for the protection of employes, viz.: "Where two main tracks parallel each other and are less than 20 ft. from center to center, whether such tracks are for double or single track operations, employes in every instance, when stepping out of the way of approaching trains, must move to the right of way and not to the other track. Foremen will be personally responsible for educating their men accordingly."

The board desires to be informed by all railways whether they have such a rule in effect, and if not, what, if any, objection they would urge against the rule in question being applied generally.

Consolidation of Railway Ticket Offices in the United States.

The Director General of U.S. Railroads announced, early in May, that arrangements have been made for the consolidation of city ticket offices in the following cities in the eastern region: New York, N.Y.; Boston, Mass.; Philadelphia, Pa.; Baltimore, Md.; Wilmington, Del.; Pittsburg, Pa.; Atlantic City, N. J.; Buffalo, Syracuse, Rochester, N.Y.; Reading, Pa.; Williamsport, Pa.; Newark, N.J.; Cincinnati, Ohio; Columbus, Ohio; Detroit, Mich.; Dayton, Ohio; Cleveland, Ohio; Indianapolis, Ind.; Toledo, Ohio.

There will be five offices in Greater New York—four on Manhattan Island—located as follows: 66 Broadway; Stewart Building, on Chambers St., facing City Hall Park; somewhere in the lower 30's in the hotel district in that section; 114 West Forty-second St.; and one office in Brooklyn on Fulton St., present offices of the Pennsylvania Rd. and New York Central Rd.

Rental of the offices vacated in these cities is approximately $1,070,000 a year. The rental of the consolidated offices will be $213,200 a year.

Arrangements are also being made to consolidate the offices in Chicago, St. Louis, and Louisville. These are borderline points and require joint action on the part of the eastern and western districts. Similar consolidations will be made in the western and southern districts, and will be announced later.

Pacific Great Eastern Ry. Settlement. The British Columbia Legislature ratified the agreement made between the Province and Foley, Welch & Stewart, F. Wilson, D'Arcy Tate and E. F. White, respecting this railway, which was summarized in Canadian Railway and Marine World for April. The act authorizes the taking over of the company's charter by the province, and the appointment of future directors by the government, with such powers as may be delegated to them. There are to be three directors of the P.G.E. Ry., and three for the P.G.E. Development Co. The formal transfer of the stock, etc., to the government was made at a meeting of the original directors and the representatives of the government, April 24.

Canadian Government Railways Suspense Account.—Early in the Dominion Parliament's recent session the Minister of Railways introduced a resolution to provide that the working expenses of the Canadian Government Railways and of any railway under the charge and management or direction of the Minister of Railways and Canals shall be paid out of the receipts and revenues of the said railways, etc. Considerable opposition was shown by several members of the Commons and, after being on the order paper for some weeks, the notice of motion was withdrawn.

Railway Wages and Rates Raised in the United States.

The Director General of U.S. Railroads announced on May 26 pay increases for nearly 2,000,000 railway employes, effective June 1, and retroactive to Jan. 1 last, carrying out substantially recommendations of the Railroad Wage Commission. The aggregate of the increases probably will be more than $300,000,000 a year, half of which will be distributed within a few weeks as back pay in lump sums ranging from about $100 to nearly $200 each.

The Director General departed from the Wage Commission's recommendations in the following particulars: "The principle of the basic eight-hour day is recognized, but owing to exigencies of the war situation, hours of employment are not actually reduced and overtime is to be paid pro rata: future adjustments of pay are to be on the basis of eight hours. In addition to the ordinary scale of increase, day laborers employed mainly on track work are to get at least 2½c an hour more than they received Dec. 21, 1917. A minimum of 55c an hour is established for the shop trades, including machinists, boilermakers and blacksmiths, and women are to receive the same pay for the same class of work. Negroes are to get the same pay as white men get for similar employment."

Increases in Freight and Passenger Rates.

To meet wage increases announced above and higher cost of coal and other supplies this year, the Director General has ordered railway freight rates raised 25%, and passenger fares increased to 3c a mile from the present basis of about 2½c. It is estimated that this will bring between $800,000,000 and $900,000,000 more revenue to the railways within the next year. It represents by far the biggest rate increase in the history of railways. The new freight charges, which cover both class and commodity rates, become effective June 25, and the passenger increase will go into effect June 10.

Issued under authority granted by the Railroad Act to President Wilson, acting through the Director General, the order wipes out all intra-state lower rates effective on either freight or passenger traffic. Travellers in standard sleeping and parlor cars are required to pay 3½c a mile in addition to sleeping and parlor car fares, and in tourist sleeping cars, 3¼c. Sleeping and parlor car rates remain the same.

Commutation and other suburban rates on railways are increased 10c. Fares on electric interurban lines are not affected. Special excursion, mileage, convention and tourist rates, with a few exceptions, are discontinued; privileges, such as stop-overs and free side trips, are abolished, and excess baggage charges are increased.

Both freight and passenger rates on boat lines operated on the lakes, rivers and coastwise by railways are to be raised proportionately with the general increases. Export and import freight rates are ordered cancelled, and the higher domestic rates will apply to and from ports. A number of flat increases, instead of percentage additions, are ordered for coal, coke, lumber, ore, stone, grain, cotton, live stock, meats, sugar, bullion and other commodities.

A. H. Magee, formerly local manager, Great North Western Telegraph Co., Port Arthur, Ont., died at Moncton, N.B., May 16, aged 26.

Daylight Saving to End October 27.

The Board of Railway Commissioners passed general order 233, May 11, as follows:—Re general order 227, April 12, as amended by general order 228, April 16, directing all railway companies, including government railways, in Canada to advance by one hour the standard time used by them in the different zones in which they operate; the said change to become effective on the respective railways and in the said different zones not before 12 o'clock Saturday evening, April 13, and not later than 2 o'clock Sunday morning, April 14, and to remain in force until 2 o'clock on Thursday morning, Oct. 31, 1918: Whereas the Governor in Council by order in council dated May 7, has amended order in council 898, dated April 12, so that the prescribed time during which the Daylight Saving Act, 1918, shall be in force shall be until 2 o'clock on the morning of Sunday, Oct. 27, the day fixed in the United States for returning to the usual time, it is ordered that the general order 227 be amended to provide that the prescribed time during which the Daylight Saving Act, 1918, shall be in force shall be until 2 o'clock on the morning of Sunday, Oct. 27.

Delaware & Hudson Co's Report.

The Delaware & Hudson Co. operates 909.38 miles of main track mileage, of which 805.20 miles represents railways owned, the latter including the Quebec, Montreal & Southern Ry., and the Napierville Junction Ry. in Quebec. The directors report for the year ended June 30, 1917, says, under the heading of "Allied Steam Railways": "The Quebec, Montreal & Southern Ry. had an increase in its operating revenues of $132,361; its operating expenses increased $123,454; its income from hire of equipment increased $65,636, and its net income, not making any deduction for interest due to your company, was $282,411, an increase over 1916 of $91,565. The Napierville Junction Ry. had an increase in operating revenue of $66,452; operating expenses increased $49,886, and net income was $52,684, an increase of $2,152 over 1916. A dividend on the capital stock, at the rate of 6%, for the year ended Dec. 31, 1917, was declared."

The stocks owned by the D. & H. Co. include 10,000 shares of the Quebec, Montreal & Southern Ry., of the par value of $1,000,000, and 12,000 shares of the Napierville Junction Ry., of the par value of $600,000.

Toronto Union Station.—While work is going on all the time upon the new union station in Toronto, from the outside point of view very little progress is seen. Sir George Bury, and other officers of the company, made an inspection of the building recently and expressed themselves as being satisfied with the progress made. The contractors expect to have the work completed by the end of the year, but Sir George Bury is said to have expressed the opinion that with a little hustling the station would be ready for occupation by September. The question of the entrance of the trains is, however, one that may stand in the way of the immediate use of the station, as the city may desire to have the viaduct project carried out in connection. The railway companies will probably make application for the temporary use of the station, with the tracks on the present low level. (Dec., 1917, pg. 471.)

Miscellaneous Marine Items.

The International Mercantile Marine Co. is reported, from New York, to have practically completed arrangements for the transfer of its steamships, which at present run under the British flag, to British interests.

Dominion Government Steamship Montmagny.—The Marine Department has accepted a tender from C. C. Chauveau, of Quebec, and Horace Dussault, of Levis, for the purchase and removal of the s.s. Montmagny, which foundered in the St. Lawrence a few months ago.

Vessel Classification for Customs Drawback.—An order in council has been passed at Ottawa providing that the classification of the American Bureau of Shipping may be accepted for drawback purposes in respect of ships and vessels built in Canada since Nov. 1, 1916.

Fort William-Georgian Bay Freight Rates.—Cleveland, Ohio, press dispatch, May 7:—A small steamship was placed today to load wheat at Fort William at 3½c to Georgian Bay and 4c to Buffalo, and indications are that vessels of that class will take care of the grain movement for some weeks to come.

British Columbia and Alaska Freight Rates.—Washington, D.C., press dispatch, May 7.—The Interstate Commerce Commission has tentatively approved the Pacific & Arctic Railway and Navigation Co.'s application for increased class and commodity transportation rates between Seattle and other Pacific ports of call and points in Alaska and British Columbia.

Electrically Propelled Ship.—London, Eng., press dispatch:—The first electrically propelled merchantship built in England, and the largest electric vessel in the world, is undergoing its finishing touches at a British shipyard, and will soon start on its first voyage. The vessel is designed on a system in which a combination of steam and electricity is employed.

Crews for Canadian Built Wooden Steamships.—It is announced from Victoria, B.C., that owing to a lack of white seamen on the Pacific coast, the British authorities, for whom the Imperial Munitions Board has been superintending the building of wooden steamships in British Columbia, have been compelled to engage Chinese for deck and engine room work. The first lot arrived on this side from Hong Kong recently, for service on the s.s. War Yukon.

The Montreal, Ottawa & Georgian Bay Canal Co. has been granted an extension of time for the commencement and completion of the works authorized by its act of incorporation, to May 1, 1921, for the commencement, and to May 1, 1927, for the completion. It is provided that $50,000 must be expended on actual construction by the first mentioned date, and that the Dominion Government's rights under the existing acts respecting the projected work, are not impaired.

St. Lawrence Canal Proposal.—In a discussion on the estimates in the House of Commons, May 19, a statement was read, dealing with the navigation problem, and suggesting the construction of a canal from Cardinal, Ont., on the St. Lawrence River, to Ottawa, so as to avoid the St. Lawrence Rapids. This project was estimated to cost $50,000,000, and was considered preferable to the Georgian Bay canal scheme, which was estimated to cost $150,000,000. It was stated that under the former scheme vessels would be able to go from the Great Lakes to Cardinal, through the canal to the Ottawa River and on to Montreal.

Electric Railway Department

The Winnipeg Electric Railway's Agreement with the City.

The Winnipeg City Council passed a bylaw April 29, confirming an agreement made between the city and the Winnipeg Electric Ry. The preamble sets forth that there has been developed and is being carried on in the city in competition with the company's street railway, another method of transportation of passengers for hire at cheap rates, commonly called jitneys, and that the city has agreed to use all its powers to eliminate such competition. It is agreed that in consideration of the council passing a bylaw to eliminate the jitney competition, that the company will carry out certain betterments and give an improved service, the agreement to run to Jan. 31, 1927. The following are the bylaw's principal provisions:—

The company undertakes to furnish adequate transportation for the city by means of its street railway, supplemented by motor busses. It will at once proceed to remodel its present rolling stock, making the cars modern in every respect. The improvements are to include folding steps, proper front exits, latest type of lighting, and the removal of running boards on all cars without center aisles. Six of the remodelled cars at least per month are to be provided until the whole of the cars are renewed.

A sufficient number of modern trailer cars, with central entrances, are to be provided, to be used in connection with extra cars, so as to secure adequate service during the rush hour periods.

The company will operate motor busses to provide a service on Westminster Ave., and on such other streets as the council may order, where, under bylaw 543, the company is under obligation to extend its street railway system. These busses are to be operated as part of the street railway system, with the same fares and transfers, and they are to be operated until the railway lines are extended to serve the Westminster Ave. or other districts. The company shall not have the right to operate a system of motor busses, except on Westminster Ave., without the consent of the council, and then only upon such streets as may be prescribed. Such motor bus services to be supplemental to the electric railway service, and as a means of giving the public adequate facilities, but shall in no sense be exclusive. Nothing in the agreement is to extend or restrict the rights or liberties of the city or company as expressed or implied in sec. 24 of bylaw 543.

The company agrees to forthwith extend and operate its Sargent Ave. line 2,200 ft. from the present western terminus, in accordance with the terms of bylaw 543.

Several sections deal with the question of electrolysis, which has been a source of controversy and legal action between the city and the company for several years. The company agrees to instal by Mar. 31, 1921, a system of insulated return feeders to eliminate electrolysis, in accordance with Professor Ganz' recommendations; consents to a judgment being entered in favor of the city in connection with a suit now pending in the courts, for damages to city water mains due to electrolysis, a reference being made to a referee for the assessment of damages, which shall be paid by the company forthwith after the finding of the referee; agrees to carry out order 105 of the Manitoba Public Utilities Commission as to the grounding of secondaries; consents to the making of an order by the Manitoba Government embodying the provisions of schedule A, chap. 24, of the statutes of 1918, the obtaining of which order will not preclude the city from applying to the government for additional rules and regulations; and finally it agrees to pay the city the reasonable cost and replacement of any underground structures belonging to the city found to be damaged by electrolysis, until the company has complied with the regulations of schedule A, chap. 24, statutes of 1918, and for five years from the date of this agreement. As chap. 24 of the statutes of 1918 takes the place of order 261 of the Manitoba Public Utilities Commission, the company agrees to abandon its appeal to the Imperial Privy Council, and the city agrees to have the order rescinded, each party to defray its own costs.

The company agrees to remove from the streets at its own expense all poles which have been abandoned; in the business section of the city to transfer its open wires from poles to suitable buildings where there are such, the use of which can be obtained at reasonable rates; and in the business area to replace worn out wooden poles with steel poles. The City Engineer to decide all questions under these sections.

Wherever high potential wires cross the streets, double cross arms shall be placed at each side of each street, and each of the 20,000 volt transmission line conductors running from no. 5 substation to the south city limits shall be dead ended upon suitable strain insulators attached to the cross arms, and the conductors for bridging the gap at the crossing shall be made up and supported in a similar manner, the necessary "jumpers" joining the two sets of conductors being carried over the cross arms and insulated by top-pin insulators supported by the cross arms. All pole lines at street intersections are to be of such a height and strength as to provide proper clearances.

The company agrees that it will at once proceed with the betterments and improvements agreed upon, spending or incurring capital obligations of not less than $25,000 therefor, averaged over each year for three years, and will give a bond of $100,000 for the due performance of this contract. The City Engineer is to be the arbitrator in matters where differences arise, but an appeal may be made to the city council. Under certain conditions the City Engineer may grant extensions of time for the carrying out of the various works.

The point upon which there was the greatest difference of opinion was as to passenger fares, and it is agreed that nothing in the agreement or in the negotiations leading up to it, throughout all the stages, shall be construed as a consent by the council that the company is at any time to make an application for an increase of fares, or as an indication that such increase should be granted, the intention being that the company and the city shall be in the same position with reference to fares as if the present agreement had not been made, and as though there had been no negotiations, resolutions or expressions of opinion upon the matter.

The company abandons all claims for damages against the city on the ground that the city allowed the operation of jitneys in contravention of the company's charter, particularly referred to in a letter of April 4, 1917, and it is agreed that the company is not to have any greater privileges or rights than given to it in bylaw 543, except as they are supplemented in this agreement.

The city agrees on its part to pass all further bylaws, or to amend any bylaws as may be necessary to prevent the jitney competition, or to apply to the legislature for any further powers that may be required.

The jitney bylaw, which is attached to the other bylaw, provides as follows:—No person or association of persons, firm or corporation, shall hereafter be allowed to operate for hire any jitney car, automobile or bus along any of the Winnipeg streets. It shall be unlawful to carry for hire or engage in the transportation of any persons for compensation on any Winnipeg streets with any jitney; taxicabs licensed or to be licensed under sec. 9570, or any amendment thereto, to charge 25c or more per passenger, are exempted from the operation of this bylaw. Other sections, four and five, deal with personal solicitation and the use of signs suggesting that passengers may be carried; and declare that no license shall in the future be issued for the operation of a jitney. Another section repeals sec. 2 of bylaw 9539, and another provides that the penalties provided by bylaw 1630 shall be imposed for any breaches of this bylaw.

The Toronto Railway and City Finances.

In a recent report to the Toronto Board of Control by the city's Commissioner of Finance, it was stated that for the repair and reconstruction of track allowance, there has been appropriated for 1918, $250,000. In previous years, money for this purpose was raised by the sale of debentures, but as the date for the expiry of the Toronto Ry.'s franchise, Sept., 1921, is fast approaching, this plan has been abandoned. The outstanding loans in this connection, total $4,231,734, with a debt charge of $776,814.

The Commissioner also reported as follows:—"From the commencement of the franchise of the company in 1891, up to the close of 1917, the city received on account of mileage, $2,026,767, and in addition $10,326,595 on account of percentage, or, in all, $12,353,362. During the same period, the city expended on repair and reconstruction of track allowance, $5,944,258, or $6,409,104 less than the amount received from the company. It is greatly to be regretted that the surplus was not accumulated, instead of being thrown into current revenue from year to year. If such had been done, a very substantial fund would have been available for the acquisition of the railway in 1921."

Raymond Beaudry has been appointed Secretary, Montreal Tramways Commission.

Increases in Electric Railway Freight and Passenger Rates.

Canadian Railway and Marine World for May gave in full the Board of Railway Commissioners judgment authorizing the London & Port Stanley Ry. to advance its freight and passenger rates, also particulars of orders passed authorizing the Lake Erie & Northern Ry., the London & Lake Erie Ry. & Transportation Co. and the Oshawa Ry. to advance rates. The board has also passed the following orders:—

British Columbia Electric Ry.—27,159, April 26. Authorizing British Columbia Electric Ry. to increase freight rates of Vancouver & Lulu Island Ry., and Vancouver & Fraser Valley Ry., to conform with increases granted, under the board's judgment of Dec. 26, 1917, to steam railways operating in Pacific territory, viz., an increase or 10% in freight rates, and an increase in coal freight rates of 15c a ton, the increased rates to become effective within 15 days from date of order.

British Columbia Electric Ry.—27,184, May 10. Approving standard freight tariff of maximum mileage tolls, C.R.C. 107, to become effective May 20 on Vancouver & Lulu Island Ry., and Vancouver, Fraser Valley & Southern Ry., the tariff having been filed on the basis permitted by the board in order 27159, April 26, 1918.

Quebec Railway, Light, Heat & Power Co.—27208, May 7. Authorizing Quebec Ry., Light, Heat & Power Co. to publish and file tariffs increasing its passenger otlls 15% to a maximum of 2.875c a mile, the tariffs to be made effective after the company's compliance with sec. 331 of the Railway Act. This applies to the company's Montmorency Division only, which consists of suburban lines, and not to the city division. See additional information below.

Quebec Ry., Light & Power Co.—27226, May 21. Approving Q.R.L. & P. Co.'s standard passenger tariff of maximum mileage tolls, C.R.C. 34, to become effective June 2, the tariff having been filed on the basis permitted by the board, in order 27208, May 7.

Following are particulars of other applications, changes, etc.:—

The Brantford & Hamilton Electric Ry. has applied to the Board of Railway Commissioners for an order permitting it to file tariffs providing for a general advance of 15% in its freight rates.

Edmonton Radial Ry.—Particulars of increases of passenger fares on this municipally owned railway are given on another page of this issue.

The Chatham, Wallaceburg & Lake Erie Ry. has applied to the Board of Railway Commissioners for authority to advance its freight and passenger rates to the same rate as the steam railways have been authorized to charge.

The Cornwall St. Ry., Light & Power Co. has put in force a new tariff of freight switching charges, viz., 1c per 100 lb., minimum $3 a car, maximum $8. The former rate, which was $2.50 a car of 40,000 lb., and ½c per 100 lb. over 40,000 lb., was found to be entirely inadequate and less than the service cost. The company handles carload freight only, between the C.P.R., G.T.R. and New York & Ottawa Ry. and the various manufacturing plants. In this connection it may be stated that there is nothing in the Ontario Railway Act, under which the Cornwall Company operates, to prevent a company increasing its freight rates, provided proper notice is given and that such rates do not exceed the standard or maximum toll approved by the Ontario Railway and Municipal Board.

The Grand River Ry. has applied to the Ontario Railway and Municipal Board for authority to advance its freight and passenger rates 15%.

The Hamilton Radial Electric Ry., on April 5, applied to the Board of Railway Commissioners for authority to file tariffs providing for a general advance in freight and passenger tolls to the same extent as was permitted by the board's order 213, Dec. 26, 1917. On April 9 the company amended its application by asking to be allowed to file the same rates that the board may allow in the case of other electric railways. On April 24 it withdrew the previous applications and substituted another, asking to be allowed to advance its passenger rates to 2⅞c a mile and its freight rates by 15%.

The Hull Electric Co. applied to the Board of Railway Commissioners recently for authority to file tariffs providing for a general increase in freight and passenger rates. The case was set down for hearing in Ottawa on May 21, when it was adjourned for 10 days to allow the Town of Aylmer to prepare an argument.

The London St. Ry.'s application to the London City Council for permission to increase its passenger fares was given in Canadian Railway and Marine World for March, pg. 113, and the council's practical refusal to entertain it was given in our May issue, pg. 211.

The Montreal & Southern Counties Ry. has applied to the Board of Railway Commissioners for authority to file tariffs providing for a general advance in freight and passenger rates to the same extent as the board has permitted in the case of steam railways.

New Brunswick Power Co.—Canadian Railway and Marine World for May contained a copy of a bill introduced in the New Brunswick Legislature, to authorize the New Brunswick Power Co. to advance its electric railway fares and its rates for gas and electric current. The bill was defeated in the legislature, owing to opposition by St. John citizens and newspapers, and a bill introduced at the city's instance was passed, providing for an investigation of all the company's property, franchise rates, etc., but with the proviso that the commission to be appointed under it may grant temporary relief, upon being satisfied that the same is necessary.

The Quebec Ry., Light & Power Co., which, as stated above, has been authorized by the Board of Railway Commissioners to advance freight and passenger rates on its Montmorency (suburban) Division, applied in March to the Quebec City Council for permission to increase its street railway fares and gas rates in the city. The application is still before the council. Full particulars of it were given in Canadian Railway and Marine World for April, pg. 161.

The Toronto & York Radial Ry., on April 13, notified the Ontario Railway and Municipal Board that on April 22, the sale of the following tickets would be discontinued on its Mimico Division:—

(a) 6 for 25c, good between Woodbine, East Toronto and West Hill.

(b) 4 for 15c, combination ticket, good between Woodbine, East Toronto and Beech Ave.

(c) 4 for 10c, combination ticket, good between Woodbine, East Toronto and Beech Ave.

(d) 4 for 25c, good between Woodbine and stop 26.

(e) 8 for $1, combination ticket, good between Woodbine and West Hill.

(f) All return tickets.

The tickets referred to in clauses (b) and (c) were combination tickets, two of which were good for passage on the Toronto Ry. between Woodbine terminal and Beech Ave., the other two tickets being good for passage on the Toronto & York Radial between Woodbine and East Toronto. The franchise covering the issue of these tickets having expired, the company felt justified in withdrawing the rates.

The tickets referred to in sections (a) and (d) were issued under an agreement, which has expired.

The tickets referred to in sections (e) and (f) were voluntarily issued by the company and were subject to cancellation at any time.

The company's new fare is 5c for 3 miles or less, and over 3 miles, 2c a mile or fraction thereof, as allowed by the Ontario Railway Act. The company will take action at an early date to advance fares on its Mimico and Metropolitan Divisions.

The Windsor, Essex & Lake Shore Rapid Ry. has applied to the Board of Railway Commissioners for authority to file tariffs providing for a general advance in freight rates to the same extent as the board has permitted in the case of steam railways.

Toronto Civic Railway Finances.

In a recent report on the city's finances, the Commissioner of Finance pointed out that the cost of operation of the civic railways for 1918, is estimated at $325,879, and the annual debt charges on $2,378,737 of outstanding debentures at $171,064, a total of $496,943. The revenue for the year is estimated at $300,000, thus showing an anticipated deficit of $196,943, apart from taxes and proper depreciation.

In this connection he said:—"It had been earnestly hoped that the recommendation to increase fares on the civic car lines (which was published in Canadian Railway and Marine World for April) would have been adopted, and that, as a consequence, the repeated yearly deficits, which bear so heavily on taxpayers generally, would have been eliminated, and the system placed upon an improved financial basis. There is no greater detriment to the advancement of public ownership than the continued administration of a municipal enterprise upon such a false and artificial basis as that upon which this system is operated. It has always appeared unjust and unfair to settle upon the general body of ratepayers, the cost of special services which are being enjoyed by a certain section of the community. The small increase in fares suggested could not possibly have constituted any hardship upon those who are being benefitted, and it is still hoped that council may see its way clear to adopt the recommendation made, which, if it did, would effect a reduction of one-third of a mill in this year's tax rate."

London St. Ry. Wages.—On the company's employes' application, a board of conciliation has been appointed, F. H. McGuigan, of Toronto, representing the company, Charles Ferguson, Secretary, Liberal Association, London, representing the men.

Dominion Power and Transmission Co's Wages.

The board of conciliation which was appointed to consider the Hamilton St. Ry.'s conductors' and motormen's wages, and which consisted of Judge Livingstone, Chairman; S. F. Washington, K.C., of Hamilton, representing the company, and W. D. Robbins, of Toronto, representing the men, reported to the Minister of Labor on April 24, unanimously recommending an increase from April 1, the same to be in effect for 2 years. Following is a comparison of the old and new rates per hour:—

	New rate	Old rate
1st year	30c	24c
2nd year	34c	26c
3rd year	37c	30c

On April 1 the company made an agreement with the men, putting the new rates in force for 2 years from April 1. The agreement also provides that Sunday work shall be paid for at 4c an hour extra, and that time and a half shall be paid for overtime. Five cents an hour extra is to be paid for work on snow ploughs, sweepers and sand cars, and overalls are to be supplied for such work. For training students, 25c a day, or part of day, is to be paid. Extra conductors and motormen reporting at car barn and for relief changes are to be paid a minimum wage of $8 a week, on condition that they report regularly.

New rates have also been put in force voluntarily on the company's interurban lines, viz., Brantford & Hamilton, Hamilton & Dundas, Hamilton, Grimsby & Beamsville, and Hamilton Radial, as follows:—

	New rate	Old rate
First 6 months	25c	22c
Second 6 months	30c	24c
Second year	34c	25c
Third and fourth years	34c	26c
Fifth year and thereafter	37c	30c

Sandwich, Windsor and Amherstburg Railway Wages.

Following the board of conciliation report, the S.W. & A. Ry. entered into an agreement with its conductors and motormen on April 20, putting a new scale of wages into effect from April 1 for one year. Following is a comparison of the old and new rates:—

	New rate	Old rate
First 6 months	35c	29c
Second 6 months	37c	30c
Second year	38c	31c
Third year and after	40c	33c

One cent an hour extra will be paid in lieu of uniforms, the company supplying caps and badges.

Under instructions from the Minister of Labor, the board did not deal with the case of a conductor who had been dismissed for alleged ticket stealing.

London St. Ry. Passenger Fares.—In Canadian Railway and Marine World for May, in connection with the negotiations between the London St. Ry. and the London City Council, in regard to the company's application for an increase in passenger fares, the company's present average fare was stated as 4c, this being taken from a press report. We have been advised that the average fare received by the company during 1917 was 3.63c.

The Toronto Civic Transportation Commission has appointed Finance Commissioner Bradshaw, Works Commissioner Harris and E. L. Cousins, Manager and Chief Engineer, Toronto Harbor Commission, as a committee to make arrangements for taking over the Toronto Ry. by the city in 1921.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—Work on repairing and improving the line from New Westminster to Chilliwack, B.C., was expected to be completed by May 31. It was badly damaged by storms and floods in the winter. (Feb., pg. 77.)

Sandwich, Windsor & Amherstburg Ry.—As a result of the recent arbitration proceedings, the company has to provide signal arms at derailer approaches near Amherstburg, Ont., and lights at the loop at Sandwich, as additional safety appliances.

We are officially advised that the company proposes to divert about three miles of its line through the Canada Steel Co.'s property near Ojibway, Ont., by moving the line back about half a mile. It is also intended to lay a second track on a portion of this diverted line during the summer. (Feb., pg. 77.)

Winnipeg Electric Ry.—A press report states that plans are being made for starting operations in connection with the prevention of electrolysis, which the company is to carry out under the terms of its agreement with the city. (May, pg. 211.)

Vancouver Jitneys' Elimination.—By an act amending the Vancouver Incorporation Act, the British Columbia Legislature has authorized the Vancouver City Council to pass a bylaw prohibiting jitney or other motor transportation compctition with the British Columbia Electric Ry. The section was passed after a lengthened discussion, in the course of which proposals to permit jitney traffic on streets other than those on which the electric railway operates were defeated. A new city bylaw is under consideration, under which the jitney traffic will be prohibited after June 30. The new bylaw will permit the operation of jitneys for hire at fixed rates, and the hiring of autos by the hour. There are one or two urban jitney lines serving routes where the B.C. E. Ry. is not operating which may be continued. This action is the result of Adam Shortt's report on the transportation question, following the strike of British Columbia Electric Ry. employes in June, 1917.

New Cars for London St. Ry.—The company has received recently the five single truck cars which it ordered in the U.S. in June, 1917, and it is installing their electrical equipment in its own shops. These cars are of the single end, p.a.y.e. type, 20 ft. 8 in. long on the body; 32 ft. 4 in. long over all; 8 ft. 2 in. wide over sheathing. They are of the same type as those put into service by the company early in 1914, being arranged with cross seats on one side, and a longitudinal seat on the other. The seats are padded, no springs being used, and are upholstered in rattan. The cars were fully described and illustrated in Canadian Railway and Marine World for Dec., 1913, Jan., 1914, and July, 1917.

Hull Electric Co.'s Wages.—As stated in Canadian Railway and Marine World for March, the company's employes asked for an increase of wages and other concessions. We have since been advised that the increase asked for was about 60%, also shorter hours, time and a half for overtime, and other minor items. A board of conciliation having been ordered, the company selected G. D. Kelly, barrister, Ottawa, as its representative, and the men selected Fred Bancroft of Toronto. Judge Gunn was appointed subsequently as chairman.

The Toronto Ry. Appeals Against the Penalty of Car Shortage.

Canadian Railway and Marine World for May gave particulars of the Ontario Railway and Municipal Board's judgment fining the Toronto Ry. $24,000 up to April 19, which was at the rate of $1,000 a day, from Mar. 27, for not having provided additional cars, as ordered by the board. The company has appealed to the Appellate Division of the Supreme Court of Ontario on the following grounds:—

That the order is not one which the Ontario Railway and Municipal Board could make on its own motion. That the board had no jurisdiction to make the order, whether on its own motion or on an application for that purpose. That the order was not made for the purpose of enforcing compliance of any order heretofore made by the board. That under the powers contained in the Ontario Railway Act and amendments thereto, the board cannot direct a penalty to be paid for any neglect of the company prior to the date of such order.

The evidence shows that the Toronto Ry. did comply and use its best efforts to comply with the board's order, which directed the purchase of 100 new cars, and that it was impossible at the date of the order, owing to war and other commercial conditions existing, to obtain the cars ordered, although every effort was made to do so. The company should not have been ordered to furnish such cars, and the board's order of Feb. 27, 1917, was improperly made and without jurisdiction.

The company substantially complied with every order of the board, and the board should not therefore, have ordered the company to pay any fine or penalty. The order is against the evidence and the weight of evidence and contrary to law and the weight of evidence. Evidence was wrongfully rejected.

The Ontario Legislative Assembly had no jurisdiction to enact the Ontario Railway and Municipal Board Act, Revised Statutes of Ontario, and amendments thereto, and the Ontario Railway Act, chap. 185 of Revised Statutes of Ontario, and any amendments thereto, and D. N. McIntyre and A. B. Ingram have not been validly appointed as commissioners under such acts for the purpose of making such order, and have not jurisdiction to make the order complained of, upon the ground that the appointment of the said commissioners is not within Ontario's legislative authority. The company also appeals upon other grounds sufficient in law to support the appeal.

Coal Saving in Montreal.—The Montreal Tramways Co.'s additional contract for hydro electric power, particulars of which were given in Canadian Railway and Marine World for May, will probably enable it to save about 40,000 tons of coal during the 18 months covered by the contract. In this connection one of our subscribers writes:—"The conservation of about 40,000 tons of coal at, say, $10 a ton on the power house floor, means far more than the mere money saving. It means that some 5 ships of 8,000 tons each would thus be relieved of one journey from the mines to Montreal—if ships were available. About 8,000 families, using 5 tons of coal each, will get coal easier than if this great quantity went up in smoke. Canada should give every encouragement possible to water power development, so that coal consumption for power production can be reduced."

Valuation of London and Lake Erie Ry. and Transportation Co's Property.

The question of the purchase of the London & Lake Erie Ry. & Transportation Co.'s electric railway, by the London, Ont., City Council, has been under consideration as a definite proposition since Mar. 20, when the company's directors passed a resolution offering to sell to the city for $420,000, a price which, it was stated, was equal to 50c on the dollar of the bond issue. The city, before taking any action, proposed that a valuation of the company's property and other assets should be made by the Hydro Electric Power Commission of Ontario, which had at an earlier date been considering the value of the L. & L. E. Ry. At a meeting of the city's board of control, May 10, a letter was read from Sir Adam Beck, Chairman of the Hydro Electric Power Commission of Ontario, and was subsequently referred for consideration to the finance committee. The letter was as follows:—

"In further reference to your favor of Mar. 9, in which you ask the Hydro-Electric Power Commission to furnish the board of control with an estimate of the value of the London & Lake Erie Ry. & Transportation Co.'s properties, I may say that, after deducting the cost of removing and disposing of the lands, buildings, materials, equipment and rolling stock, the engineers and land valuators of the commission estimate the value of the lands, buildings, materials, equipment and rolling stock of the company as of April 30, at $262,164.

"In reply to your question and to enable the City of London to consider the advisability of purchasing and operating the company's properties in conjunction with the London & Port Stanley Ry., the commission's engineers, after a thorough investigation of the whole situation and the acquisition of detailed information from the company, report on the reconstruction and remodelling of the L. & L. E. Ry.'s properties between London and St. Thomas to enable it to operate in conjunction with the L. & P. S. Ry., including an extension of the company's lines to connect with the L. & P. S. Ry. terminals in London; also including the purchase of two new cars suitable for operation on either lines to replace those disposed of. The engineers also report that the value of the lands, materials, equipment and properties through and south of St. Thomas to a point north of Port Stanley, disposed of in connection with the line, would be sufficient to pay for the cost of reconstructing and remodelling the lines above referred to, leaving a balance of approximately $20,000, which can be applied in the acquiring of the railway.

"The net revenue obtainable from the operation of the remodelled line of the company between London and St. Thomas accruing to the L. & P. S. Ry. between London and Port Stanley is estimated at $16,425.00, taking into consideration the increased rates now in force and that will be in force, and making no allowance in the operating expenses for depreciation or taxes on the property. The above net revenue capitalized with sinking fund at 1.8%, based on 30-year bonds, would be sufficient to pay interest: 1.—At 5% on $241,541.00 of bonds; 2.—At 6% on $210,500.00 of bonds, with no allowance for depreciation and taxes in the operating expenses."

At a meeting of the London Board of Control, May 17, it was decided to take up with the London Railway Commission the question of the purchase of the London & Lake Erie Ry. & Transportation Co.'s line between London and Port Stanley, Ont., the idea being that all the municipalities through which it runs should join in the purchase. The L. & L.E. Ry. & T. Co. has a connection with the St. Thomas Ry., operated by the city of St. Thomas, and a suggestion has been made that this line also be taken over and operated in connection with the London & Port Stanley Ry., the London Ry. Commission being reconstituted so that all the municipalities be represented on it.

A London press dispatch of May 23 said the L. & L.E.R. & T. Co. had made another offer to the city, viz., to sell the portion of its line from London to Stanley St., St. Thomas, for $300,000, this not to include the car barns or any equipment in St. Thomas.

The Toronto Railway and Women Conductors.

The company announced early in May, that it was willing to engage women conductors, if they were willing to undertake the work, and that a number of applications had been received. In order to deal with them, it was stated that special quarters would be allocated for their use, in charge of a matron, and that the hours of working and pay would be on the same basis as now applies to the men. It would be required that they first train for two weeks, after which they would be paid 30c an hour for the first six months, 32c for the second six months, 35c for the next 12 months, and 37c an hour afterwards. A press report stated recently that this matter was before the Ontario Railway and Municipal Board for its approval, on the granting of which, the company would proceed with the changing of its cars to the p.a.y.e. type. The question of the employment of women is not before the board, and is not connected with any proposed change in the construction of the company's cars, but is purely a domestic matter, with which the board has no concern. At a meeting of the company's employes, May 11, the following resolution was passed:—

"That it is the opinion of the members of the Toronto St. Ry. Employes' Union that it would be an injustice to women to have them train for two weeks without remuneration for conductors on the street cars, only to realize, after a short period that, owing to the system of operation, hours of labor and the conditions under which the work is performed, they were unable to stand the strain. We are also of the opinion that it would not be conducive to either the health or the moral standing of women to have them collect fares in crowded cars such as are found on the system. We note that in an interview with the press the Manager stated that it is the intention to remodel the cars into the p.a.y.e. type, and that the conductors will virtually become cashiers. We are of the opinion that if this is done returned soldiers should be engaged to fill vacancies as they occur, since men in broken health, or those who have lost a leg, could fill the position, and we feel that we would be remiss in our duty and show a lack of appreciation of what these men have done and suffered, if we did not appeal to the women of this country not to deprive those men of this opportunity of earning a living. Therefore, be it resolved that, if the company insist on employing women, we will refuse to instruct or operate a car on which women are placed for the reasons set forth. And any attempt on the part of the company to discipline or discharge motormen or conductors for so doing will meet with prompt action by members of the union."

Towards the end of May it was stated that the Toronto Ry.'s General Manager had expressed his willingness to refer the question of the employment of women as conductors to a conciliation board, and the business agent of the Toronto Ry. Employes Union was also stated to be in favor of this.

Increased Fares on Edmonton Radial Railway.

The Edmonton Radial Ry. put a new schedule of fares in operation on May 1, as follows:—Adults, single cash fares 7c; after 11 p.m., 10c. Tickets may be purchased on the cars at 4 for 25c, or at special places throughout the city at 5 for 25c. Two tickets are required for night fares; no workmen's tickets are issued. Juveniles—Under 6 years, free; 6 to 15 years, or high school students with certificates, 10 tickets for 25c, or half fare; after 11 p.m., 2 tickets or 5c cash. Transfers as usual. Tickets bought before May 1, will be honored after that date. Between 5 and 6.30 p.m., baby carriages and large parcels will be charged for at 5c each.

The Mayor has issued the following appeal to the citizens:—"Owing to the city's general financial condition and the urgent necessity of providing means which may tend to enlarge the street railway revenue, it has been found necessary to institute a new schedule whereby fares have been increased. This change has only been made by reason of the necessity of the situation, and I ask the citizens that they will recognize the action of council in that light. Although there must be some hardship, yet I appeal to the citizens to realize that the step has been taken in their interest, and ask them to rally to the support of the city and the street railway system, in a united effort to raise it to a more profitable basis."

Superintendent Moir reported May 2 that the new fares were proving generally acceptable to the people, and that, while a good deal of explaining had to be done by the conductors, the change from the old rates had been made in a satisfactory manner.

The following figures have been given out, showing the number of passengers carried, and the revenue earned during the first five days of May as compared with the corresponding five days of April. It is claimed that the increase of fares which came into operation at the beginning of May is responsible for the decreases reported.

	Receipts.		Passengers carried.	
Day.	May.	April.	May.	April.
1st	$1,429.80	$1,591.15	27,595	34,018
2nd	1,330.85	1,876.16	25,887	39,887
3rd	1,332.36	1,844.35	26,047	39,324
4th	1,540.21	1,903.15	30,409	40,522
5th	821.90	1,836.05	15,356	39,293

It is to be noted that while May 1 was a Wednesday, April 1 was a Monday.

Hamilton & Dundas St. Ry. and Toronto, Hamilton & Buffalo Ry.—The Dominion Parliament has confirmed an agreement made with the Hamilton & Dundas St. Ry., June 17, 1897, under which the Toronto, Hamilton & Buffalo Ry. obtains an entrance over its line into the town of Dundas, Ont. The agreement was made for 50 years, and was approved by the Ontario Legislature in 1898. When application was made to the Dominion Parliament in 1917, such opposition was offered by the town of Dundas, that the bill was withdrawn.

Pre-payment Cars Proposed for Toronto Railway.

The Toronto Ry. has arranged one of its existing double truck cars on a pre-payment plan, and submitted it to the Ontario Railway and Municipal Board for approval. If it is approved, it is probable that a number of the cars will be so arranged and placed in service.

The changes made, are confined to the rear end, where the bulkhead has been removed, and the main floor of the car projected into the vestibule, in order to accommodate a seat for the conductor, and a stationary fare box. By this arrangement the seating capacity of the car is not interfered with, and there is ample room on either side of the conductor for entrance and exit of passengers. The rear vestibule is fitted with folding doors and folding step, and these are operated by a small pneumatic engine located above the door, and connected with a light signal to the motorman, to indicate immediately the doors are closed, without which signal, he should not start the car.

The space occupied by the conductor projects about 3 ft. into the vestibule, and is 2 ft. wide, the vestibule measuring 6½ ft. from the original car floor line. On entering the car, passengers would pass in front and to the right of the conductor, place fare in the box and pass into the car. Exit would be made either from the front, or back of the car, in the latter case, passing on the conductor's left. When the car is full, the conductor would move the handle in front of him, to start the door mechanism, thus closing the doors and raising the folding step in one operation, and at the same time, automatically giving the light signal to the motorman to start the car.

The door opening is 5 ft. wide, and the folding step, when down to allow passengers to enter the car, is 15 in. from the street level, the next step is 12½ in. to the vestibule floor, which is 9½ in. below the main car floor. The car carries signs on the front, and at the side rear end, requesting passengers to have the exact fare ready, and some improvements have been made in the arrangement of the route signs, which are of the illuminated type.

The Montreal Tramways Co's Wages and Fares.

The City Commissioners of Montreal wrote, on May 16, to the mayors of the other five municipalities in which the Montreal Tramways Co. operates its electric cars, as follows:—

The Montreal Tramways Co.'s employes are asking for an increase of wages representing a total of about $1,000,000. After several conferences with the Tramways Co. without any practical solution, the company's employes laid their request before the administrative commission of the City of Montreal, in order to obtain its opinion on the question at issue.

"In virtue of the contract entered into on Jan. 28, 1918, between the city and the Tramways Commission, and ratified by the legislature, the tariff for the transportation of passengers varies according to the amount of operating expenses, of the cost of maintenance, and so forth, of the system. The salary of the employes is included in such expenses. It follows that the increase of the salaries of employes as well as the increase of the price of materials required for operating the company's system, materially affects the tariff for the transportation of passengers. This tariff must be fixed by the Tramways Commission, not only within the limits of the City of Montreal, but also in the other municipalities in which tramway lines have been established by the company.

"As the citizens of your town will be called upon, as those of Montreal, to pay any increase of rates, your council is interested for the benefit of such of your citizens as are using the tramways, in controlling the company's expenses so that the said rates may not be too high. Your council is therefore directly interested in the question now submitted to the administration commission of the City of Montreal. For the above reason our commission has deemed it advisable to call a meeting, at which the different interested municipalities would be represented, at the City Hall, Montreal, on May 22. Will you kindly call at once a meeting of your council in order that it may appoint one or more representatives, vested with the authority required to reach a decision on this question."

The demand of the employes, who number about 3,600, is for a very considerable increase of wages. Their present rate of pay is 25c an hour for the 1st and 2nd year, 26c for the 3rd and 4th year, and 29c for the 5th and following years. They have asked the company to start at 30c an hour, and increase to 32c after a year service, 35c after two years service, and 40c after three years service, maintaining that the high cost of living makes such an increase necessary, and pointing out that Toronto pays its electric railway conductors and motormen from 30c to 37c an hour.

Some of the company's officials had a conference with officials of the employes' union on May 23 upon the wages question. The union's secretary states that the men are asking for increases running from 25 to 40%, the average being 33 1/3%, while the company offers a minimum of 36c an hour for conductors and motormen. The present scale is 25c for 1st and 2nd year, 26c for 3rd and 4th year, and 29c for 5th year and thereafter. It is reported that the men will accept the company's proposal if an increase of wages is also given to shop men. There are also points in the agreement on which discussion is to take place.

Calgary Municipal Ry. Finances.

The Calgary, Alta., city auditors' report on the city finances for 1917 contains the following references to the Calgary Municipal Ry.:—"The satisfactory result shown by the street railway is almost entirely accounted for by the large amount of bank interest earned on its depreciation fund, and on the substantial balance owed to the street railway by the general fund. There is also a remarkable rise in the value of inventory of material, which was certified to by the Assistant Superintendent in the absence of the Superintendent. Some three years ago it was decided by the city to reduce the charge to street railway revenue for depreciation until such time as traffic conditions became normal. We have looked into the comparative figures of the car earnings, which are: 1913, $735,459.79; 1914, $680,197.71; 1917, $556,374.33, from which it is evident that the time has not yet arrived for a return to previous rates of depreciation under the ruling then made."

The auditors state that the non-payment of taxes is responsible to a large extent for the shortage on sinking fund. The total amount at the credit of the sinking fund for the municipal railway should have been, at Dec. 31, 1917, $302,-236.51, whereas it was only $258,919.86.

The municipal railway showed a profit from operation during 1917 of $21,492.52.

Following are comparative statistics for the three months ended Mar. 31, 1918, and 1917:—

	1918.	1917.
Miles operated	728,983	681,394
Hours operated	74,386	64,428
Passengers carried	3,919,649	3,264,424
Revenue per car mile	21.734c	20.999c
Operating expenses per car mile	14.341c	15.255c
Operating expenses per car hour	$1.405	$1.492
Cost of power per car mile	3.371c	3.816c
Average fare per passenger	3.967c	3,969c
Average daily receipts	$1,760.42	$1,473.17
Average daily operating expenses	1,161.56	1,068.12
Average daily operating expenses, including fixed charges	1,738.81	1,639.55
Percentage, operating expenses to revenue	65.9%	72.5%

The balance of revenue over expenses for the three months was $53,897.48, against $36,454.50 in the same period of 1917. After paying all fixed charges, there was a surplus for the three months of $1,945.41, against a deficit of $14,974.57 in the same period of 1917.

Sandwich, Windsor and Amherstburg Railway Improvements.

A letter written by Jas. Anderson, Vice President, S.W. & A. Ry., to the Ontario Railway and Municipal Board and to the Mayor of Windsor, Ont., was made public May 15. It states that the company is prepared to spend $76,954.98 for double tracking on London St., and $32,043.02 for extending double track on Ouellette Ave. from Park, to a little piece beyond Wyandotte, and putting in double curve at the corner of Ouellette and Wyandotte for the belt line cars, thus obviating the necessity of running the cars on the wrong side of the street along Ouellette Ave., as at present.

The letter also says:—"We are willing to carry out the extension in proposition no. 1, although we cannot undertake the whole work in 1918. We will construct the Ferry Ave. loop, the material for which is on hand and has been for four years; this to be the first work completed. We will double track London St. from Jeanette Ave. to the M.C.R., provided we are not asked to pay for laying the second track over the new C.P.R. bridge. If so, we will commence the double track on the west side of the bridge and complete to M.C.R., which will shorten the double track 600 ft. This will provide, if necessary, a 6 minute service along London St. and a 15 minute service along Sandwich St. in both directions, as requested by the city. The double curves at the corner of Sandwich St. and Ouellette Ave., and the extension of double track on Ouellette Ave. to Wyandotte St. will be taken up the following year."

It is stated that although the letter was sent to the Mayor on Jan. 22, it was not laid before the City Council, hence the company's publication of it.

Guelph Radial Ry. Wages.—It was reported, May 22, that the management of this municipally owned line had decided not to grant the employes' demands for a flat rate of 30c an hour, but felt that some increase in wages was required, and announced that it was prepared to pay 27c to first year men, and 28c after that period. The old scale was 25½c, 26½c and 27½c an hour.

Electric Railway Notes Throughout Canada.

The Levis County Ry. put in operation on May 6 its new rates of passenger fares, full particulars of which were given in Canadian Railway and Marine World for April, pg. 160.

The British Columbia Electric Ry. put in operation on May 5 an early Sunday morning car service in Victoria, for the convenience of those desiring to spend the day outside the city.

British Columbia Electric Ry. employes at a meeting held May 11, decided to ask the company for a 20% increase of pay, to date from July 1, the present agreement expiring June 30.

Brantford Municipal Ry. employes sent an application to the railway commission of Brantford, Ont., recently for increases in wages. The chairman announced that the matter was under consideration.

The Montreal Tramways Co. resumed, on May 20, its service on Dorchester Ave., Montreal, which was diverted from the street during the construction of the Canadian Northern Ry. station approaches.

The Calgary Municipal Ry. has added a sight-seeing car to its equipment. The car was given its first run May 1, when a party of returning soldiers, on their way to Vancouver, were given a run round the city.

The Calgary, Alta., City Council discussed, on May 16, a proposal for raising extra revenue by increased charges for public utilities, including the street railway, but it was defeated by a considerable majority.

It is said that the increased wage schedule for the Sandwich, Windsor & Amherstburg Ry., which has been made effective, following the recent arbitration, makes that company's men the highest paid electric railway employes in Ontario.

The Grand River Ry. has, owing to the demands upon the Hydro Electric Power Commission of Ontario for power for munition plants in Galt, Ont., restarted its steam generating plant, for the operation of its lines.
211.)

The British Columbia Electric Ry.'s franchise in Vancouver, expires in Feb., 1919, and unless the city council gives notice of its intention to take over the lines not later than Aug. 11, it will become automatically renewed for a further five years.

Winnipeg Electric Ry. employes struck on May 22, in sympathy with a large number of other union men who went on a sympathetic strike to back up civic employes. The company made no effort to operate the cars. A press dispatch of May 25 said the men had resumed work.

Ottawa Electric Ry. employes decided May 16, to apply for an increase of wages, to start from July 1, when the schedule now in force expires. The present schedule is as follows per hour:—1st year 26c, 2nd year 27c, 3rd year and after 30c, with 4c an hour extra for Sundays and legal holidays.

At a meeting of the St. Thomas, Ont., City Council, April 30, when the question of power conservation was under consideration, a suggestion was made that in the event of any further curtailment being necessary, the operation of the electric railway, which is owned by the city, be suspended.

The Calgary Municipal Ry. has made a combination freight and passenger car, out of a car which was damaged by fire some time ago and is running it three trips a day between the city car barns and Bowness, Sarcee and Ogden, respectively. The minimum charge for parcels is 10c, with an additional charge of 10c to 25c per 100 lb.

The Winnipeg Electric Ry. put four motor busses in operation on May 1 from Westminster Ave. and Sherbrooke St. to Portage Ave. and return, and a few days later four trailer cars were put in service on extra cars during rush hour traffic. These are the first steps taken to relieve the congestion of traffic under the terms of the new agreement.

The Regina Municipal Ry. has placed the following notice in its car vestibules: "Please deposit your own fare. When you give the conductor a larger coin than 5c, be sure that he gives you the exact change and all of the change. Then drop the exact fare in the box yourself. Don't hand it to the conductor to put in the box. Do it yourself. Please count the change."

Representatives of the five border municipalities met at Windsor, Ont., May 7, and passed a resolution requesting the Hydro Electric Power Commission of Ontario to make a survey of the Sandwich, Windsor & Amherstburg Ry., with a view to municipalities taking over the lines on the expiration of the franchise in 1922. It was stated that the commission had already collected considerable data, and that it was expected to have a report ready in June.

Electric Railway Finance, Meetings, Etc.

Calgary Municipal Ry.—Net revenue for three months ended Mar. 31, $10,659.55, against a deficit of $14,974.55 for the corresponding three months of 1917. The above net revenue will be reduced by some $6,000, owing to the increased wage schedule adopted recently, which has been made retroactive, to Jan. 1.

Regina Municipal Railway.—

Receipts for April	$18,020.70
Receipts for April, 1917	18,072.45
Passengers carried, April, 1918	379,641
Passengers carried, April, 1917	425,177

Toronto Civic Ry.—Passenger receipts for April, $26,085; passengers carried, 1,541,937, against $21,791 passenger receipts, and 1,284,185 passengers carried in April, 1917.

Winnipeg Electric Ry.—On May 1, the company paid the City Treasurer $105,000, the percentage due for 1917. It was understood that this would be done immediately on the signing of the agreement for the elimination of jitney competition.

Mainly About Electric Railway People.

F. H. Williams has been appointed in charge of the Winnipeg Electric Ry. Publicity Department.

S. Wilkins, heretofore Engineer, Winnipeg Electric Ry., has been appointed Maintenance Engineer.

H. C. Young, heretofore Superintendent of Bridges and Buildings, International Ry., Buffalo, N.Y., has been appointed Purchasing Agent, succeeding J. C. Sheldon, deceased.

C. Bibby has been appointed Assistant Superintendent and Secretary, Sudbury-Copper Cliff Suburban Electric Ry., succeeding M. J. Powell, who had the title of Secretary.

W. E. Massie, heretofore Master Mechanic, Sudbury-Copper Cliff Suburban Electric Ry., has been appointed General Superintendent, succeeding L. O'Connor, who had the title of General Manager and Treasurer.

Hugh Mackay, Montreal, and **H. H. Pitts, Ottawa,** have been elected directors, Toronto Ry. Co., thus increasing the board by two, in accordance with the resolution passed at the recent special meeting of shareholders.

C. Loop, formerly Road Master, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont., who left that company's service in Dec., 1917, to take charge of track construction on the Essex Terminal Ry., has returned to his former position.

W. R. Robertson, Superintendent, Niagara, St. Catharines & Toronto Ry., has been appointed registrar, for the County of Lincoln, Ont., for the Dominion registration of man and woman power in June. He is secretary of the soldiers aid local branch.

F. L. Butler, heretofore Transportation Engineer, Winnipeg Electric Ry., has been appointed General Superintendent, succeeding Wilson Phillips. Prior to going to Winnipeg, he was General Manager of the Chicago & West Towns Ry. and the Suburban Rd., Chicago, Ill.

T. H. McCauley, Superintendent, Calgary Municipal Ry., has been given an increase of salary to $4,000. At January, 1913, his salary was increased to $4,200, but was reduced 20% Jan. 1, 1915, on account of the war. The city council's committee recommended recently an increase to $3,500, but upon consideration, the council made it $4,000.

Jno. Murphy, M.Can.Soc.C.E., Electrical Engineer, Railways Department, and Board of Railway Commissioners, Ottawa, has also been appointed by the Fuel Controller, as agent, to promote the substitution of hydro electric power for steam power, for the purpose of conserving coal. Mr. Murphy completed recently a very strenuous winter's campaign in connection with the Niagara power shortage.

George A. Mills, Electrical Engineer, Winnipeg Electric Ry., now has charge of the Electrical Department, the position of Power Superintendent, heretofore held by R. H. Long, having been abolished. Before going to Winnipeg, he was for six years Electrical Engineer for the Waterloo, Cedar Falls & Northern Ry. in Iowa, and in that capacity, installed a system dealing with electrolysis; and prior to that service, he was instructor in electrical engineering at Pennsylvania University. He is a member of the American Institute of Electrical Engineers.

Montreal & Southern Counties Ry.—The Administrative Commission and the Tramways Commission of Montreal, on May 16, granted the company a 10 years' extension of its contract with the city from June 18, when the present contract expires. W. B. Powell, General Manager, laid before the commissions, plans of the station which the company proposes to erect after the war, to face Youville St., and asked permission to lay a curved connection between the company's lines on Youville St. and the Montreal Tramway Co.'s lines on McGill St., and some other connecting lines. The line to McGill St. was approved, but the commissions refused the others.

The Grand River Railway.

The Grand River Ry. is the title under which the Galt, Preston & Hespeler St. Ry. is being operated, the railway being an electric subsidiary of the C.P.R. The new name has only been assumed recently, although authority to use it was granted by the Dominion Parliament in 1914.

The history of the companies involved in the amalgamation may be briefly summarized as follows:—The Galt & Preston St. Ry. was incorporated under the Ontario law by letters patent on Nov. 20, 1890, to build an electric railway between Galt and Preston. The title was changed to the Galt, Preston & Hesleper St. Ry. by subsequent letters patent, April 10, 1895, when the extension to Hespeler was built, and the line was subsequently operated as the Galt, Preston & Hespeler St. Ry. The Preston & Berlin Ry. is a later Ontario incorporation.

The Berlin, Waterloo, Wellesley & Lake Huron Ry. was incorporated by the Dominion Parliament in 1903, to build a railway from Berlin to Waterloo, Wellesley, Glen Allen, Listowel and Goderich, Ont. In the following year parliament gave the company power to build an additional line from Wellesley to Stratford, St. Marys, Clinton and Bayfield on Lake Huron, and authorized it to enter into agreements under the provisions of the Railway Act, with the Galt, Preston & Hespeler St. Ry., and with the Preston & Berlin Ry. At a later period the Guelph & Goderich Ry., incorporated by the Dominion Parliament to build not only a line from Guelph to Goderich, but also branch lines in somewhat the same territory, became active, and there were many surveys made by one or both companies, under C.P.R. auspices, for a line from the G. & G. Ry., through Listowel and Stratford to St. Marys, to make a connection with another local C.P.R. subsidiary, the St. Marys & Western Ry. Beyond the building of the line from Guelph to Goderich, nothing was done until 1914, when the Dominion Parliament authorized the B.W.W. & L.H. Ry. to change its title to that of the Grand River Ry. Whatever agreements were made between the B.W. W. & L.H. Ry., the G.P. & H. Ry. and the P. & B. Ry., under the act of 1904, these two lines continued to be operated under the same management, and to retain for public purposes their own independence. A change became apparent upon the publication of the Dominion statistics of electric railways for the year ended June 30, 1915, in May, 1916, when the G.P. & H. Ry. and the P. & B. Ry. disappeared from the reports and their mileage of 17.81 was given as the Berlin, Waterloo, Wellesley & Lake Huron Ry. The old titles still continued to be used for operating purposes, and it is only quite recently that the title Grand River Ry. has been made use of.

In connection with the transfer of the Galt, Preston & Hespeler St. Ry. Co.'s property to the Grand River Ry. Co., several changes have been made in the officials, who are now as follows: President, Sir George Bury, Vice President, C.P.R.; Vice President, M. M. Todd, heretofore President, G.P. & H. St. Ry.; Secretary, H. C. Oswald, Assistant Secretary, C.P.R.; Treasurer, W. H. Lutz, heretofore Secretary-Treasurer, G.P. & H. St. Ry.; General Accountant, A. McL. Campbell, heretofore of C.P.R. Audit Department, Montreal. The following officials have been given the same positions in the Grand River Ry. service as they had heretofore with the G.P. & H. St. Ry., viz.: M. W. Kirkwood, General Manager; C. J. Whitney, General Freight and Passenger Agent; F. H. Midgley, Resident Engineer; F. Darnley, Purchasing Agent; J. Deans, Roadmaster.

United States President Authorized to Take Over Electric Railways.

The United States Congress passed an act April 22, providing as follows:—

Sec. 1 of the emergency shipping fund provisions of the urgent deficiency appropriation act of June 15, 1917, is hereby amended by adding a new provision reading as follows:

"(f) To take possession of, lease or assume control of, any street railroad, interurban railroad, or part thereof wherever operated, and all cars, appurtenances, and franchises or parts thereof commonly used in connection with the operation thereof necessary for the transfer and transportation of employes of shipyards or plants engaged or that may hereafter be engaged in the construction of ships or equipment thereof for the United States."

Sec. 2. That paragraph (b) of sec. 1 of said act is hereby amended by adding, after the word "material," in the third line of said paragraph, the following words, "or take possession, lease or assume control of, any street railroad, interurban railroad, or part thereof, cars and other equipment necessary to operation."

Sec. 3. That upon taking possession of such property, or leasing or assuming control thereof, just compensation shall be made therefor, to be determined by the President, and if the amount thereof so determined by the President is unsatisfactory to the person entitled to receive the same, such person shall be paid 75% of the amount so determined by the President and shall be entitled to sue the United States of America to recover such further sums as added to 75% will make up such amount as will be just compensation therefor, in the manner provided for by section 24, paragraph 20, section 145 of the Judicial Code.

The President may exercise the power and authority hereby vested in him through the several departments of the government, and through such agency or agencies as he shall determine from time to time.

Calgary Municipal Railway Wages.

The Calgary, Alta., City Council has approved of the following new schedule of wages retroactive to June 1, 1918, viz.:

Conductors and motormen—1st year, 40c; 3rd 6 months, 41c; 4th 6 months, 42c; 5th 6 months, 43c.

Motor-conductors—1st year, 45c; 3rd 6 months, 46c; 4th 6 months, 47c; 5th 6 months, 48c.

From July 1, 1918, the following rates will be in force:

Conductors and motormen—6th 6 months, 44c; 7th 6 months and after, 45c.

Motor-conductors—6th 6 months, 49c; 7th 6 months and after, 50c.

The entire system has been operated with one-man cars since Mar. 6, 1917, a motor car seating 78 passengers, and a trailer car seating 84 passengers being operated by two men, or one man on each car. Conductors on trailer cars are classed as conductors. Forty-three regular cars, and from 25 to 35 extra rush hour cars, or trippers, are operated.

Following are the wages per hour of shop and line men:

Shop forman and general repairs	55c
Leading hand blacksmith and general repairs	52c
Leading hand carpenter and general repairs	52c
Leading armature winder and general repairs	52c
Leading motor and controller trouble	47c
Leading foreman, night repairs	45c
Leading brakes and truck repairs	47c
2nd blacksmith and general repairs	45c
Carpenter, 1st class	48c to 52c
Babbitter, fitter and air brake	50c
Cash box repairer and locksmith	48c
Repairing sanders, fenders and fittings	48c
General car repairs, 1st year 38c, 2nd year 42c, 3rd year and after	46c
Foreman painter	$118 a month
Brush hands	45c to 47c
Cleaners, washers and assistant car repairs: Head car cleaner 42c, 1st year service 37c, 2nd year service 38c.	

Leading hands are allowed 3c an hour extra when so acting.

Increased Electric Railway Fares in the United States.

The Missouri Public Service Commission has ordered a 6c car fare in St. Louis, to go into effect June 1. The new schedule will be effective for a year, at the end of which time the commission reserves the right to reduce it should it so desire. Increased cost of operation, including the necessity of paying adequate wages, is given as the cause of the advance. With the addition of St. Louis, the list of 6c far cities is a long one and is constantly growing. Six cent fares will be in force in the following cities on June 1:—St. Louis, Pittsburg, Portland (Oregon), New Haven, Fall River, Lowell, Bridgeport, Hartford, Reading, New Bedford, Lynn, Lawrence, Waterbury, Wilkes Barre, Erie, Brockton, Haverhill, New Britain, Salem, Lexington (Ky.), Meriden, Nashua, Norwalk, Middletown (Conn.), Pottsville, Rutland, Dover, Meadville.

In addition to these cities in which a 6c unit fare is either in effect, or authorized, several cities have had fares increased by the introduction of the zone system, which establishes a central zone within which a 5c fare is charged, while an extra fare is charged for rides that extend beyond this zone. Cities in which fares have been increased in this manner are:—Providence, Springfield, Pawtucket, Wonosocket, Norwich, New London.

That municipally owned roads face the same crisis in their affairs as do the privately owned systems, is shown by the case of the line owned by the City of Tacoma. This line is 3⅞ miles long and the city has increased its far from 5c to 10c.

Two recent incidents, show that the business community is coming to recognize the necessity of giving electric railways sufficient revenue to enable them to supply the service, which the needs of business, increased by the nation's war programme, demands. The first is a petition directed to the mayor of Rochester, N.Y., and signed by practically every important manufacturer in the city, asking that the New York Railways be permitted to charge a 6c fare. The second is the action of the Merchants' Association of New York, the most representative business body of the city, by which it directly favors the increase of fares on the subway and elevated lines of the city from 5c to 6c.

Port Arthur Civic Railway Wages.—A press report says that the Port Arthur, Ont., Public Utilities Commission has advanced conductors and motormen's wages to the following figures: First 6 months, 30c a year; next 18 months, 33c; after two years, 36c.

C. A. Lee, a member of the British Columbia Electric Ry. staff at Vancouver, B.C., has joined the U.S. Navy Civil Engineering Corps, as a lieutenant.

Fare Increases on Electric Railways in New York State.

The New York State Court of Appeals has decided that public service commissions have not the power to increase electric railway fares when franchise agreements or municipal charter provisions limit the rate to be charged. This decision upholds the City of Rochester in its fight against 6c fares.

In this connection, J. K. Choate, chairman of the committee representing the electric railways of New York State, which have been endeavoring to secure increases in rates for some 33 railways, has issued the following statement:—

"The decision of the Court of Appeals denying the right of the state's public service commissions to increase fares above those fixed in franchises or contracts between communities and their street railways, is a matter of as grave concern to the U.S. Government and to the communities themselves as it is to the electric railways. It means, unless the condition thus produced is immediately corrected, that the transportation utilities of the state cannot render that assistance to the nation's war programme which recent pronouncements of President Wilson, Secretary McAdoo and Comptroller Williams declares to be urgent and necessary. It means that these utilities will no longer be able to furnish to the public the kind and extent of service, needed to further the growth and prosperity of the communities in which they operate nor to properly provide for the convenience and comfort of their patrons. It will mean decided interference with the plans of the National Government, under which the War Finance Corporation was to provide means to enable railways to secure the absolutely necessary new capital for refunding maturing obligations, since the co-operation of the states and communities in securing to the borrowing companies a rate of return which would give stability to the securities pledged with the War Finance Corporation was a fundamental of the plan.

"The problem of providing sufficient revenue to enable electric railways to furnish the service necessary is not a concern of the railways alone. It is a very grave concern of the public authorities and of the public. The Governor of Massachusetts has thought it of sufficient moment to direct a special message to the legislature recommending that the law be amended so as to provide emergency relief. The New Jersey Public Utilities Commission has announced that it will disregard precedents in the consideration of rate cases and will view applications only in the light of the necessity of providing sufficient revenue to enable the utilities to respond to the demands made upon them. The New Hampshire Commission has announced a similar policy, as have the regulatory authorities in other states. Within the last few months, increased fares have been granted to more than 100 companies in 25 states, outside of New York.

"In New York State it was the belief of at least one of the commissions and of the companies represented by this committee that the public service commissions were empowered to grant relief. The Court of Appeals has ruled otherwise. The situation, as far as it affects the public and the companies, is not changed. The need of relief is as imminent and pressing as ever. The Court of Appeals decision simply means that the theory of state regulation as applied in this state has broken down in an emergency and that some other method must be adopted to meet conditions which threaten to hamper the usefulness of transportation utilities at a time when their increased efficiency is vital to the nation and to the public. It is inconceivable that New York State shall not quickly and effectively meet the issue. It needs no argument to prove that at a time when the cost of material, of labor and of money has increased and is increasing by leaps and bounds, provision must be made whereby utilities as well as other industries may advance the price of their product to meet the contingency."

One-Man Car Results on Calgary Municipal Raiway.

T. H. McCauley, Superintendent, has favored us with the following information:—In 1917 all cars on the Calgary Municipal Ry. were converted over to one-man operation, requiring about half the original staff and paying operators 5c an hour more wages. The cars operated were increased to 42 regular, and 32 extra rush hour cars, or a total of 74 cars operated. The cost of converting the cars was paid out of revenue and the following results are from the auditors report from the calendar year 1917:

Miles operated	2,739,923
Passengers carried	13,606,663
Revenue (with interest)	$582,553.97
Operating expenses, including fixed charges	561,061.45
Surplus profit	21,492.52

The financial position at Dec. 31, 1917, being:

All debenture interest paid.	
In sinking fund account	$302,236.51
In depreciation account	374,897.15
In contingent reserve account	94,711.36
Total	$797,168.85

Lethbridge Municipal Railway Operating Results.

Commissioner Freeman in his report on the public utilities of Lethbridge, Alta., for 1917, refers to the Lethbridge Municipal Ry. as rollows:—"I am pleased to say that the street railway department has done slightly better than had been anticipated, in spite of the ever increasing cost of labor and materials. The cost of operation has been kept as low as possible and the improved patronage has increased the earnings. Earnings for the year were $52,203, compared with $49,639, an increase of $2,564, while operating costs increased from $41,535 to $48,821. The profit of the system over operating expenses was $8,382, an increase of $277. It had been estimated that the deficit caused by the fixed charges would amount to $30,178, while in reality the railway came through with a deficit of only $28,-878."

Following are the figures for the calendar year 1917, subject to auditor's report:

Earnings	$52,203.88
Operating expenses	43,821.46
Operating profit	$ 8,382.42
Fire insurance, taxes, sinking fund, debenture interest and bank commission on debenture payments	$37,260.44
Deficit	$28,878.02

The Toronto, Hamilton & Buffalo Ry. took a party of business men from Hamilton, Brantford and Dunnville on a trip to Port Maitland, Ont., May 18, to show the terminal facilities there, and the working of the car ferry steamship, Maitland.

Telegraph, Telephone and Cable Matters.

The Great North Western Telegraph Co. has reopened its offices at Beaumaris, Cardinal Canal and Tottenham, Ont., and has closed its offices at Chapeau, Kiskisink and Ste. Anne de la Perade, Que., and Beamsville Camp, and Dunnville, Ont.

A press report from Dawson, Yukon, states that the Dominion Government contemplates the temporary abandonment of the commercial telegraph line connecting Dawson with Ashcroft, B.C., and that no change could be made in the estimates, then before Parliament. The estimates for telegraph lines given in this issue, include an item of $250,000 for the Ashcroft-Dawson line.

Among the Express Companies.

The Board of Railway Commissioners has extended the express delivery and collection limits at Walkerville, Ont.

D. W. McNabb, of the Bureau of Explosives, delivered an address, illustrated with lantern slides, at Regina, Sask., recently in the interests of the Express Traffic Association of Canada, on the handling and packing of dangerous packages for express companies.

Unification of the express companies is being considered by the U.S. Railroad Administration. It is stated that the merger plan of four principal express companies operating in the eastern district, will probably be approved shortly. It is suggested that the companies shall amalgamate under the name of the Federal Express Co., with a capital of $50,-000,000, four-fifths of which would represent property, the balance being working capital.

The U.S. Director General of Railroads is reported from Washington, D.C., to be conferring with express companies' representatives, on the terms of a tentative contract under which all the express companies will be merged, with a capital of $34,000,000, to act as government agent in the express business, but without direct government control. The railways would take a little more than 50% of the express receipts, or approximately the same proportion as at present, and it is considered that the balance would be sufficient to allow the company to pay about 6% on the capital stock. It is suggested that the company be named the Federal Express Co.

Canadian Westinghouse Co.—Alfred R. Miller, Treasurer, died at Hamilton, Ont., April 28, aged 43. He was born in England and removed to Canada with his parents at an early age. His whole business life was virtually spent with the Westinghouse interests in Canada, he having entered the employment about 20 years ago, and having progressed with the company until at the time of his death he occupied the responsible position of Treasurer.

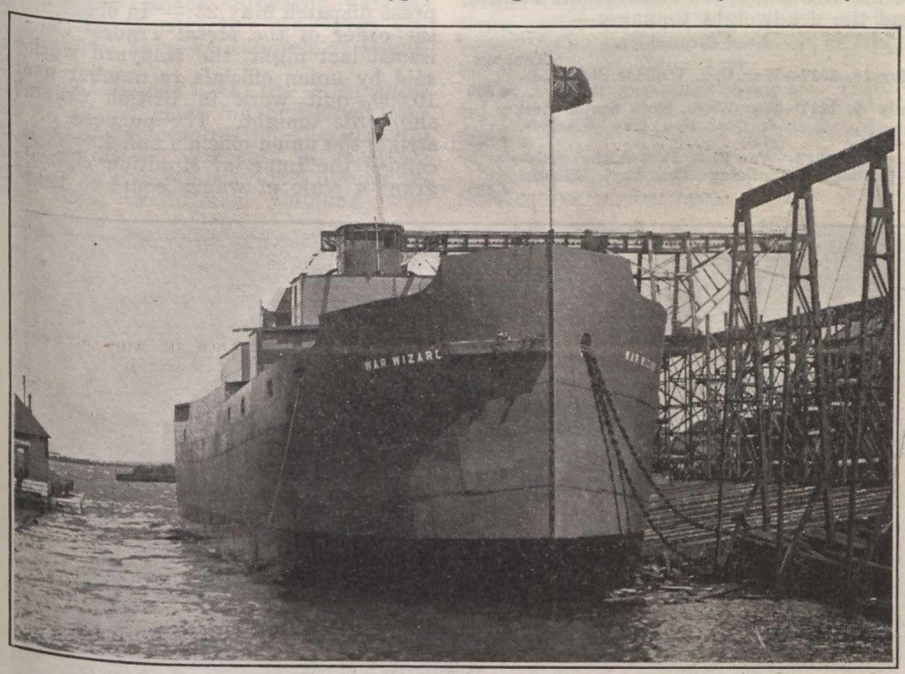
Railway Lands Patented.—Letters patent were issued during April, for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Alberta & Great Waterways Ry.	65.77
Canadian Northern Ry.	1,959.32
Central Canada Ry.	30.91
Edmonton, Dunvegan & British Columbia Ry.	157.29
Grand Trunk Pacific Branch Lines Co.	43.45
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co.	322.00
Total	2,578.74

Marine Department

Steamship Building in Canada for British Government.

The Collingwood Shipbuilding Co., Collingwood, Ont., launched on May 8, the ocean going steamship War Wizard, the first of two vessels ordered by the Imperial Munitions Board. The War Wizard is of the poop, bridge and forecastle type,



Cargo steamship, War Wizard, just after launch ing at Collingwood, Ont., May 8, 1918.

with engines amidships. Her dimensions are: 261 ft. overall, 251 ft. between perpendiculars, 43½ ft. beam, 20 ft. depth moulded, to carry approximately 2,900 tons deadweight. The vessel and her equipment have been constructed to the highest classification of the British Corporation Registry. She has 2 large holds and 4 large hatchways. The cargo gear is of the most modern type and arranged for quick handling. Accommodation for the officers and engineers is provided for in a large steel deckhouse on the bridge deck. The petty officers' accommodation is under the forecastle, and the crew has commodious accommodation aft. Like all other vessels of this type, provision is made for mounting a gun on the poop.

The engine is of the triple expansion type, the cylinders being 18, 30 and 50 in. x 36 stroke, taking steam from 2 Scotch boilers, 14 ft. diameter by 10¾ ft. long, working at 180 lb. pressure, with forced draught. The auxiliary machinery and equipment is of the latest and most complete kind for ocean service. The vessel was launched with the machinery and boilers on board, and will be ready for sea in a very short time. She will be operated under the management of E. C. Downing of Cardiff, Wales. A second vessel, War Witch, is on the stocks for the British Government.

J. Coughlan & Sons, Vancouver, B.C. It was announced early in May by J. J. Coughlin, that the launching of the s.s. War Charger, which was scheduled for May 9, had to be postponed, owing to the non-arrival of the turbine engines. It was, however, expected that the launching would take place before the end of the month. The War Charger is the second of the 9 steel cargo steamships ordered from the company by the Imperial Munitions Board, and the third vessel to be built by the company, the first, the s.s. Alaska, having been originally intended for Norwegian registry, and being taken over by the British Government while on the ways.

J. Coughlan & Sons, Vancouver, B.C.—A serious fire occurred at this yard, May 15, the damage being estimated at $1,500,000. The company has an order from the Imperial Munitions Board for 9 steel steamships, one of which, the s.s. War Camp, has been launched, and with the s.s. Alaska, built for Norwegian register, but taken over by the British Government, was at the fitting out wharf. The engines of the Alaska, which were in the boiler shop, are reported destroyed. Two vessels, the War Charger and War Chariot, were on the ways, the first being considerably damaged by heat, and the second becoming a total loss when the supporting piles were burned away, allowing the hull to settle down in the mud, and break her back. Two keels were laid on the remaining ways, and these are intact. The work of clearing the yards was taken in hand at once, so that as little delay as possible will take place in the execution of the contracts under way.

Foundation Co., Victoria, B.C.—Reference to the panoramic view of four vessels under construction on the following two pages shows the hull of the s.s. War Massett, which was launched Apr. 11, as mentioned in our last issue, and three other hulls in various stages. Hulls 3 and 4 have all the deck work and house work completed and the bulkheads are being finished up. Work on hull 5 is progressing favorably, the ceiling being completed, and the planking for about three strakes above the main deck. All main deck beams and stanchions are in place, and preparations are being made for laying the main deck. All joiner work, decks and all deck machinery and fittings are completed while the hulls are on the ways, so that when they are launched, they are ready for receiving the propelling machinery. At the time we were advised, no date could be set for launching hulls 3 and 4, as delivery of the rudders, propellers, etc., had not then been made, this resting with the Imperial

Launching of the s.s. War Masset, for the British Government at Victoria, B.C., April 11, 1918.

Munitions Board. The names chosen for the vessels are: Hull 3, War Babine; hull 4, War Camchin; hull 5, War Nanoose. When these are completed, the company's contract with the Imperial Munitions Board will be finished.

Wm. Lyall Shipbuilding Co., Vancouver, B.C.—The third wooden hull to be built by this company under order from the Imperial Munitions Board, was launched Apr. 27, and named War Cayuse. The fourth of the order for six, was expected to be ready for launching during May.

New Westminster Construction & Engineering Co., New Westminster, B.C.—The launching of the second of the four wooden hulls being built by this company under orders from the Imperial Munitions Board, was expected to take place during May. It is announced that it will be named War Kitimat. It is stated that the machinery will be installed by the company in its own yards, instead of taking the hull to the Ogden Point assembly plant. The machinery was received at the Poplar Island plant early in May.

Quinlan & Robertson, Ltd., Quebec, Que., is reported to be fitting out machine shops, etc., at the Louise docks, for the installation of machinery in the wooden hulls which it is building for the British Government under order from the Imperial Munitions Board. Four standard wooden steamships are under order, the first one being launched recently.

Wallace Shipyards, Ltd., North Vancouver, B.C.—The keel for a steel cargo steamship, ordered by the Imperial Munitions Board, was laid at this plant towards the end of May. It is stated that the company has plans for arranging an additional berth near Lonsdale Ave.

Machinery Installation.—It is reported from Victoria, B.C., that the Imperial Munitions Board has decided, owing to the rapidity with which the wooden hulls are now being launched, and the necessity for speeding up the actual completion of the vessels for service, to allot several of them to private firms for the installation of the machinery. Under present conditions, only six vessels can be handled at the Ogden Point assembly plant at the one time. It is reported that hulls will be placed with the British Columbia Marine Railway, Vancouver; Wallace Shipyards, Ltd., North Vancouver; Victoria Machinery Depot, Victoria, and Yarrows, Ltd., Esquimalt.

Launchings of Steamships.—Following are particulars of steamships ordered by the Imperial Munitions Board for the British Government, and which had been launched up to May 14, giving in each case the date of the launching, the name of the steamship, the name of the builder and the deadweight tonnage:—

Steel Steamships.

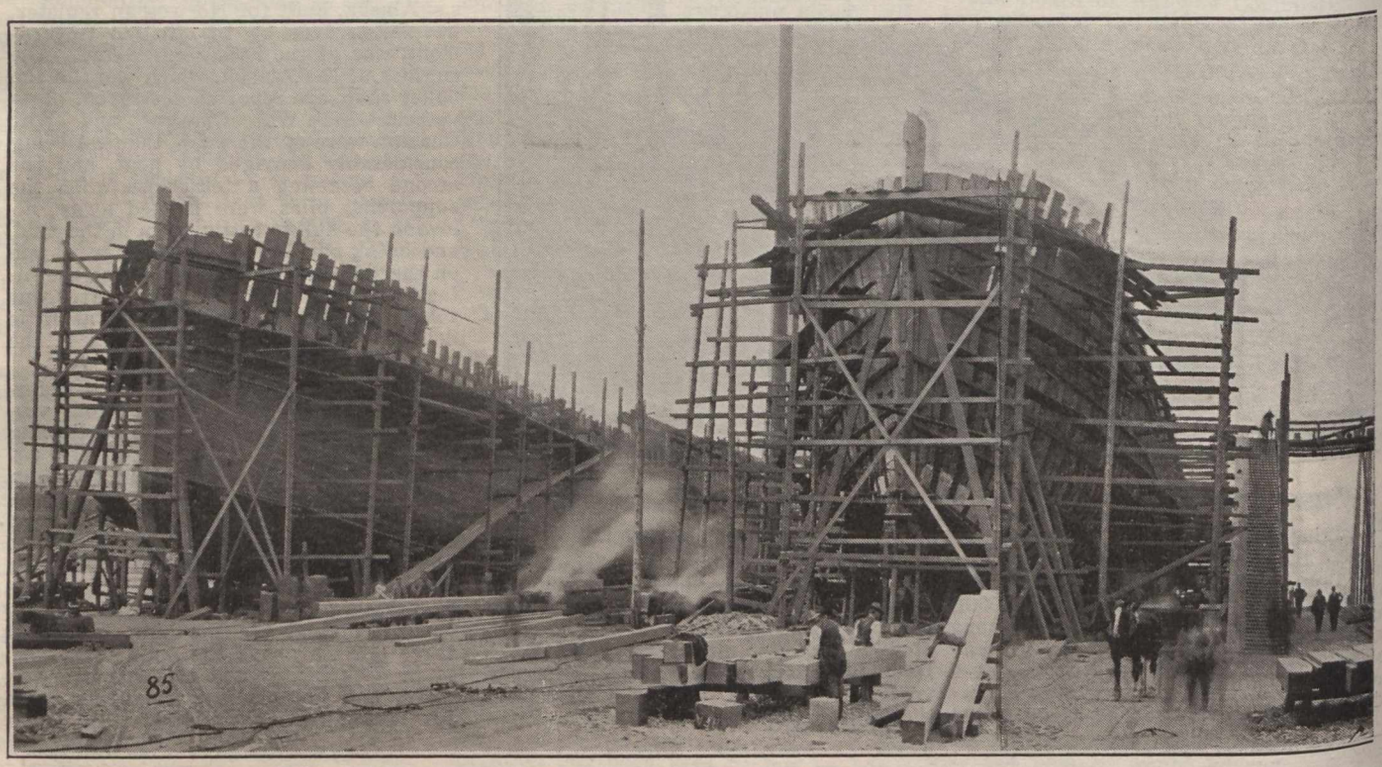
	Tonnage.
May 18, 1917—War Dog, Wallace Shipyards, North Vancouver, B.C.	4,500
July 9, 1917—War Wasp, Nova Scotia Steel & Coal Co., New Glasgow, N.S.	1,800
Aug. 19, 1917—War Fish, Port Arthur Shipbuilding Co., Port Arthur, Ont.	4,300
Nov. 3, 1918—War Dance, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
Mar. 16, 1918—War Camp, J. Coughlan & Sons, Vancouver, B.C.	8,800
Mar. 23, 1918—War Power, Wallace Shipyards, North Vancouver, B.C.	4,600
Apr. 3, 1918—War Isis, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
May 8, 1918—War Wizard, Collingwood Shipbuilding Co., Collingwood, Ont.	2,900
Total steel steamships	33,700

Wooden Steamships.

Dec. 28, 1917—War Songhee, Foundation Co., Victoria, B.C.	3,080
Jan. 4, 1918—War Nootka, Western Canada Shipyards, Vancouver, B.C.	3,080
Jan. 24, 1918—War Yukon, Cameron-Genoa Mills, Victoria, B.C.	3,080
Feb. 16, 1918—War Puget, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
Mar. 6, 1918—War Selkirk, Western Canada Shipyards, Vancouver, B.C.	3,080
Apr. 10, 1918—War Caribou, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
Apr. 11, 1918—War Comox, New Westminster Construction & Engineering Co., New Westminster, B.C.	3,080
Apr. 11, 1918—War Massett, Foundation Co., Victoria, B.C.	3,080
Apr. 13, 1918—War Tyee, Pacific Construction Co., Coquitlam, B.C....	3,080
Apr. 25, 1918—War Haida, Cameron-Genoa Mills, Victoria, B.C.	3,080
Apr. 27, 1918—War Cayuse, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
May 11, 1918—War Mohawk, Quinlan & Robertson, Ltd., Quebec, Que...	3,080
May 11, 1918—War Sioux, Great Lakes Dredging Co., Port Arthur, Ont.	3,080
Total 13 wooden steamships	40,040

Total dead weight tonnage of 8 steel and 13 wooden steamships launched, 73,700.

Strike in British Columbia.—Vancouver press dispatch May 23:—"In obedience to the order of the Metal Trades' Council, issued last night, the shipyard workers, said by union officials to number nearly 10,000, quit work in British Columbia shipyards tonight. The purpose of the strike, the union officials announced, is to compel the Imperial Munitions Board to grant a scale of wages equal to that in effect in the United States and a 44 hour week. A payroll estimated at from $40,000 to $60,000 a day is cut off. The metal trade employers have taken steps to secure a definite and lasting understanding with labor in the shipbuilding industry, and have decided to offer the men a scale, which in some instances is higher than that given them by the recent Murphy award. The employers complain that the frequent demands of the men have produced a feeling of insecurity in the in-



Four hulls of wooden cargo steamships for the British Government, in the Foundation Co.'s yard at Victoria, B.C., Apr. 11, 1918. **See also opposite page.**

The s.s. War Yukon, built by Cameron-Genoa Mills Shipbuilders, Ltd., Victoria, B.C., was announced, at the end of April, to be completely equipped and ready for sea. This is the first of the wooden steamships ordered by the Imperial Munitions Board, to be completed, though she was not the first to be launched. So far as launchings are concerned, she was the third, having been preceded by the War Songhee, Foundation Co., Dec. 19, 1917, and the War Nootka, Western Canada Shipyards, Ltd., Jan. 4. The War Yukon was launched Jan. 24, and was immediately taken to the Ogden Point assembly plant for the installation of machinery.

dustry which cannot continue. They offer to pay ordinary labor $3.50, the basic trades $6, and caulkers $7 a day, with all helpers paid $4 a day.

"The Coughlan shipyards at Vancouver are the only ones in operation in the Province, this by virtue of an agreement which does not expire until August. The shipyards affected are: British Columbia Construction Co., New Westminster; Cameron-Genoa Mills Shipbuilders, Foundation Co., Victoria Shipbuilding Co., Victoria; Wm. Lyall Shipbuilding Co., Wallace Shipyards, Limited, North Vancouver; Western Canada Shipyards, Vancouver; Pacific Construction Co., Port Coquitlam, and Yarrows, Limited, at Esquimalt."

Use of Vessels.—As the steamships being built in Canada for the British Government, under orders from the Imperial Munitions Board, progress in construction, the British Ministry of Shipping assigns them to different shipping companies, which are known as managing owners. They send their representatives to the points where the vessels are being constructed, and these representatives remain at those points until the vessels are completed and ready for sea. The cargoes to be carried will doubtless be indicated by the Ministry in the usual way, through the Director for Overseas Transport. For the vessels which are being built in British Columbia, it is likely that lumber will be an important part of the early cargoes at least.

The Consolidated Whaling Co., Ltd., has been incorporated under the Dominion Companies Act, with $2,500,000 authorized capital and office at Toronto, to carry on a general fishing and whaling business, and in connection therewith to own and operate vessels of all kinds, wharves, docks, piers, and other general transportation facilities. The incorporators are: D. B. Hanna, A. J. Mitchell, R. H. M. Temple, G. N. Limpricht, W. Bowler, R. G. O. Thomson and G. R. Donovan, Toronto, the majority of whom are associated with the Canadian Northern Ry.

General Shipbuilding Notes Throughout Canada.

Canada Steamship Lines, Ltd.—The Quebec Legislature has confirmed a by-law of the municipality of Ste. Marie Madeleine du Cap de la Madeleine, Champlain County, granting exemption from municipal taxes for 20 years on property to be occupied by a shipyard to be established by the company.

J. Coughlan & Sons, Ltd., Vancouver, B.C., have deposited plans with the Public Works Department at Ottawa, for additional wharves, buildings and finishing berths, to be built in False Creek, in front of Columbia St., Vancouver.

The Dominion Shipbuilding Co., Toronto, whose plant was damaged by fire recently, expects to resume the construction of ocean going steamships early in July.

Shipbuilding Employes and Military Service.—A Quebec press dispatch of May 13 stated that the Central Appeal Judge, Mr. Justice Duff, of the Supreme Court, at Ottawa, had granted exemption from military service to all employes working on shipbuilding for the Davie Shipbuilding & Repairing Co. at Lauzon, Que., as it was established that should the draftees working at the yards be enlisted their leaving would have interfered with ship construction. The dispatch added that the Davie Co. had been told not to engage any more men of military age. Canadian Railway and Marine World is officially advised that the dispatch is an erroneous one, as no such decision as that mentioned has been given by the Central Appeal Judge.

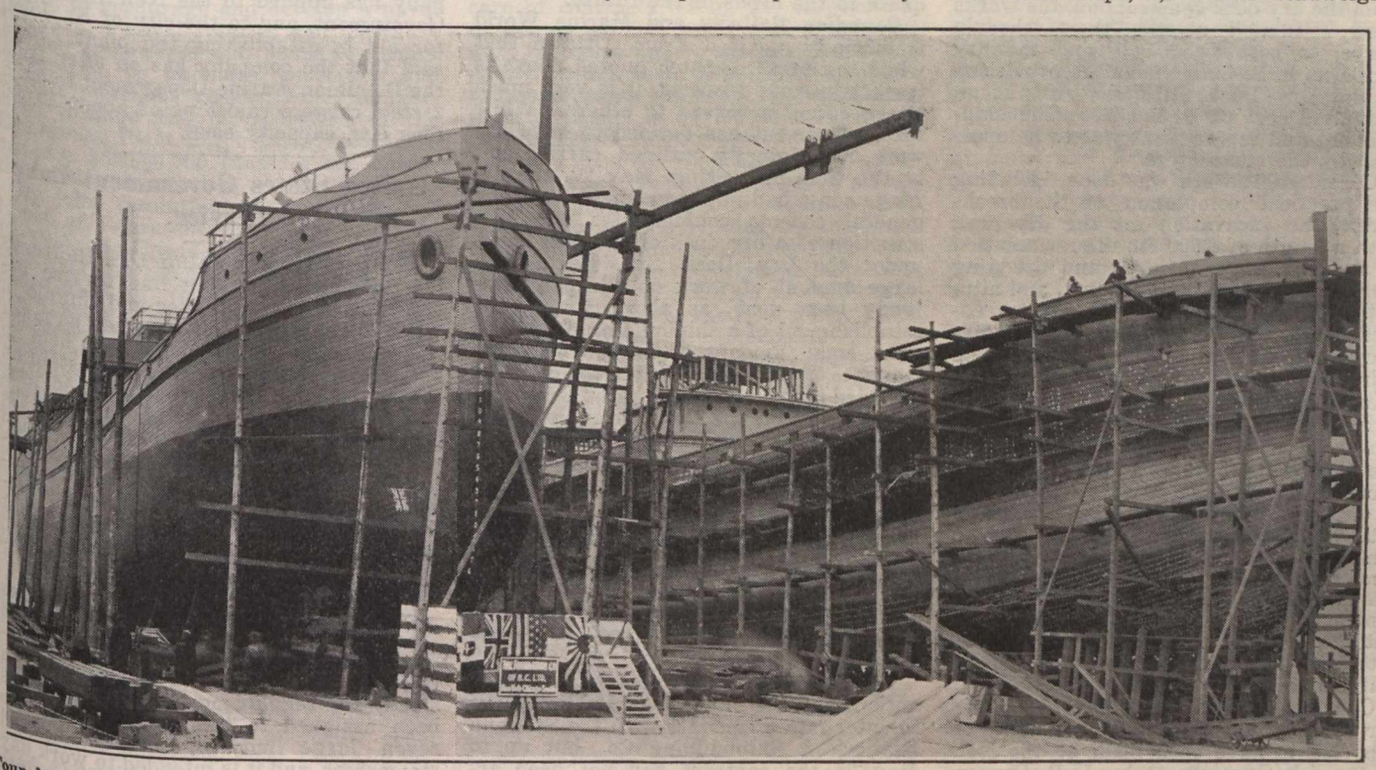
Louisburg, N.S.—Nova Scotia Legislature has authorized the town of Louisburg to bonus a shipbuilding and dry dock company, and to exempt it from taxation.

Wm. Lyall Shipbuilding Co., Vancouver, B.C.—It is stated that the six vessels which this company was announced in our last issue to have decided to build on yard account, will be of the bald headed schooner type, similar to those built at Vancouver and Victoria last year for Canada West Coast Navigation Co. It is not stated whether they will be equipped with auxiliary machinery, but that probably they will have topsails.

Newcastle, N.B.—The small steamboat The Max was launched here, May 14. It is announced that she will be operated on the Newcastle-Redbank route, with S. Amos, Derby, N.B., as master.

Standard Shipbuilding Co., Vancouver, B.C.—With regard to the reports that this company had entered into contracts for the construction of 10 composite steamships for the British Government, as mentioned in our last issue, we have been advised that the company may make contracts with the Imperial Shipping Board of Great Britain for 10, or more, Donohoe type, reinforced steel keelson wood steamships, 3,500 tons deadweight capacity, Lloyd's classification. We are also advised that a contract has been entered into with French interests for six vessels of this type for operation between English and French ports, to carry oil and merchandise.

Thor Iron Works, Ltd., Toronto.—The s.s. Trojan, which was launched at this yard, May 15, was ordered originally by the Great Lakes Transportation Co., Midland, Ont., and transferred, while on the ways, to J. O. Lindvig, of Christiania, Norway, and New York and San Francisco. She is a bulk freighter of the Frederickstad type, with dead weight capacity of 4,300 tons. Her dimensions are: length 261 ft. over all and 251 between perpendiculars; breadth moulded 43½ ft.; depth moulded 28 ft. 2 in. She is equipped with triple expansion engines, with cylinders 20, 33 and 54 in. diar. by 40 in. stroke, 1,500 h.p., supplied with steam by 2 Scotch boilers each 14 x 12 ft., built by John Inglis & Co., Toronto. All machinery was installed prior to launching. She will be completed about the middle of June, when she will be placed in trans-Atlantic service.



Four hulls of wooden cargo steamships for the British Government, in the Foundation Co.'s yard at Victoria, B.C., Apr. 11, 1918. **See also opposite page.**

Drydock Shipbuilding and Harbor Works at St. John, N.B.

Early in 1912, the Dominion Government entered into a contract with the Norton Griffiths Construction Co., for the carrying out of considerable harbor improvement works at Courtenay Bay, St. John, N.B., embracing the construction of a breakwater 4,570 ft. long, including 5 groynes each 150 ft. long; the dredging of a channel about 6,800 ft. long by 500 ft. wide, and 32 ft. depth below low water, from the main ship channel leading into the St. John River to the head of the breakwater; the dredging of a basin to 32 ft. below low water in Courtenay Bay; the construction of about 4,890 lin. ft. of quay walls; the filling in of an area of about 28 acres; and the construction of a dry dock and ship repairing plant. Apart from the dry dock construction, the works were estimated at the then schedule prices, to cost $7,500,000, and the dry dock was to be built under the provisions of the Dry Dock Subsidies Act, at an estimated cost of $4,500,000. The shipbuilding and repair plant was to be operated by the contractors.

Considerable work was done, including the practical completion of the breakwater, the excavation for the dry dock with a length of 1,000 ft., the reclamation of a large tract of land, and dredging work in the harbor and channel, and altogether about $4,000,000 was spent. Towards the end of 1916, the contractors abandoned the contract, the labor problem being mentioned as one of the contributing causes, while, undoubtedly, war conditions generally had some effect. J. Norton Griffiths, M.P., of England, who was the principal of the company, decided, about the same time, to give up all work of a private nature, to devote himself entirely to war service, which he is still continuing, having been made a K.C.B. in connection with special war work in Rumania. Since the abandonment of the contract, nothing has been done to carry out the original plans, the government's attention being chiefly concentrated on war matters.

Canadian Railway and Marine World for May stated that a proposition was reported to have been made to the New Brunswick Government by J. B. Craven, New York, and T. A. Duff, Toronto, for the establishment of a shipbuilding plant at Courtenay Bay, St. John, if the provincial government would give adequate support.

On May 10 a press dispatch was sent out from Ottawa, which said in part: "The government, on the Minister of Public Works' recommendation, has authorized the transfer to the St. John Drydock & Shipbuilding Co. of the contract originally given to the Norton Griffiths Co. for the St. John harbor works. The new company, composed of prominent Canadian shipowners and builders, takes over the contract on the same terms as those granted to the Norton Griffiths Co. A drydock of the first class, capable of handling the largest ocean-going vessels, will be commenced at once, and the necessary harbor works to provide for it and for the proposed big shipbuilding plant in connection therewith will be begun at once. The government will vote a subsidy for the drydock to be built by the company as soon as the plans and specifications are approved. The total expenditure of the contemplated works is estimated at $7,000,000. The new company has already arranged for contracts for two 10,000 ton steel steamers, the largest craft ever built in Canada. When the plant is completed it will employ 2,000 men.

"The original plans for the Courtney Bay development, involving a total expenditure of many millions more, will, of course, be curtailed until after the war. The present scheme involves only necessary governmental expenditures to provide for harbor necessities and the establishment of the shipbuilding industry on a big scale at St. John. The government is now considering proposals for nationalizing the entire harbor at St. John and placing it under a federal commission, thus providing for its development in a systematic manner, and on a scale adequate to the needs of the future."

Canadian Railway and Marine World is officially advised from Ottawa that while the press dispatch quoted above is correct in some respects, it is very much exaggerated in regard to others. While the government has decided to have the work, as originally outlined, carried out, at the time of writing, May 22, the arrangements had not been completed. The general scheme contemplates the construction of a dry dock of the first class, under the Dry Dock Subsidies Act, a large amount of work on which has already been done, as above stated, the establishment of a shipbuilding plant, and what small amount of harbor work remains to be done to complete the contract awarded to the Norton Griffiths Construction Co., all on the same terms and conditions. The expenditure under this scheme approximates $2,000,000 which would be spread over a term of years. During the current year it is not the intention to do anything excepting what is necessary to make available the dry dock and shipbuilding enterprises, and it is expected that less than $500,000 will be expended this year. The foregoing refers only to expenditures to be made by the Dominion Government.

An order in council has been passed authorizing the Minister of Public Works to enter into a contract with the St. John Drydock & Shipbuilding Co., but up to May 25 the contract had not been arranged.

We have gleaned the following information from different sources and believe it to be approximately correct. The persons particularly interested in the company are: Jas. Playfair and D. L. White of Midland, Ont.; Senator Richardson of Kingston, Ont.; J. B. Tudhope, M.P., Orillia, Ont.; T. A. Duff, Toronto; Robt. Hobson and W. E. Phin, Hamilton, Ont., and J. B. Craven, Larchmont, N.Y. Senator Richardson and James Playfair are President and Vice President, respectively, of the Great Lakes Transportation Co. The latter is also a director of the Midland Shipbuilding Co., of which D. L. White is President. J. B. Tudhope is M. P. for East Simcoe, T. A. Duff is legal advisor for the Great Lakes Transportation Co., Canadian Dredging Co., Midland Shipbuilding Co., Midland Engine Works Co. and other companies in which Mr. Playfair is interested. Robt. Hobson is President of the Steel Co. of Canada, W. E. Phin is a contractor. J. B. Craven is a contractor and electrical engineer. He was interested in the original contract held by the Norton Griffiths Construction Co., and on the abandonment of the contract, he applied at Montreal for an interlocutory injunction to prevent the transfer of certain of the company's property, and claimed that he was interested to the extent of one half of 49% of the total net profits on the contract, over and above 15% of the total prime cost of the construction works. He is now said to have secured any rights which the Norton Griffiths Construction Co. may have had remaining in the St. John contract.

The harbor work to be done will probably be carried out by the Great Lakes Dredging Co., in which Mr. Playfair and some of the other persons above mentioned are interested. The drydock is projected to be 1,150 ft. long, 125 ft. wide and 40 ft. deep over sills. The estimate of cost is mentioned as about $5,500,000, including $1,250,000 already expended. The Dominion Government will pay the usual annual subsidy on the total cost. The proposed expenditure on the shipbuilding plant is stated at $2,000,000. As mentioned in a previous issue, the company has applied to the New Brunswick Government, and to the city of St. John, for aid in establishing the plant. It is said that the company has an offer from the Dominion Marine Department to build 2 steel cargo steamships of about 10,000 tons d.w. capacity each.

United States Government Lake Service.

The Director General of U.S. Railroads has established a lake line service between Chicago, Milwaukee and Buffalo in order to relieve the car situation as much as possible. Cars that have been held up on western railways by the congestion on central railways have been released with the opening of lake navigation and the loads moved east by the way of lake and railway lines east of Buffalo, thereby releasing equipment to the western railways for use in their territory and relieving the railways in the central freight territory of the saving of power, fuel, and cars that can be devoted to other business.

Shippers of heavy staple commodities from the east, such as sugar, coffee, and manufactured articles, are taking advantage of this service, as it will be of a steady and regular movement. There has been assigned to this lake line service seven large modern, electric lighted steamships, and it is intended to work day and night shifts at the terminal points so that the ships can be turned rapidly and afford the greatest possible relief to the railroads.

The line is called the Lehigh Valley Transportation Co., and serves all eastern trunk lines over a common terminal at Buffalo. Two of the ships assigned were owned by the Lehigh Valley Rd.; the other five were chartered from the Great Lakes Transit Corporation. Additional ships will be added as the service requires. All-rail rates prevail in both directions, so that in case of congestion on the railways the freight can be immediately diverted to the lake and given continuous movement to destination; the rates include marine insurance, and the service should be of great assistance to the shipping public.

Increased Freight Rates on B.C. Coasting Vessels.—Steamship companies operating vessels in the British Columbia coasting trade announced a 10% increase in freight rates, effective May 1, in order to meet the increase in wages granted to employes. No advance in passenger rates had been announced at the time of writing.

What the United States Government is Doing in Shipbuilding, Etc.

The following statement concerning the activities of the U.S. Shipping Board and the Emergency Fleet Corporation has been prepared from data furnished by officials of those organizations. It covers briefly the operations of these organizations since the beginning of the war:

At the outset of the war the nation, in addition to expanding the army to proportions adequate to wage the struggle was confronted with the problem of providing facilities to transport its expeditionary forces and the supplies necessary to subsist them in foreign fields. One step designed to effect this purpose had already been taken; two others followed shortly after the declaration of war. Through the shipping act, approved Sept. 7, 1916, Congress created a U.S. Shipping Board, to encourage and develop a naval auxiliary, a naval reserve, and merchant marine; empowered that board to form a corporation to purchase, construct, and operate merchant vessels, which it exercised through the incorporation of the Emergency Fleet Corporation; and authorized a $50,000,000 fund for the operation of the corporation.

By joint resolution of the Senate and House of Representatives approved May 12, 1917, the President was authorized to take over the German vessels within the jurisdiction of the U.S., its territories, and insular possessions; and under the emergency shipping fund provision of the urgent deficiency appropriation act approved June 30, 1917, the President was authorized to requisition any vessel under construction or contracted for in shipyards within the U.S. By executive orders dated June 30 and July 3, 1917, the President ordered the Shipping Board to seize the German vessels in U.S. waters, and by another, of July 11, 1917, delegated to the board the power of requisition which Congress had vested in him. Under its power of seizure the Shipping Board has taken over 112 German and Austrian ships of 788,000 d.w. tonnage, all of which have been repaired and are now in operation.

To perform the tasks assigned to the Shipping Board and its operating company, the Emergency Fleet Corporation, large expenditures were necessary. Congress has met the demands by supplementing the original appropriation of $50,000,000 with succeeding authorizations which on Mar. 1 aggregated $2,034,000,000, to be expended for construction, requisitioning, and purchasing of ships, the construction of yards, and the erection of housing facilities. Of the sum authorized, $1,135,000,000 had been appropriated on Mar. 1. The expenditures of the Emergency Fleet Corporation up to that date was $353,247,955.37, distributed as follows: Wood ships, $74,590,519.22; steel ships, $77,968,172.89; steel ships requisitioned, $169,971,860.55; plants, $30,717,402.71.

The Emergency Fleet Corporation's programme is divided into steel and wood construction. Exercising its power of requisition the Shipping Board on Mar. 1 had taken over 425 steel vessels of 2,998,108 d.w. tons, and had let contracts for 720 steel vessels of 5,166,400 d.w. tons, a total of 1,145 steel ships, with an aggregate d.w. tonnage of 8,164,508. Of the requisitioned vessels, 72, of 485,576 d.w. tons, had been completed and put into operation; 15, of 152,290 d.w. tons, had been reconveyed to their original owners before completion; while 52 of the 338 still under construction had been launched but not completed.

Of the contract vessels, 2, of 17,600 d.w. tons, had been completed on Mar. 1. Three others, of 26,400 tons, have been launched.

The Division of Wood Ship Construction on Mar. 1 had let contracts for 490 wooden vessels, aggregating approximately 1,715,000 d.w. tons. None of these have been completed, but 17 had been launched on Mar. 30.

The Emergency Fleet Corporation's building programme was being carried on on Mar. 5 in 151 plants, 85 of which were engaged on wood construction and 66 on steel. Of the 151 plants, 81 are classified by the corporation as new, having been constructed especially to take care of contracts let by the corporation, or just as the U.S. was entering upon the war; the remaining 70 are classified as old plants, though some of them were erected to accommodate the boom in shipbuilding that developed in the U.S. in the early days of the European war.

At the time the Emergency Fleet Corporation was organized, practically all the ways of the yards then in existence were occupied by vessels building for the Navy Department or for private contract. This condition of affairs necessitated the construction of the 81 new yards before the building of ships for the Emergency Fleet Corporation could be commenced.

To spur the shipbuilding industry to speed up the government work, the Emergency Fleet Corporation has extended varying degrees of financial assistance to 63 plants, the aid going to the construction of shipways, plants, and the installation of plant equipment.

The expanded old yards and those newly constructed had to be manned. A pressing need for skilled workmen developed. To meet the situation the Emergency Fleet Corporation organized a nation wide campaign and established training schools for the men recruited into its service. The results achieved can be best realized by comparative figures. Census reports for 1916 show that in 45 steel yards then reporting there were only 43,582 workmen employed, while reports made to the Emergency Fleet Corporation on Feb. 16, 1918, by 53 out of a possible 63 steel yards, give an enrollment of 162,880. The census report for 1916 from 18 wooden yards record 1,380 workmen; those of the Emergency Fleet Corporation as of Feb. 16, 1918, from 59 out of a possible 75 yards, record 29,959.

Expansion of the government's wood shipbuilding programme, to include the construction of 200 new vessels of about 4,500 tons displacement each, was announced in Washington May 1 by Chairman Hurley, of the Shipping Board.

Estimates submitted to Congress May 8 by the Shipping Board call for an appropriation of $2.225,835,000 for the cost of construction of ships.

The U.S. Shipping Board announced on May 19 that one ship a day was the pace wood shipyards were setting for other shipbuilding plants. The first 17 days of May witnessed the launching of 17 vessels of this type, thereby adding 60,000 tons to the U.S. merchant marine. In four successive weeks, including the third week of May, the production of wood ships was better than an average of one launching daily.

Thirty-four new steamships, aggregating 105,000 tons, completed during the winter and spring at Great Lakes yards, have been allocated to the trans-Atlantic trade, and some of them have already gone through the Welland Canal. The U.S. Shipping Board requisitioned these vessels in the early stages of their construction. All of them had been contracted for over-seas trade. They are of the Frederickstadt type—the well known lake type ship, averaging about 3,100 tons, 261 ft. over all, 43½ ft. beam, and 20 ft. deep. No alterations in them will be required for passage through the locks. Before the ice season set in last year, the Shipping Board moved a total of 43 steamships, including 24 of new construction, from the Great Lakes to the Atlantic coast.

A Cleveland press dispatch of May 20 says:—"An agreement tantamount to a contract to build 130 vessels to cost approximately $800,000 each, and totalling about $100,000,000 was reached here today, between C. M. Schwab, Director General of the government's shipbuilding programme, and Great Lakes shipbuilding companies. Every shipbuilding firm on the Great Lakes from Duluth to Cleveland was represented at the conference and the programme was outlined. The order was apportioned among the following:

American Shipbuilding Co., 60; Great Lakes Engineering Co., Detroit, 24; Manitowoc Shipbuilding Co., 12; and the remainder were divided between the Toledo Shipbuilding Co., the McDougall Duluth Shipbuilding Co., and the Glove Shipbuilding Co. of Duluth. The ships will be of 4,200 gross tons d.w. capacity and will have 1,500 h.p. They will be full Welland Canal size of the greatest depth, which is a little more than 28 ft. Deliveries are to be completed by the end of the lake shipping season in 1919."

The construction of 40 additional concrete ships, cargo carriers and tankers, of 7,500 tons capacity each, has been approved by the Emergency Fleet Corporation and they will be constructed in five government controlled yards. It is estimated that they will cost from $125 to $140 a ton. Contracts have already been approved for the construction of 18 concrete tankers, 14 of 7,500 tons capacity and 4 with an aggregate tonnage of 12,500 tons. Each of these will be built on the Pacific coast and the others on the Atlantic coast.

New York State Barge Canal.—On May 17, the first boat passed through the western section of the canal extending from north of Syracuse to the Niagara River. The eastern sections, which connect Lake Ontario at Oswego and Lake Champlain at Whitehall with the Hudson River above Troy, were completed last summer and were put into use again this season on May 15. Some work still remains on the western section in removing obstructions and widening the channel, but navigation is now possible over the whole canal route.

Frank Waterhouse & Co. of Canada, Ltd., has been incorporated under the Dominion Companies Act, with $50,000 capital stock and office at Vancouver, B. C., to build, own and operate vessels of all kinds, and to operate a general navigation business in all waters. The provisional directors are: Frank Waterhouse, N. H. Begley, J. R. Lane, Seattle, Wash.; D. G. Marshall, J. Speer, Vancouver, B.C.

Atlantic and Pacific Ocean Marine.

The first ocean vessel up the St. Lawrence River for the current season of navigation, arrived at Quebec May 7, and Montreal, May 8. The captain was presented with a silk hat and cane by the Montreal Harbor Commissioners.

Canadian Pacific Ocean Services is stated to have made arrangements for the chartering of two of the steamships owned in Holland which have been requisitioned by the allies, for use on the Pacific Ocean. The vessels mentioned as having been secured are, the steamships Tjikembang and Tjison, which were operated formerly by the Nederland Royal Mail, and the Rotterdamsche Lloyd, between San Francisco and the Orient.

The Canadian Pacific Ocean Services' steamships Empress of Asia and Empress of Russia, as announced in a recent issue, have been requisitioned by the Dominion Government and are being handed over to the British Government. The former vessel has had all her furnishings and movable fittings taken out, at Victoria, and has been coaled at Vancouver, after which, as a Victoria reporter states, she "disappears into oblivion." The Empress of Russia is reported to be fitting out at Hong Kong, for special service, and presumably has the same destination.

The s.s. Angouleme, which ran ashore at Scatarie Island, N.S., during last winter, was released by her own steam, May 23. It is stated that the damage is comparatively light, but that she will be drydocked for examination and repairs. She was built in 1917, by Thor Iron Works, Toronto, under contract for Jas. Playfair, President, Great Lakes Transportation Co., but was sold, while on the ways, to the Oriental Navigation Co. of Nantes, France, and New York. On launching, she was named Orleans, the name being changed to Angouleme just prior to sailing for New York, and the casualty occurred while she was outward bound.

Canadian Pacific Ocean Services s.s. Medora was reported May 7, via New York, to have been sunk by a German torpedo while outward bound from Great Britain, it also being stated that there was no loss of life. The Medora was 5,135 tons gross, and built at Liverpool, Eng., in 1912. In connection with the loss of this vessel, T. Robb, Manager, Shipping Federation of Canada, is reported to have stated that word as to the sinking of the Medora was received some time ago, and we may add that Canadian Railway and Marine World had information of the loss of a C.P.O.S. vessel, at least two weeks prior to the date given. There seems to be no reasonable object to be gained in holding back information of this nature, which is of general interest, when it is already known by owners, insurance and brokerage offices.

Maritime Provinces and Newfoundland.

The Naval Service Department received tenders, May 31, for 2 self propelled coal discharging bridges, to be installed at Halifax, N.S.

The Reid Newfoundland Co.'s s.s. Ethie ran ashore on Mistaken Point, Nfld., May 14, and was later released with light damage. She is a small steel vessel of 441 tons gross, and was built at Glasgow, Scotland, in 1900. She has been engaged for some time in mail and passenger service between St. John's and Placentia Bay ports, Nfld.

The Dominion Government s.s. Stanley, which sailed from Louisburg, N.S., towards the end of April, with mails, etc., for Magdalen Islands, was reported to be in distress off East Point, P.E.I., May 1. Her rudder was reported to have been lost or broken. She, however, arrived at North Sydney, N.S., May 8, under her own steam, and made temporary repairs, afterwards proceeding to Halifax.

It is intimated from Quebec that the coal service between the Maritime Provinces and St. Lawrence ports, hitherto given by the Dominion Coal Co., is likely to be curtailed this year owing to a shortage of bottoms. Some steps are being taken by other companies to meet the situation, and it is stated that the Dominion Government will probably supply some vessels to convey coal to Levis, whence it will be distributed.

The Dominion Coal Co.'s s.s. Louisburg, bound from Sydney, N.S., to St. John's, Nfld., with coal, was wrecked in St. Marys Bay, near Cape English, Nfld., May 4, the crew being saved. She was built at Sunderland, Eng., in 1881, when she was named Thorne Holme. She was equipped with engine of 225 n.h.p., driving a screw, and her dimensions were: length 260 ft., breadth 36 ft., depth 18.5 ft.; tonnage, 1,816 gross, 1,182 register.

Province of Quebec Marine.

The s.s. Middlesex, registered in the U.S., has been purchased by A. A. Larocque, Montreal, transferred to the Canadian register, and renamed Woodlands.

The Department of Railways and Canals will receive tenders to June 5, for rebuilding the lower entrance piers to lock 25 on the Galops Canal, and to lock 23, Rapide Plat Canal.

The Quebec Board of Trade discussed on May 11, a proposal for the formation of a steamship company for the operation of vessels between Newfoundland, Nova Scotia, Prince Edward Island, Gulf ports, Quebec and Montreal. The details were outlined by L. Fiset, Eastern Harbor, N. S., who stated that it was proposed to pucrhase four large steel steamships built recently on the Great Lakes, and to incorporate a company with $600,000 capital stock, eventually increasing it to $1,000,000.

Ontario and the Great Lakes.

A ferry service is announced to have been started between Adolphustown, N. Y., and Picton, Ont.

The C.P.R. s.s. Assiniboia was docked at the Port Arthur Shipbuilding Co.'s dock at Port Arthur, May 4, for the replacement of a number of plates, a new stern bar and other repairs.

The icebreaking s.s. James Whalen is undergoing general repairs at the Port Arthur Shipbuilding Co.'s plant, having suffered considerably while breaking ice prior to the reopening of navigation.

Imperial Oil's s.s. Royalite, which arrived at Sarnia, May 4, with a cargo of oil, encountered heavy ice on her trip there, and was found to be leaking. Her cargo was lightered and she proceeded to Welland for repairs.

The Toronto City Council has approved of the Toronto Ferry Co.'s application for an increase in the fares between the city and Toronto Island, from 10c to 15c for adults for the round trip, in view of the increased costs of coal, material and labor.

The Toronto Harbor Commission has moved to its new offices on the water front. The building is a six story one, of which the commission occupies two floors. The remainder of the accommodation will be taken up by navigation companies, etc., as soon as it is completed, during June.

Judgment for $14,000 was given against Canada Steamship Lines, Ltd., at Toronto, May 7, on a claim for damages by Austin & Nicholson, Chapleau, Ont., the company having failed to carry out a contract for the carrying of 10,000 cords of pulpwood from Michipicoten Harbor to Thorold, in 1916.

The Livingstone channel, in the Detroit River, was closed for a few days, early in May, owing to the presence of large boulders brought down by the ice, and deposited opposite Amherstburg. The

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie canals during April, 1918.

ARTICLES.	Can. Canal.	U.S. Canal.	Total.
Eastbound			
Lumber ... m. ft. b. m.	200	.....	200
Flour ... Barrels	.....	.....	.....
Wheat ... Bushels	396,600	4,045,047	4,441,647
Grain, other than wheat ... Bushels	608,331	1,474,698	2,083,029
Copper ... Short tons	.....	.....	.....
Iron Ore ... Short tons	10,752	136,436	147,188
Pig Iron ... Short tons	.....	.....	.....
Stone ... Tons	.....	.....	.....
General Merchandise ... Short tons	.....	7	7
Passengers ... Number	.....	.....	.....
Westbound.			
Coal, soft ... Short tons	27,578	60,500	88,078
Coal, hard ... Short tons	.....	.....	.....
Iron Ore ... Short tons	.....	.....	.....
Mfgd. iron and steel ... Tons	.....	.....	.....
Salt ... Barrels	.....	.....	.....
Oil ... Tons	.....	.....	.....
Stone ... Short tons	.....	9,200	9,200
General Merchandise ... Short tons	2,715	1,200	3,915
Passengers ... Number	.....	.....	.....
Summary.			
Vessel passages ... Number	51	136	187
Registered Tonnage ... Net	58,758	342,707	401,465
Freight—			
Eastbound ... Short tons	35,503	285,793	321,296
Westbound ... Short tons	30,293	70,900	101,193
Total Freight ... Short tons	357,693	65,796	422,489

The Canadian canal opened April 23, and the U.S. canal opened April 20.

channel was announced May 8 to have been cleared, and navigation was resumed, vessels in the meantime having used the Canadian channel.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above mean sea level for April, as follows:—Superior, 601.46; Michigan and Huron, 581.40; St. Clair, 574.46; Erie, 572.25; Ontario, 247.-17. Compared with the average April levels for the past ten years, Superior was 0.13 ft. below; Michigan and Huron 0.27 ft. above; Erie 0.15 below, and Ontario 0.75 ft. above.

Manitoba, Saskatchewan and Alberta.

The Peace River Tramways & Navigation Co.'s s.s. D. A. Thomas sailed north from Peace River Crossing, May 18, opening the navigation season.

British Columbia and Pacific Coast.

The ice in the Yukon River broke up May 11, and some damage to wharves and riverside property occurred at Dawson, owing to the rush of ice.

Tenders were received May 31, by the Public Works Department for a steamboat service on the Upper Fraser River between South Fort George and Soda Creek.

The B.C. Marine, Ltd., has deposited plans with the Public Works Department at Ottawa, with a description of a proposed addition to its wharf to be built in Burrard Inlet at the foot of Victoria Drive, Vancouver.

Satisfactory progress is being made with the construction of the shed on the Government wharf at Vancouver. The foundations are practically in, and the other work is proceeding according to schedule for completion by the autumn. Hodgson & King are the contractors.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince John is reported to have struck an unknown obstacle, presumed to be an uncharted rock, in Masset Inlet on the east side of Queen Charlotte Islands, May 1. She was able to make Vancouver under her own steam, where she was inspected.

The C.P.R. is reported to have purchased the s.s. Daily for its British Columbia Coast service, and to have made extensive alterations, practically involving reconstruction, and renamed her Island Princess. It is stated that she will be put on the Gulf Islands route about the end of May.

The Canadian Merchant Service Guild is endeavoring to obtain a higher schedule of pay for masters and officers of vessels operating in British Columbia waters. It is stated that the present scale is from 30% to 50% below that of similar vessels operating from U.S. Pacific ports, and that the hours worked are about 30% greater.

The Union Steamship Co. of British Columbia is receiving tenders for the construction of a steel cargo steamship, 166 ft. long, 30 ft. beam and 14 ft. moulded depth, for coastwise service. The machinery will be transferred from the s.s. Washington, which has been acquired for the purpose. The engines are of the reciprocating type, 850 h.p.

The motor ship Malahat, built at Victoria last year for Canada West Coast Navigation Co. interests, and which sailed from Alberni, Oct. 2, 1917, for Sydney, Australia, is now back on the coast, and is having her auxiliary machinery installed. Her maiden trip was undertaken under sail only, as the machinery could not be obtained by the time it was hoped.

The Pacific Steamship Co.'s s.s. Governor collided with the end of the Ogden Pier, Victoria, May 7, when getting alongside on arrival from San Francisco. A hole was torn in the hull at the turn of the bilge abaft on the starboard side, and some plates were strained. Temporary repairs were quickly carried out by Yarrows, Ltd., after which she proceeded to Seattle, where complete repairs were made.

The Grand Trunk Pacific Coast Steamship Co.'s summer schedule goes into effect, June 28. The sailing day for the Queen Charlotte Islands direct service will be changed from Tuesday to Friday, and the steamships Prince John and Prince Albert will alternate weekly, leaving Vancouver on Fridays and Prince Rupert on Saturdays. The steamships Prince Rupert and Prince George will take up their summer schedule between Seattle and Alaska ports, June 26 and 24, respectively, from Seattle, Wash.

Mainly About Marine People.

J. T. Edmond, who has been in Canada West Coast Navigation Co.'s service for some time, is reported to have been appointed ferry superintendent at North Vancouver, B.C.

James Playfair, President, Great Lakes Transportation Co., has bought and presented to the town of Midland, Ont., a residence to be used as a hospital, the general and marine hospital building there being too small.

Hon. C. C. Ballantyne, Minister of Marine, is reported to have announced at a patriotic meeting in Ottawa, May 25, that he will leave for England shortly to consult with the Imperial authorities on naval and other matters.

Capt. J. B. Forrest, a well known lake mariner, who retired from active service in 1908, died at Walkerville, Ont., May 4, aged 69. He commenced his marine service at the age of 16, on one of the old sailing vessels plying between Port Arthur and Buffalo, and at the time of his retirement was master of the yacht Lurline, then owned by Hiram Walker & Sons, and later purchased by the Dominion Government. Capt. F. D. Forrest, of the Ontario Car Ferry Co.'s car ferry Ontario No. 2, is a brother.

John V. Foy, who has been appointed General Passenger Agent in charge of territory Kingston and west to Detroit and Port Huron frontier, Canada Steamship Lines, Ltd., Toronto, was born at Toronto, Aug. 27, 1882, and entered transportation service in 1901, with Capt. R. S. Melville, general ticket agent, Toronto. He was, from 1902 to 1904, clerk, Niagara Navigation Co., Toronto; 1905 to 1910, chief clerk to General Manager, Niagara Navigation Co., Toronto; 1911 to 1912, General Passenger Agent, Niagara Navigation Co., Toronto; 1913 to 1914, District Passenger Agent, Richelieu & Ontario Navigation Co., Toronto; 1914 to 1915, General Agent, Passenger Department, Canada Steamship Lines, Ltd., Chicago, Ill.; 1915 to 1916, General Agent, Passenger Department, same company, Buffalo, N.Y.; 1916 to 1917, Assistant General Passenger Agent, same company, Toronto; 1917 to Apr. 26, 1918, General Passenger and Freight Agent, same company, Toronto.

Reduction of United States War Risk Insurance.

The Secretary of the United States Treasury on May 8 ordered Government war risk insurance rates reduced from 3 to 2% on the hulls and cargoes of U.S. steamships traveling through the war zone from U.S. ports to ports in the United Kingdom and on the French Atlantic coast.

On Aug. 15, 1917, the rate was 6½%; on Oct. 6 it was reduced to 5%; on Nov. 23 it was reduced to 4%, and on Mar. 18 it was reduced to 3%.

At the same time the Secretary ordered reductions and adjustments of rates to various other ports, including from U.S. Atlantic ports to Halifax, N.S., St. John, N.B., and St. Lawrence ports from ¼% to ⅛%.

Conscription of Sailors.

Senator Bostock asked the following questions in the Senate, May 7:—

1. Is the government aware that sailors of the coasting and deep sea service are being called up under the Military Service Act, causing a depletion of the supply of men for ships sailing from British Columbia ports?

2. Has the government any record of the number of certificated officers and sailors who have been called up in this way?

3. Will the government have immediate inquiry made and stop the conscription of sailors in the future?

4. Is the government aware that the United States Government is offering special inducements to men to qualify as sailors to man the ships sailing from U. S. ports?

Sir Jas. Lougheed replied as follows:—

1. There is no special or exceptional authority with regard to sailors; they are subject to the operation of the law and entitled to exemption in proper cases in like manner as others affected by the outstanding call under the Military Service Act.

2. No, except as this might be gathered by examination of the records at the offices of the various registrars under the Military Service Act.

3. It is not in accord with parliamentary practice for the government to answer what it proposes to do under the circumstances mentioned.

4. No information in Department of Justice.

Montreal Traffic Arrangements.—A Montreal press dispatch states that that port will this year be devoted solely to freight and special traffic, all ocean steamships formerly using the St. Lawrence route, being diverted to other ports. This decision, it is stated, was taken after careful consideration of the matter by the Admiralty, whose experts advised that greater economy and expediency could be effected by the concentration of freight vessels at Montreal.

Women As Vessel Builders.—A dispatch from Sydney, N.S., says that women have been engaged at Baddeck, N.S., to build lifeboats and dories for the Dominion Government, under the direction of Dr. A. Graham Bell, and, it is stated, that this is the first time in the history of the Dominion that women have been offered work of this nature.

Lake and Canadian Coal Distribution. The U.S. Fuel Administration has appointed C. P. White as manager of lake and Canadian coal distribution.

Customs Duty on Wireless Telegraph Apparatus.

A Dominion order in council, passed April 5, provides as follows:—When imported materials, on which customs duties have been paid, are used in the manufacture of wireless telegraph apparatus supplied to vessels in Canada, subsequent to Jan. 1, 1918, there may be paid a drawback of 99% of the duties paid on the materials so used. Provided, however, that such drawback shall not be paid unless the duty has been paid on the materials so used, within three years of the date when the wireless telegraph apparatus used has been supplied to the ship equipped therewith.

The drawback may be paid to the manufacturer of the wireless telegraph apparatus subject to the following conditions, viz.:—The quantity of material used and the amount of duties paid thereon shall be ascertained; satisfactory evidence shall be furnished in respect of the manufacture of the wireless telegraph apparatus in Canada and its installation on board the vessel equipped therewith. The claim for drawback shall be verified under oath before a collector of customs to the satisfaction of the Minister of Customs, in such form as he shall prescribe, within one year after the apparatus has been supplied to the vessel in Canada. The Minister may also require in any case the production of such further evidence as he deems necessary to establish the bona fides of the claim.

Customs Duty on Shipbuilding Material.—A Dominion order in council passed April 19, under the provisions of section 286 of the Customs Act, makes the following regulations respecting the drawback of customs duty on ships and vessels measuring over 80 tons gross tonnage, built in Canada. The drawback of 99% of the customs duty allowed on imported materials used in the original construction of ships and vessels built in Canada since Nov. 1, 1916, may, with the consent of the builder of the vessel, be paid to the manufacturer of articles made in Canada from imported materials and used in such original construction of the vessel, subject to the same conditions and restrictions as when thet drawback is paid to the builder of the vessel, and also subject to such further regulations as the Minister of Customs deems necessary to establish the bona fides of the claim.

Norwegian Shipbuilding in United States:—New York press dispatch May 12:—Land has been acquired in New Jersey by Norwegian shipping interests for the construction of "one of the largest shipyards in the world," it was announced here Saturday by Christoffer Hannevig, of Christoffer Hannevig, Inc., a prominent Norwegian steamship concern, with headquarters here. The location of the proposed yard was not disclosed by Mr. Hannevig, who said that the ships to be constructed would fly the Norwegian flag, but would be used in United States trade.

Electric Welding for Shipbuilding.—A. J. Mason has been authorized to test on a large scale electric welding as applied to shipbuilding. This work will take the form of constructing part of a hull at the U.S. Government shipbuilding plant at Newark, N.J. The material will be assembled and tacked together and rendered watertight by various forms of arc welding. Foundations are being prepared to allow of severe tests by pressure, as well as every agency to develop the merits of the system.

The Great Lakes Transportation Co. Purchases U.S. Vessels.

Canadian Railway and Marine World for May contained information as to the purchase by the Great Lakes Transportation Co., Midland, Ont., of the s.s. Oceanica, formerly owned by the Western Steamship Corporation. The company has also purchased the s.s. A. E. Stewart, owned by the Stewart Transportation Co., Detroit, Mich., and the s.s. Western Star, owned by the Cadillac Steamship Co., Cleveland, Ohio. The name of the s.s. A. E. Stewart has been changed to Glenorchy, and that of the Western Star, to Glenisla, both being transferred to the Canadian register.

We are advised that the Oceanica will be operated by Lake Transportation Co. in the interests of the Valley Camp Coal Co., Cleveland, Ohio.

The A. E. Stewart was built at West Bay City, Mich., in 1902, of steel on the channel system, with steel tank top, 2 non watertight and 2 watertight compartments, steam pump wells, steel boiler house, electric light, etc., and is equipped with triple expansion engines with cylinders 20, 33 and 54 in. diar., by 42 in. stroke, 1,100 i.h.p. at 85 r.p.m., and supplied with steam by 2 Scotch boilers, 14 x 12 ft., at 170 lb. Her dimensions are: length 365 ft., breadth 50 ft., depth 28 ft.; tonnage, 3,943 gross, 3,049 register.

The Western Star was built at Wyandotte, Mich., in 1903 of steel, on the channel system, with steel tank top, steel boiler house, electric light, etc., and she is equipped with triple expansion engines with cylinders 22, 35 and 58 in. diar. by 42 in. stroke, 1,490 i.h.p., and supplied with steam by 2 Scotch boilers 13 ft. 2 in. by 11½ ft., at 170 lb. under induced draft. Her dimensions are: length 416 ft., breadth 50 ft., depth 28 ft.; tonnage, 4,764 gross, 3,593 register.

The St. Lawrence Coal & Freighting Co., which was incorporated in New York State recently, with a capital of $50,000, is operating the s.s. W. J. Carter between Oswego, N.Y., Brockville, Ont., and Ogdensburg, N.Y., in the coal trade. She was formerly owned by the Finn & Oslen Freighting Co., Marinette, Wis., and was built at Milwaukee, Wis., of oak, in 1886. She has been overhauled, and will be equipped with a self unloading clam, which will permit of her being loaded one day and unloaded the next, thus enabling her, weather permitting, to make three full trips a week. The head office of the company is at Ogdensburg, N.Y., and the following are the officers and directors: E. F. McCourt, Montreal, President; E. J. Burns, Ogdensburg, Vice President; J. A. Bresnan, Brockville, Ont., Managing Director and Secretary-Treasurer; C. W. Loomis, Ogdensburg, and J. R. Bresnan, Brockville.

Ocean Shipping of Grain.—Replying to a question as to what steps the Dominion Government might take to "put a stop to the diversion of the grain trade of the Canadian Northwest, two-thirds of which is now being shipped at United States sea ports, and to give this trade to Canadian ports," the Prime Minister stated in the House of Commons, May 2, that it is necessary under war conditions, and in view of the submarine peril, to utilize from time to time, all Atlantic ports on the continent.

Shelburne Shipbuilders, Ltd., Shelburne, N.S., launched the tern schooner Misty Star recently. Several other vessels are under construction.

United States Lake Vessels for Ocean Service.

The United States Shipping Board issued the following statement on May 1: Overseas shipping will be further added to from this time on by a steady flow of completed new vessels from the Great Lakes shipyards. With the re-opening of the lakes and the St. Lawrence River to navigation, 34 ships built at the Great Lakes yards during the autumn, winter, and spring are now either en route or loading for trans-Atlantic service. They total approximately 100,000 tons. Four of these new ships have already sailed for the Atlantic coast. The other 30 are reported taking on cargoes at Chicago, Duluth, and ports elsewhere on the Great Lakes. All will be on their maiden voyages during the next seven days.

Of 23 ships in the Great Lakes shipyards scheduled to be completed in May, 16 are reported already so far advanced that they have begun to take on crews and cargoes. The Bureau of Operations of the Shipping Board has allocated these new ships to the New English coal carrying trade. They approximate a total of 50,000 tons.

The Dominion Government Dredge Galveston, the sale of which was announced in our last issue, was purchased by W. H. Hutchinson, St. Catharines, Ont., and H. Dussault, Levis, Que. As mentioned previously, it is the purchasers' intention to convert the vessel into a cargo steamship for Atlantic service.

Department of Naval Service.

NOTICE OF SALE.

Canadian Government Seamer "La Canadienne."

Sealed tenders addressed to the undersigned, and endorsed "Tender for Steamer 'La Canadienne,'" will be received up to noon of the 10th day of June, 1918, for the purchase of the Steamer "La Canadienne," now lying at Owen Sound, Ont.

"La Canadienne" is a single screw steamer of iron construction, built in 1880. Her net registered tonnage is 227 and her displacement is 500. Is 154 ft. long with a breadth of 23 ft., and a maximum draught of 11 ft. Her maximum speed is approximately 8 knots. Her boilers are in good condition. She is fully equipped for commission, and carries a motor boat and 4 sail boats, with accommodation for 55 men. She may be seen and inspected at any time upon application to Mr. John Nesbitt of Owen Sound. The ship will be sold as she lies.

Each tender must be accompanied by a certified cheque, made payable to the Department of the Naval Service at Ottawa for a sum equivalent to ten per cent. (10%) of the full amount of the tender. In case of failure to complete the purchase within the time specified the cheque of the successful tenderer becomes forfeited; all others will be returned promptly. The right is reserved to reject any or all tenders.

The terms of sale are cash within fifteen (15) days of the acceptance of tender.

G. J. DESBARATS,
Deputy Minister of the Naval Service.

Ottawa, May 10, 1918.

Unauthorized publication of this advertisement will not be paid for.

NOTICE.

All persons are hereby given notice that the undersigned have purchased the steamer "Oceanica" from Western Steamship Corporation, and all persons having liens or claims against said steamer "Oceanica" must immediately file same with undersigned for forwarding to late owner.

LAKE TRANSPORTATION CO.
c/o Valley Camp Coal Co.,
Rockefeller Bldg.,
Cleveland, Ohio.

Champlain Dry Dock for Quebec Harbor.

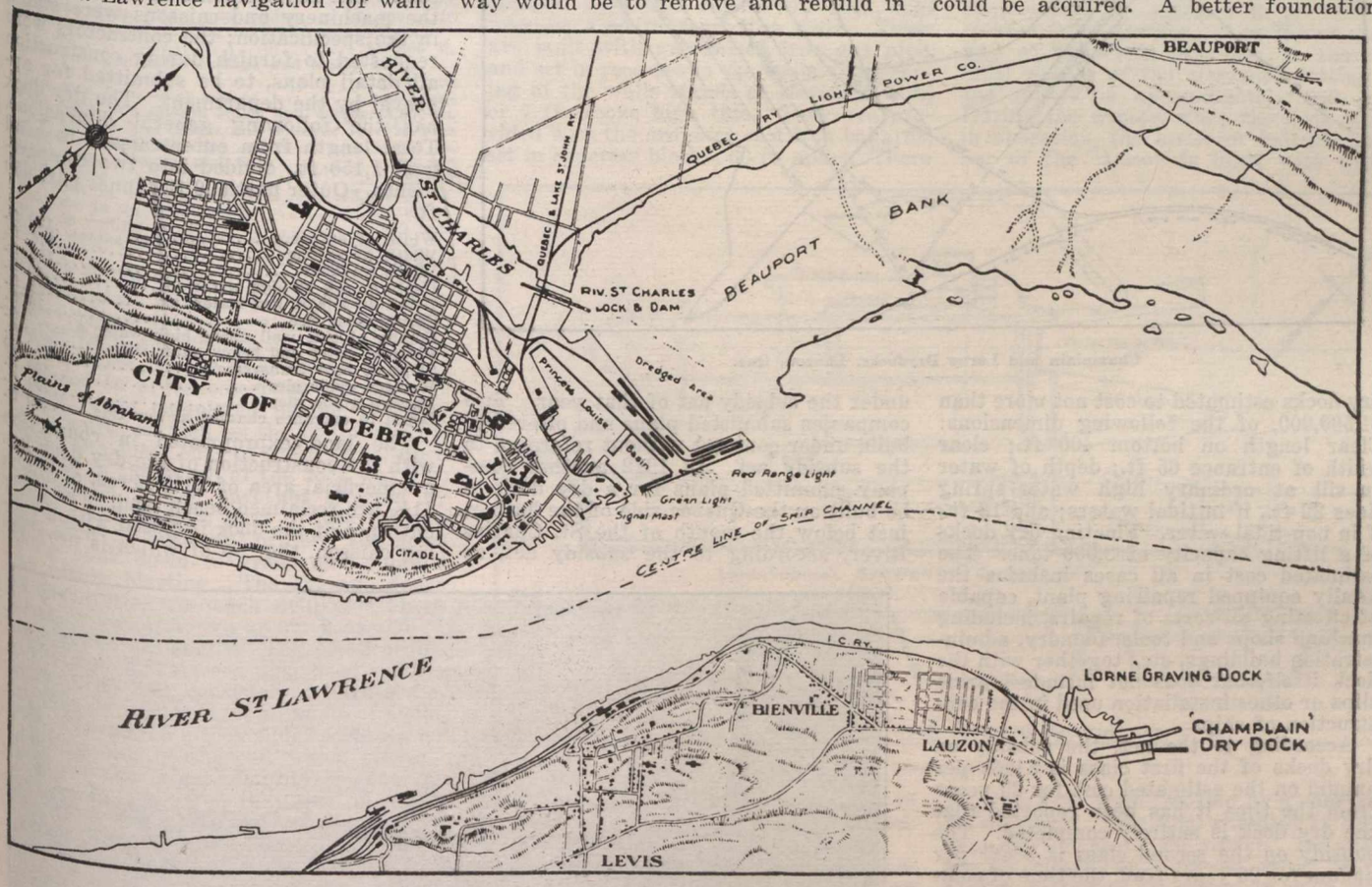
By U. Valiquet, M.Can.Soc.C.E., Superintending Engineer, Department of Public Works.

For a number of years the River St. Lawrence has been frequented by ocean steamers of such dimensions that they could not be accommodated in the Lorne dry dock, completed in 1886, at Lauzon, in Quebec harbor. In 1906 the Canadian Pacific Ry. brought out its steamships Empress of Britain and Empress of Ireland, of 65 ft. beam. The Allan Line steamships Virginian and Victorian of 60 ft. beam were also placed on the St. Lawrence route in that year. The Bavarian of somewhat narrower beam, 59¼ ft., came to Quebec in 1905; thereafter the number of large ships placed on the St. Lawrence traffic increased rapidly, until in 1912 there were 25 vessels that could not have been repaired in the long stretch of the St. Lawrence navigation for want of sufficient dock accommodation, the width of entrance of the present dry dock being only 62 ft. Any of these vessels that required docking had to be repaired temporarily, as well as possible, while afloat, and taken either to Halifax or New York, which, in some cases, was a risky undertaking. The case of the s.s. Bavarian was an unfortunate experience in this respect. On Nov. 5, 1905, she ran aground with a full cargo from Montreal and Quebec, about 40 miles below Quebec, opposite Grosse Isle. Although late in the autumn, she could have been raised and brought to Quebec had there been dock accommodation for her. Her beam was 59¼ ft., but through the accident her sides had bulged out beyond the width of the dry dock entrance. She was raised in the following spring, although further damaged by ice during the winter, and brought on the beach a short distance below the dry dock, where she was sold as scrap. This is the worst case on record in the history of the St. Lawrence navigation. The vessel was only six years old and of a registered tonnage of 10,387 tons.

In the summer of 1898 the writer was instructed to prepare a report on the practicability of widening the entrance of the Lorne dry dock at Levis, which had been completed in 1886. A plan was submitted, showing the possibility of obtaining an entrance 70 ft. wide, by removing part of the timber slides at the outer end of the dock; increasing the length was also suggested. The first was reported to be inadvisable, as it would greatly disfigure the dock and do away with the convenience of the timber slides; the only feasible way would be to remove and rebuild in another position the eastern side wall, thus depriving the harbor of all dock accommodation for probably two seasons. A new caisson would necessarily have to be provided; the cost would have been considerable. Further, it was considered that a new dry dock would be required in Quebec before many years. The suggestion of lengthening the dock was adopted; the length was increased from 484 to 600 ft.; this consisted merely in moving the circular head, stairways and timber slides 116 ft. further, after excavating the rock to proper width and depth. The work was performed under contract awarded in 1900, for $100,000, and completed in 1901 without interfering with the use of the dock. This dry dock was built by the Quebec Harbor Commissioners under an act, 38 Vict. Cap. 56-1875, by which the issue of bonds was allowed to obtain the necessary amount. The work was started in 1878 and completed in 1886 at a total cost of $921,130. In 1888 the Canadian Government relieved the Quebec Harbor Commission of all obligations to refund the sum expended on the dry dock and in 1890 it was placed upon the control of the Department of Public Works; the writer was then placed in charge.

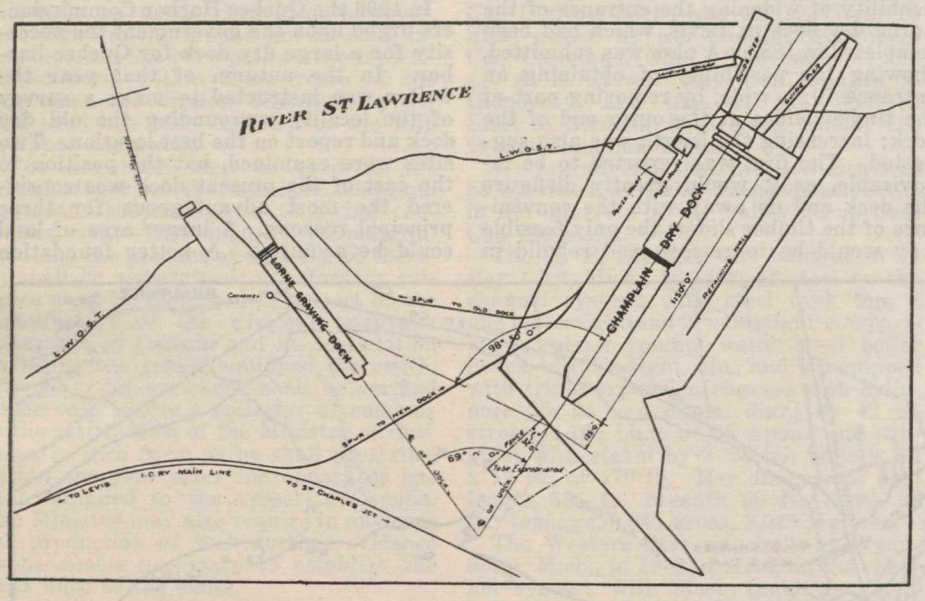
In 1906 the Quebec Harbor Commissioners urged upon the government the necessity for a large dry dock for Quebec harbor. In the autumn of that year the writer was instructed to make a survey of the locality surrounding the old dry dock and report on the best location. Two sites were examined, but the position to the east of the present dock was considered the most advantageous for three principal reasons. A larger area of land could be acquired. A better foundation could be obtained. The repairing plant of G. T. Davie & Sons could have better access to both the new and old docks. A plan and report were submitted in the early part of 1907; the dock then proposed was 1,000 ft. long with an entrance width of 100 ft. The proposition was not immediately acted upon; the question as to whether the government should build the dock or induce some shipbuilding firm to build it under a subsidy from the government, was unsettled. The result of the discussion was the passing at the session of 1910 of an Act to Encourage the Construction of Dry Docks.

Under this act dry docks were divided into three classes. The first class included dry docks estimated to cost not more than $4,000,000, and capable of receiving and repairing the largest ships of the British Navy and of the following dimensions: Clear length on bottom 900 ft.; clear width of entrance 100 ft., with depth on



Quebec Harbor, showing locations of Champlain and Lorne Drydocks.

sill at high water ordinary spring tides of 35 ft. Floating dry docks of a lifting capacity of 25,000 tons. The second class included dry docks estimated to cost $2,500,000, of the following dimensions: Clear length on bottom 650 ft.; clear width of entrance 85 ft.; depth of water on sill at ordinary high water spring tides 30 ft., if in tidal waters; or 25 ft. on sill, if constructed in non-tidal waters. Floating dry docks of a lifting capacity of 15,000 tons. The third class consisted of



Champlain and Lorne Drydocks, Lauzon, Que.

dry docks estimated to cost not more than $1,500,000, of the following dimensions: Clear length on bottom 400 ft.; clear width of entrance 65 ft.; depth of water on sill at ordinary high water spring tides 22 ft., if in tidal waters; and 18 ft., if in non-tidal water. Floating dry docks of a lifting capacity of 3,500 tons. The estimated cost in all cases includes the totally equipped repairing plant, capable of effecting all sorts of repairs, including machine shops and tools, foundry, administration buildings, etc., together with the dock itself, but does not include marine slips or other installation used in the construction of ships.

According to the act, the subsidy on dry docks of the first class is 3½% per annum on the estimated cost for 35 years from the time it has been reported that the dry dock is entirely completed. The subsidy on the second class is 3½% per annum for 25 years from the time of completion. On the third class, the subsidy is 3% for not exceeding 20 years from the time of completion. In all cases the company making the application must furnish plans, with a detailed list of the plant and a complete estimate of the cost. These are revised and corrected, if found advisable; and, upon a report from the Chief Engineer of the Public Works Department that the works intended to be built are in the public interest, the application is granted upon certain conditions of management and maintenance. The works are to be executed under the superintendence of an officer of the department.

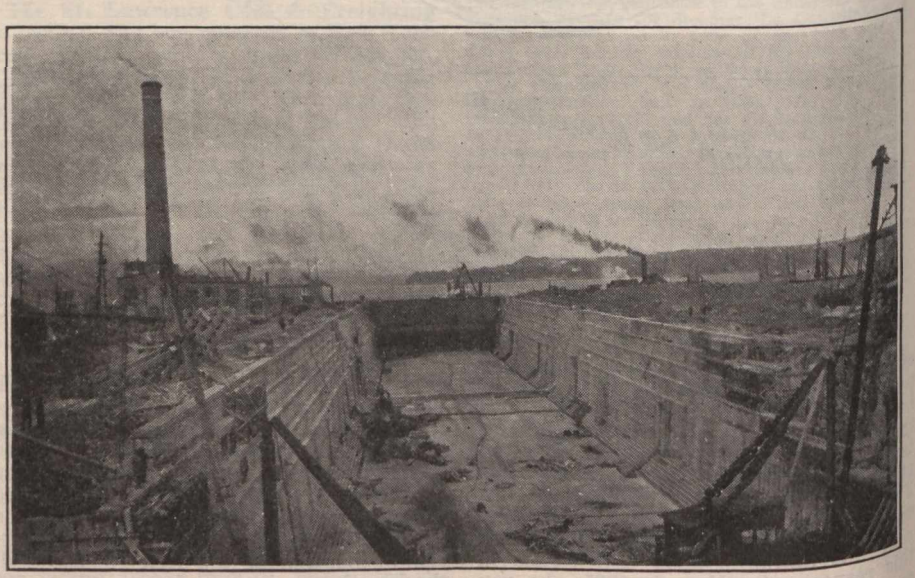
The above act was amended in April, 1912, by making the length of the first class dry docks 1150 ft., the entrance 110 ft. and the estimated cost $5,500,000. Another amendment was made in May, 1914, by which a subsidy of 4% on the estimated cost is allowed for first class dry docks. The act was further amended in 1917, by which the dimensions of the first class dry docks shall be: length on bottom 1,150 ft.; width of entrance 125 ft.; depth on sill at high water spring tides 38 ft. A subsidy of 4½% on the estimated cost of $5,500,000 is allowed, payable half-yearly for 35 years from the time of completion. By this amendment no bonds or debentures are to be issued until $1,000,000 shall have been expended on the construction of the dry dock.

After the passing of the act of 1910, shipbuilding firms were invited to build a dry dock at Lauzon, in Quebec harbor, under the subsidy act of that year. Two companies submitted plans and offered to build under contract without reference to the subsidy act. In 1912 another company submitted plans for a dry dock to be built on the Quebec side of the harbor, just below the mouth of the St. Charles River, according to the subsidy act, as amended in 1912. Some objection having been made to this location and with no prospect in view for any other applicant, the Public Works Department decided that a dry dock would be built by the government.

In the early part of 1913 the writer was instructed to prepare plans and specifications on which tenders could be called as soon as possible for the construction of the new dry dock, the location being to the eastward of the Davie shipbuilding yard, so that both the old and new dry docks would be easily accessible from the shops. Tenders for the construction of this work were advertised on May 12, 1913, to be received on June 30, 1913. The contract was awarded to the lowest tenderers, M. P. & J. T. Davis, and was signed on Oct. 7, 1913. The new dock was at first intended to be built on a line parallel to the old dry dock, but this was objected to from the point of view of navigation. A commission was appointed in the autumn of 1913 to investigate and find out which direction would best suit the entrance facilities, and it was decided that the centre line of the dock should form an angle of 69° with the direction of the old dry dock, or approximately 45° n.e., and it was so laid out. Owing to the limited time available before the calling of tenders, general plans only were prepared, together with an estimate of the cost. The requirements as to details for the machinery and caissons were stated in the specification; the contractors were requested to furnish during construction all detail plans, to be submitted for approval by the department. The dry dock has the following general dimensions. Total length from outer caisson to head wall 1,150 ft., divided into two compartments. Outer part 500 ft.: Inner part 650 ft.

Width of entrance	120 ft.
Width at coping	144 ft.
Width on floor	105 ft.
Depth on sill at high water s.t.	40 ft.
Depth on sill at low water, s.t.	22 ft.
Spring tides rise	18 ft.
Coping of side wall above high water s.t.	7 ft.
Floor at outer end below outer sill	4½ ft.
Slope of floor transversely	1 in 100
Western guide pier	400 ft.
Eastern guide pier	500 ft.
Depth in entrance channel at low tide	30 ft.

The land expropriated in connection with the construction of the dry dock has a superficial area of 25½ acres, of which 11½ are reclaimed beach land. The outer entrance of the dock is closed with a rolling caisson, the top of which is provided with an automatic folding bridge; a floating caisson closes the inner entrance. This caisson can also be placed to close the outer entrance in cases when repairs are required to be made to the rolling caisson. Three main centrifugal pumps, each of 63,000 gall. a minute capacity, are used to empty the dock; two pumps of 6,000 gall. a minute each are used to keep the dock dry. All pumps are run by electric power. Eight boilers of a total capacity



Champlain Drydock, Lauzon, Que. Looking toward the St. Lawrence River.

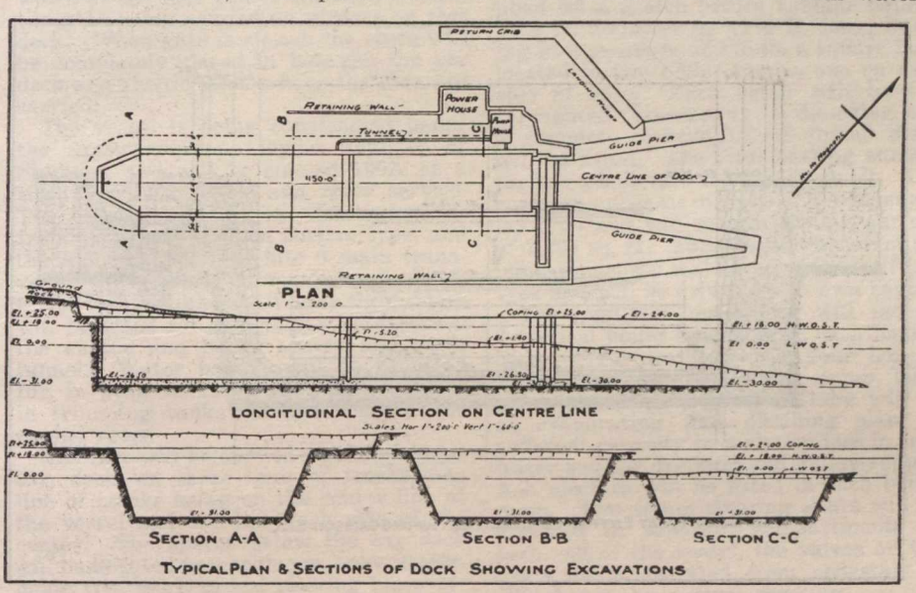
of 3,600 h.p. furnish the steam at 200 lb. pressure to run the three direct current turbo generators of 1,500, 750 and 300 kilowatts respectively, which furnish the current at 550 volts to run the pump and other motors. A direct current generator of 100 kilowatts at 220 volts, driven by a steam engine, will furnish the current for the lamps around the dock and in the buildings. There are 24 lamps of 500 watts, hung from poles around the dock. The poles are made of gas pipe, with the lower end set into sockets fitted with electric connections, and made removable in case of necessity. All electric wiring for lamps and motors outside of the buildings is placed underground. The approximate quantities of the materials in the principal items entering into the construction are:

Rock excavation above and below coping	342,000 c. yd.
Submarine rock excavation in channel	65,000 c. yd.
Dredging entrance channel	530,000 c. yd.
Concrete	100,000 c. yd.
Granite steps, altars and quoins	140,000 c. ft.
Steel beams, reinforcing bars and manhole covers	150,000 lb.
Cast iron for roller casings and sluice valves	125 tons
Cast steel for caisson rollers	65 tons
Gun metal for caisson roller and valves	4,500 lb.
Cast iron in keel blocks and bollards	990 tons
Forged steel spindles for rollers	11,000 lb.
Bricks for chimney and flues	345,000
Fire bricks	125,000
Cribwork in approach piers	63,300 c. yd.
Concrete in approach piers	13,300 c. yd.
Steel in rolling caisson	930 tons
Total weight in rolling caisson and machinery	1,125 tons
Steel in floating caisson	960 tons

The work was started in May, 1914. The concrete retaining walls on each side of the dock, specified to be built from the natural rock surface to elevation +24 and intended to prevent seepage through the filling, were completed during the season's work, as well as the cofferdam between the outer ends of these walls. Rock drilling in the prism of the dock was also carried on in the part not affected by tides. The largest part of the drilling was done by two well drillers, the holes being sunk down to grade and plugged for future blasting. The average depth of perforation for each drill was about 80 ft. a day, although as much as 130 ft. was done occasionally. Ten or 12 ordinary steam drills were also used on the work. The rock consisted of hard shale, irregularly stratified, at an angle of about 45°. Considerable rock slides occurred on the west side of the cut, which necessitated a much larger quantity of concrete for the dock wall on that side, also the use of rock bolts, to prevent the sliding tendency of this wall. Steam shovels and dump cars were used to remove the blasted rock, which was used for filling, wherever required, on the government property.

The cofferdam was built of timber cribwork, 20 ft. wide, sunk in an average depth of 1 ft. of water, at low tide, and built to the elevation of 3 ft. above high tide; a layer of concrete was deposited along the bottom of the outer face and this face was sheathed with plank. The floor and walls of the dock are built of concrete, the mixture being 1-3-5. All exposed faces are finished with a fine concrete of 1-2-4 mixture for a thickness of 6 in. The concrete for the walls and the floor was cast in alternate sections of approximately 30 ft., with expansion joints. All the cement used was subjected to a laboratory test; apart from other requirements the tensile strength was required to be 600 lb. a sq. in. after 27 days immersion, for neat briquettes, and 275 lb. a sq. in. for 1-3 mixture.

The steps at the top of the walls are built of granite, with treads and risers of 12 in.; the altars are 2½ ft. wide and consist of granite 12 in. thick, tailing 9 in. into the concrete. The caisson stops of both entrances and all culvert openings are built of granite. The floor is 5 ft. thick and finished level from end to end; the sides slope down 6 in. to the side gutters. The floor is provided with three strips of granite slabs, 18 in. thick, intended to receive the cast iron keel and bilge blocks. The middle strip is 10 ft. wide and level; the side strips are 9 ft. wide. In order to prevent the possibility of hydrostatic pressure under the floor and behind the side walls, a system of drains is provided, that will take the seepage water to the sumps. There are 12 stairways from the top of the walls to the floor of the dock, two at each end of the two compartments and two half-way between the ends of each compartment. Four timber slides, built of granite slabs, 18 in. thick, are provided alongside the last set of stairways. There are also 8 ladders, 4 on each side of the dock, that may be used to reach the floor. These are built with galvanized iron gas pipe, and set in recesses in the walls. The coping of the walls stands at elevation +25, or 7 ft. above high tide. They are provided with the ordinary cast iron bollards, set in concrete blocks, 60 ft. apart. There



Champlain Drydock, Lauzon, Que.

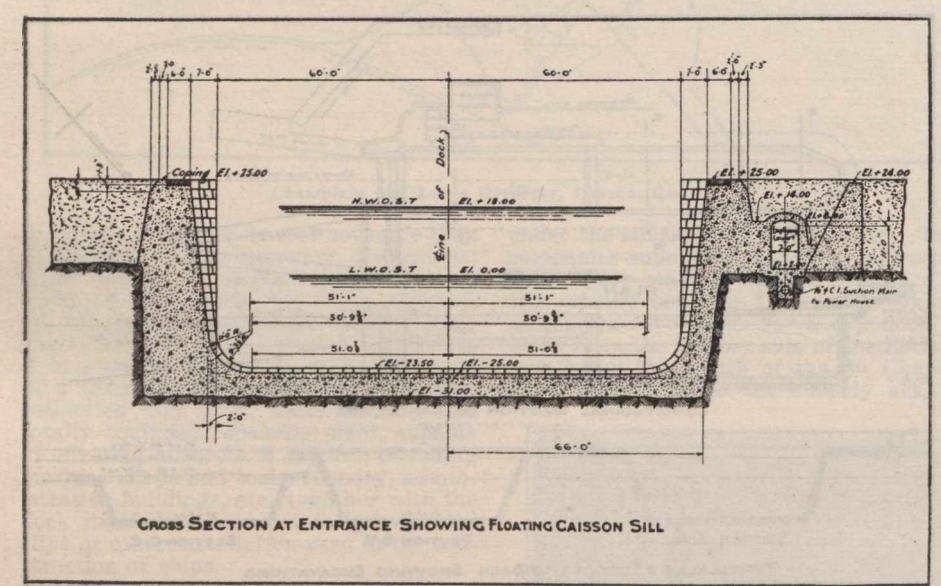
are 9 electrically driven capstans with 15 h.p. motors, 4 on each side of the dock and one at the head.

The keel blocks are each built of three pieces of castings; the middle piece being wedge shaped so that it may be knocked out and the block removed from under a ship, when in the way of repair work; the upper part of the top piece of casting is provided with a piece of white oak tenoned into the casting. All rubbing faces are planed true and smooth. The keel blocks are 4 ft. 4 in. long and 2¼ ft. high. On top of these are placed temporary hard wood timber blocks to obtain the required height above the floor. It had been intended to build bilge blocks, so arranged as to slide under the bilge of vessels. However, this was objected to by the British Admiralty, which insists on having all blocks made of the same pattern, so as to enable building a bed that will conform to the bottom of the vessel.

Caissons.—The outer entrance is closed by a rolling caisson built of steel and operated by an electric motor of 125 h.p.; the bottom is provided with two heavy scantlings of steel, resting on flanged rollers, 3 ft. in diameter, placed at 8 ft. centers. These are made of cast steel and bored to receive bronze bushings. The forged steel spindles, 4 in. in diameter, are also provided with bronze sleeves. The cast iron casings, containing the rollers, are set in the concrete altars, on each side of the caisson berth and chamber. At an elevation of 15¾ ft. above the sill of the dock the rolling caisson is provided with 6 culverts, 42 in. in diameter, closed by sluice valves that are operated from the upper deck by a 15 h.p. electric motor, driving a longitudinal shaft provided with the necessary gearing; and, by means of clutches, any one or all of the valves may be worked. The culverts are used for flooding the dock. The caisson is divided horizontally by a water-tight deck at the elevation of 23½ ft. above the bottom, forming the ballast and tidal chambers. As the tide rises the sea water comes on this deck through valves in the outer face of the caisson, which are kept constantly open during the summer to prevent the caisson from floating. A sufficient quantity of ballast is provided, so that the total weight of the structure resting on the rollers is approximately 150 tons. During the winter, when the dock is not in operation, the lower or ballast chamber of the caisson is filled with water, which is kept from freezing by a constant jet of steam. The tidal chamber is then kept dry by closing the valves. The caisson is closed and opened with heavy chains, supported on altars on each side of the caisson recess, and passing over pulleys worked by worm gears connected with the motor. The top of the caisson is provided with a folding bridge for light traffic across the dock; as soon as the caisson starts to open, the apron and railings of the bridge are automatically lowered to allow them to pass under the flooring over the caisson recess. The middle entrance of the dock is closed by an ordinary floating or ship caisson. When in place, the deck is used as a bridge across the dock. This caisson may also be used to close the outer entrance by placing it immediately outside the rolling caisson, where the necessary stop is provided for it. This, however, will be necessary only in cases of repairs being required to the submerged parts of the rolling caisson. These caissons were built by the Dominion Bridge Company, under a subcontract.

Boilers and electric power.—Six water tube boilers of 500 h.p. and two of 300 h.p. furnish steam at 200 lb. pressure to

produce electric current. The boilers are provided with automatic stokers, ash and coal conveyors. The coal is unloaded from cars into a coal crusher run by an electric motor, and elevated to a hopper of 500 tons capacity, over the front of the boilers. Water heaters are provided, but the steam is not superheated; one of the small boilers will be constantly under steam pressure to run the drainage pumps and the lighting dynamo. The electric power consists of 3 direct current turbo-generators of 550 volts, one of 1,500 kilowatts, one of 750 and one of 300 kilowatts. The steam turbines are of the Curtis condensing type, built by the General Electric Co. In the large unit the turbine runs at 3,600 r.p.m. It is geared down to 360 revolutions for the generator; the second is geared from 5,000 to 750; the third is geared from 5,000 to 900 r.p.m. A 100-kilowatt generator driven by a high speed direct connected steam engine, furnishes the current for lighting purposes. This power installation is more than ample for all the machinery connected with the running of the dock proper. It is, however, anticipated that the whole of it will be used when large repairing and shipbuilding shops are in operation together with the pumping of the dock.



CROSS SECTION AT ENTRANCE SHOWING FLOATING CAISSON SILL

Champlain Drydock, Lauzon, Que.

This electric installation has been criticized, on the ground that the large expenditure is not justified when electric current is available from private companies in the vicinity of Quebec. When the electric installation was proposed by the writer the idea in view was that no company would be interested or willing to furnish over 3,000 h.p. at any time of the day or night for the short period of about 50 hours in the year, without interfering seriously with their general service. It had also been ascertained by personal visits to five of the principal U.S. Government navy yards that each of them has provided its own electric power for pumping their dry docks. Out of five, only one had installed alternating current machinery. It has developed since that the only electric company that could furnish the power current is not willing to entertain the proposition unless at a much greater cost to the government than the private installation can be run, including the interest on the outlay, which is approximately $240,000.

Pumps.—The dock is emptied by three main pumps of the horizontal centrifugal type, each having a capacity of 63,000 gall. a minute. The bronze shafts are connected to the armature shafts of 800 h.p. motors, running at 750 revolutions a minute. The motors are built to stand an overload of 25% for two hours; the total lift will very rarely be more than 33 ft. The suction and discharge pipes are 48 in.; the water is discharged into a chamber provided with non return valves, and to a culvert through the entrance wall outside of the caisson. The main pumps are guaranteed by the builders to deliver 63,000 gall. a minute against a total head of 25 ft. At the time of writing these pumps have not been tested as to efficiency. Two auxiliary pumps, each of 6,000 gall. a minute capacity, driven by electric motors of 125 h.p., will take care of leakages and seepage; these pumps will also help while the dock is being pumped. The pumps were manufactured by the Allis-Chalmers Co.

The time occupied in emptying the dock will vary according to the height of tide when the pumps are started and the size of the vessel being docked. At high water of spring tides the dock contains over 38,000,000 gall. of water. This quantity of water, however, will very rarely, if ever, exist, when pumping is started. It is estimated that the average time for pumping out the dock will be about 2½ hours.

Underground culverts 9 x 10 ft. convey the water from the sumps in each compartment of the dock to the pumps; these culverts are provided with sluice gates, so as to permit of operating each compartment separately. The gates are operated from coping-level by 15 h.p. electric motors. The pressure against the gates may at times be due to a head of 50 ft. of water. From the non-return valve chamber the discharge culvert is 7 x 12 ft.; it is also provided with a sluice gate. The capacity of discharge of this culvert was obtained from Chezy's formula $V = c\sqrt{rs}$, being obtained from Kutter's formula. Under a head of 4 in. the capacity will be ample to take care of the output of the pumps when discharging in open air.

The dock is filled through the 6 culverts in the outer caisson, each having a sectional area of 9 sq. ft., also 2 culverts, one in each side wall of a sectional area of 30 ft., the valves of which are operated by electric power. These culverts are made exceptionally large, due to the fact that each may only be partially opened until the water in the dock has reached the center of the culvert opening, to prevent the heavy current that would result from a large opening from disturbing the beds prepared to receive a vessel; further, as the head between the outer and inner levels of water decreases, the valves are fully opened, thus obtaining a large flow. The time required to fill the dock may at times be as much as four hours. The middle entrance is similarly provided with filling culverts as the outer entrance.

In order to obtain sea water by gravity for the purpose of washing the floor of the dock, 6 in. pipes were laid in the concrete side walls of the dock, at an elevation of 2 ft. above low tide; each pipe has 6 hose connections and valves at the face of the walls, where 50 ft. lengths of 2½ in. hose may be attached for the purpose. The water is available within one hour of extreme low tide. Washing the floor is necessary owing to the sediment accumulated while the dock is flooded.

Guide piers.—The western guide pier is 400 ft. long and 75 ft. wide; the one on the eastern side is 500 ft. long, 75 ft. wide at the outer and 200 ft. wide at the inner end. Each is built of two lines of 12 x 12 timber cribwork substructure up to 6 ft. above low water, spring tides; the outer face of each line of cribwork is built close, and sheathed vertically with 10 in. hardwood planks. The cribs facing on the channel were sunk in a depth of 30 ft. at low water, spring tides; those on the eastern side of the east pier were sunk on the natural surface of the rock. Those on the western side of the west pier, as well as those for the landing pier, were sunk in a depth of 24 ft. at low tide. From the elevation of 6 ft. above low tide the superstructure consists of mass concrete walls, stepped at the back and filled between with excavated material. The railway spur track from the Intercolonial Ry. will be extended to the end of the western pier. These piers are intended to be used, when necessary, for unloading parts of cargoes from vessels to be docked. The entrance channel has a depth of 30 ft. at low water, spring tides. The landing pier on the west side of the entrance is intended for unloading the dock supply of coal, when delivered by water.

Buildings.—The power house is 120 x 100 ft., divided by a brick wall into 2 rooms, 120 x 50 ft., one being the boiler room and the other the generator room; the walls are solid brick, built on concrete foundation; the roof is built of reinforced concrete slabs, supported by steel I-beams, which were procured from the unused steel of the first Quebec bridge. The building is provided with extra large windows with steel frames. Skylights and ventilators are also provided. The floor is concrete, overlaid with red tiles; and the lower part of the interior walls for the generator room is finished with a white tile wainscoting, 6 ft. high. Each room is furnished with water closets and wash basins; the water is obtained from the Lauzon village aqueduct. A special pump in case of fire and the necessary hose are provided. The generator room has an overhead travelling crane of 15 tons capacity. The lifting is done by motor; the travelling gear is worked by hand.

The pump house is 70 x 47 ft., with foundation walls of concrete, over which solid brick walls are built. The floor is at an elevation of 16 ft. below low water, spring tides, or 41 ft. below coping. It is finished with red tiles. The interior walls up to coping level are finished with white tiles. The pump house is also provided with an overhead travelling crane of 10 tons capacity. The chimney is 180 ft.

high, built of brick, with an inner shell of fire brick 100 ft. high. There is an air space of 6 in. between the inner and outer shells; the inside diameter is 11 ft.; the top consists of a cast-iron cap; 4 lightning rods, well grounded, are provided to protect the chimney.

The length of the dock was decided on not merely in anticipation of vessels of, say, 900 ft. or over being employed on the St. Lawrence trade, which may not happen for a great number of years, but owing to the great number of applications received every fall from owners of moderate sized vessels for accommodation during the winter, so that repairs may be done at cheaper rates, and the boats be ready for traffic as soon as navigation opens.

The dock is not yet quite completed: small portions of the floor and walls at the head remain to be finished; the boilers, machinery and pumps, although in working condition, require some final adjustment before they are tested and accepted;—the rolling caisson was operated in Nov., 1917,—the contractors' floating plant was docked and the dock was pumped out. It is fully expected that everything will be entirely completed during July.

The several classes of works in connection with the construction of the dock have been accomplished in a thorough manner both in regard to materials furnished and workmanship; several minor changes which were found to be advantageous were made during construction. The contractors, in all cases, have shown their willingness to give satisfaction in every way irrespective of cost. It must be noted that the works were started shortly before the war and continued without interruption, except in winter, in spite of increased cost of materials and labor. The time required for the construction of the dock is somewhat over four years. It must, however, be remembered that the working season is only six months in each year,—concrete works have to be suspended during the first days of November and cannot be resumed until the beginning of May. The total cost of the works under contract will be approximately $3,365,000.00. The works have been carried on by the Public Works Department, with E. D. Lafleur as Chief Engineer,—the writer as Superintending Engineer, and J. K. Laflamme as Resident Engineer,—S. Fortin, Steel Structural Engineer, has had the approval of plans submitted for the steel structures. The contractors are M. P. & J. T. Davis, and S. Woodard is their Superintending Engineer.

The foregoing paper was read before the Canadian Society of Civil Engineers in Montreal and Ottawa recently.

U. S. Atlantic Coast Steamships.—The Director General of U. S. Railroads, having taken possession and assumed control of steamship companies operating on the Atlantic Coast, has created the Coastwise Advisory Committee, with office at 165 Broadway, N.Y. L. J. Spence has been appointed chairman, with authority to form the committee from the officers of the following lines:—Clyde Steamship Co., Mallory Steamship Co., Merchants & Miners Transportation Co., Ocean Steamship Co., Old Dominion Steamship Co., Southern Pacific Steamship Lines, Southern Steamship Co. The chairman of the committee will report to the Manager, Marine Section, Transportation Division, U. S. Railroad Administration, and will exercise supervision and direction of all coastwise lines under control of the Railroad Administration.

Canadian Northern Railway Car Ferry for British Columbia.

The car ferry steamship Canora, which the Canadian Northern Ry. is having built to carry passengers and freight cars between Port Mann, B.C., on the south side of the Fraser River, opposite New Westminster, and Patricia Bay, Vancouver Island, from which point the company has rail connection with Victoria, will, it is expected, be launched at Lauzon, Que., on June 10. The following are the leading particulars:—

Length over all	308 ft.
Length between perpendiculars	294 ft.
Breadth moulded	52 ft.
Depth moulded to car deck	20½ ft.
Depth moulded to shelter deck	28½ ft.
Draft loaded	14½ ft.
Displacement at above draft	3,400 tons
Speed on service	14 miles
Number of cars carried	20

The type adopted is somewhat similar to that of the car ferries operating on the Great Lakes, with the exception of a rolling gate which will be fitted at the stern, to close in the space between decks where the railway cars will be carried. This gate will be operated by a steam winch at the fore end of the shelter deck, the gate being carried on girders on this deck. When gate is closed, the stern will be completely closed in between the car deck and shelter deck where the cars are carried.

The vessel is being constructed under the supervision of Lloyd's Register of Shipping and will be classed 100A as a train ferry for coast and river service. The construction is on the transverse framing principle, open bottom type, and the hull is subdivided into 6 main transverse water tight compartments by 5 water tight bulkheads. Water tight doors will be fitted for communication between the engine and boiler spaces and shaft tunnel. Water ballast will be provided for, in peak tanks forward and aft, and in trimming tanks on each side of the engine room.

The cars will be carried on the main, or car, deck, on three lines of tracks, one line of tracks being on the center line of the vessel and one line each side of the center. The spaces below the car deck will be devoted to machinery, crew, stores, holds, coal bunkers and steering compartments.

Above the car deck, at a height of 18 ft., there will be a complete shelter deck, extending the full length and width of the vessel, and, on this deck accommodation for passengers and officers will be provided. This accommodation will include rooms for all officers, large dining saloon, parlor, state rooms for passengers, smoking room, kitchen and pantry, bathroom and lavatories, and a large observation cabin at the forward end. The state rooms will be tastefully finished and have berths, clothes closets, wash basins, etc., in each room. The dining saloon will be finished in oak panelling and will have a large dome over the center, with borrowed lights extending all round dome.

Above this accommodation will be the pilot house, and at the stern a pilot house for use in docking the vessel. As the vessel will have to go astern for a distance on her run, she has been designed with propellers at both ends, also steering gears and rudders, and in connection with this arrangement the navigating lights, engine room telegraphs and steering standards will be arranged to automatically change over to suit this condition.

Steam heating will be provided in all rooms. The ventilation to all spaces will be provided by natural means, through patent ventilators carried well above the roof of the shelter deck accommodation. The sanitary arrangements will provide for a complete service of fresh, salt and hot water throughout the vessel. The crew spaces will be provided with all necessary accommodation for seamen and firemen, including berths, lockers, etc. There will be a complete installation of fire extinguishing pipes. The electric generators will be placed in the engine room, the main switchboard being located conveniently thereto. Two searchlights will be fitted for use when the vessel is landing at the slips at night.

The main propelling machinery will consist of a 4-cylinder, triple expansion, surface condensing engine, balanced on the Yarrow, Schlick & Tweed system, having cylinder 24, 38, 43 and 43 in., with a stroke of 30 in., and indicating about 2,200 h.p. The engine will be arranged to drive a screw propeller at each end of the vessel, the shafting running the full length of the vessel. Steam will be supplied by 4 Scotch return tubular boilers, 11½ ft. diameter by 11½ ft. long, working at a pressure of 175 lb. a square inch, located in two boiler rooms, one on each side of ship. Each boiler will have 2 corrugated furnaces, 41 in. diameter, and a complete installation of forced draft will be fitted. The total heating surface for the 4 boilers will be 5,500 sq. ft. The surface condenser will be of the triangular type and will have a cooling surface of 2,220 sq. ft. The circulating pump for main condenser will be of the centrifugal type and will be driven by its own engine.

The auxiliary machinery will include 2 vertical boiler feed pumps, each having capacity for working the four boilers, sanitary pump, fresh water pump, bilge pump and ballast pump. There will be an evaporating and distilling plant of sufficient capacity to make up loss in feed water and for drinking and galley supply. Ash ejectors will be fitted in each boiler room. Two steam steering gears will be provided in separate compartments at each end of the vessel, the valves on the gears being operated from pedestals in pilot house, by control shafting.

The auxiliary deck machinery will include a large steam windlass, on the shelter deck, for handling the anchor cables, a windlass also being provided, with drums for handling the wire ropes for mooring. The life saving appliances will be sufficient to meet the requirements of all on board and will be in accordance with the requirements of the Canadian Government inspection. Six lifeboats will be carried on the shelter and boat decks with two davits and gear to each boat.

The vessel was designed by A. Angstrom, as Naval Architect for the C.N.R., and is being built by the Davie Shipbuilding & Repair Co., at Lauzon, Que., Jno. Inglis Co., Toronto, building the main propelling machinery.

The Miami Navigation Co., Ltd., has been incorporated under the Dominion Companies Act, with $10,000 authorized capital and office at Chatham, Ont., to own and operate steam and other vessels, and to carry on a general navigation and transportation business on the Great Lakes. The incorporators are: T. Donovan, F. C. Granville, T. J. Stockwell, J. W. Harrington and T. M. King, Chatham, Ont.

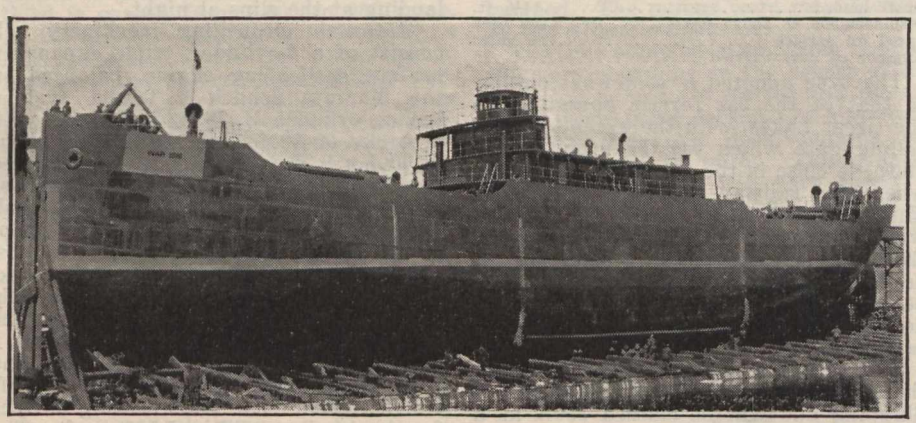
Shipbuilding at Port Arthur.

The Port Arthur Shipbuilding Co. established a record on April 3, when it launched 2 steamships and laid a keel for a third. A trawler of the Castle class for the Naval Service Department was launched at 11 a.m., followed at noon by the launching of the steel cargo steamship War Isis, 3,400 tons d.w., for the British Government. Immediately after the launching of the War Isis, the keel for a sister ship, the War Heather, was laid down on the same berth.

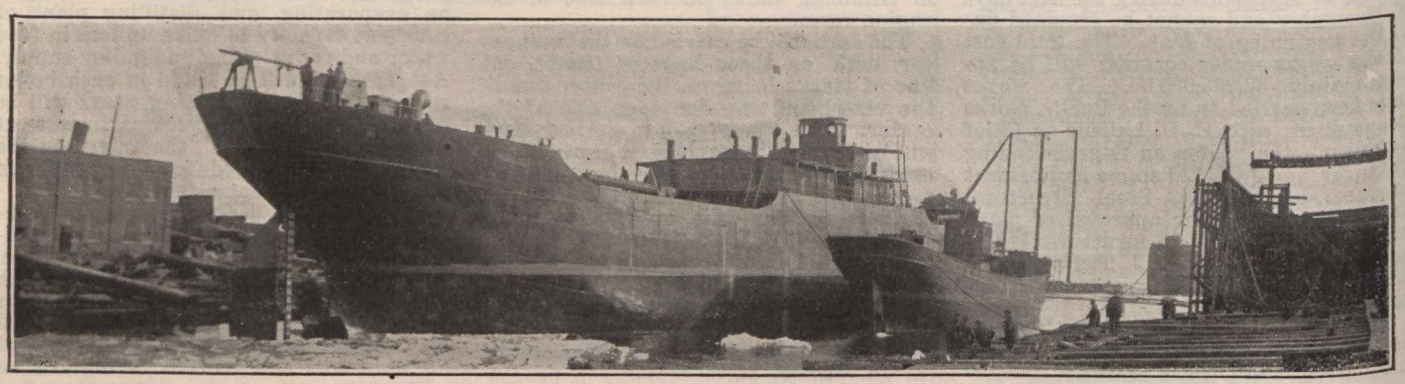
The War Isis is a single deck, bulk cargo freighter of the following dimensions: Length over all, 261 ft.; moulded breadth, 43½ ft.; moulded depth, 22 ft. 11½ in.; gross tonnage, 2,240; displacement, with 20 ft. draft, approximately 4,800 tons. She is built on the transverse system, inner bottoms throughout, with 2 large cargo holds, each fitted with 2 hatches. This ship represents the full canal size, standard type, being built to the Imperial Munitions Board order. The cargo will be handled by 4 steel derrick masts, equipped with 2 booms each, served by 7 x 12 reversible double drum steam winches. The bridge erection will be located amidships, enclosing the engine and boiler casings, the surrounding spaces on the main deck being available for the stowage of cargo or coal. On the bridge deck will be accommodation for the officers, engineers, wireless operators and gun crew. The saloon, galley, pantry and wireless room will also be located on this deck. The captain's quarters and chart room will be located on the boat deck, with the pilot house and flying bridge above. The hospital and quarters for boatswain and carpenter will be located in the forecastle. Separate quarters and mess rooms for the deck and engine crews will be located under the poop deck.

The propelling machinery will consist of a triple expansion engine, h.p. 20 in., i.p. 33 in., l.p. 54 x 40 in. stroke, with attached air, bilge and feed pumps. A piston valve will be fitted to the h.p. and balanced, double ported slide valves will be fitted to the i.p. and l.p. cylinders, with an assistant cylinder on the latter. Steam will be supplied by 2 Scotch boilers 14½ ft. diameter x 11 ft. long, with a working pressure of 190 lb., and developing about 1,200 i.h.p. The steam steering gear will be located on the main deck aft of the engine casing. The propelling machinery, boilers, and a very considerable portion of the auxiliary machinery were built in the company's shops.

The Port Arthur Shipbuilding Co.'s programme for this season includes 5 full canal size, ocean going freight steamships, similar to the War Isis, and 10 trawlers of the Castle class. At present 6 vessels are under construction.



Steel Steamship War Isis, Just Before Launching at Port Arthur, Ont., Apr. 3, 1918.



Shipbuilding at Port Arthur, Ont.

This illustration shows, from left to right, the steel cargo steamship War Isis, building for th British Government, and the trawler Tr. 5, for the Naval Service Department, both of which were launched April 3. At the right hand side is sh wn the keel for a sister ship to the War Isis, and in the right background, another smaller ship, War Osiris, also under construction.

Victoria Harbor Works.—Sir James Lougheed stated in the Senate, May 1, that five tenders were received for the construction of the breakwater and wharves at the outer harbor at Victoria, the contract for the breakwater being awarded to Sir John Jackson (Canada), Ltd., for $1,797,801.88, schedule rates; and for the wharves to Grant, Smith & Co. and McDonnell, Ltd., for $2,244,745.15, schedule rates. The total cost of the works, not including sheds, is: on the breakwater, $2,206,036.02; and on the wharves, $2,421,830, of which $23,760, including drawback of $7,040, is held in abeyance. The total paid to May 1, is $4,604,106.02.

Water Ballast Favored for Ocean Going Vessels.

So persistent has been the claim advanced by importers of mineral commodities that these commodities occupy no cargo space—only that usually given over to ballast—that the United States Shipping Board committee on mineral imports and exports decided to make a thorough investigation of the subject. F. W. Paine, one of the committee's experts, was assigned to the work and has submitted a report which shows that the proportion of ocean tonnage using water ballast is now so great as to render negligible the claim that this space is available for the carrying of minerals. He says:—

"Double bottom ballast tanks enable ships to carry a weight of water equal to about one sixth, in most modern ships one quarter, of their cargo carrying capacity. This water is held rigid, and acts as solid ballast. Deep tanks, peak tanks, etc., are other forms in use additional to the bottom tanks, and enable ships to carry a weight of water equal to one fourth to one third of cargo capacity. In consequence of the continual development of the water ballast tank construction ever since the sixties, there are now very few ships afloat that require stone, sand, or other solid ballast. The rare exceptions are very old ships, especially a few old Great Lakes vessels that are now on the ocean.

"This development was a most important one, as trade conditions before the war were such that from one fourth to one half of the voyages made by cargo ships, especially those not belonging to standard steamship lines, had to be made without cargo. Great numbers of ships continually sailed to all parts of the world with no ballast except water.

"If this were the condition in normal or peace times, it is still more the case today. In these days, when the number of ships is inadequate, it is exceedingly fortunate that there is no necessity for ships to be delayed loading and unloading ballast, when a voyage must be made without cargo, as happens so often. No more is it necessary for ships to be delayed in loading and unloading cargoes of goods, such as luxuries or non essential commodities. Besides loading delays the added weight makes the ship sink low in the water and makes travel slower, especially in calm weather. Also this greater amount of hull under water is a larger target for German torpedoes."

The B.C. Trading & Transportation Co., Ltd., Kamloops, has changed its name to Sawmills Machinery Co., Ltd.

The Preservation of Hulls, A Problem of Wooden Shipbuilding.

By Bror. L. Grondal, Assistant Professor, College of Forestry, University of Washington, Seattle.

A problem that offers more difficulties from the standpoint of wood preservation than the protection of the interior framing of wooden vessels, is the protection of the outer sheathing or planking of the hulls. The salt waters of the ocean, harbor a number of wood-destroying organisms that in some places make short work of unprotected wooden bottoms. These organisms are the molluscs known as ship-worms, commonly called xylotrya and teredo, and a number of crustaceans, the most destructive being the common limnoria. In addition to the problem of preventing the attacks of these, some means must be provided for preventing the accumulation of barnacles and seaweed, which materially affect the speed of a vessel. One of the earliest expedients adopted for this purpose was the charring of ships' bottoms. The planking was periodically charred to a depth of about a quarter of an inch with a slow fire. This was effective for only a few months, when it became necessary to again char the hull. Such charring resulted in the partial destructive distillation of the outermost portion of the wood, liberating small amounts of wood tar containing a high percentage of phenoloid bodies, which are highly distasteful to ship-worms. As these are, however, soluble in water, they soon leached out, leaving the wood unprotected. The charred surface also prevented the accumulation of barnacles. for as soon as a free-swimming larva attempted to attach itself to the charred surface, the charcoal, being very friable, would break loose, releasing the barnacle. The destruction of the wood, due to repeated charrings, makes this method impracticable.

Later the sheathing of bottoms with lead was attempted with only partial success, as it developed that the lead corroded very rapidly around the fastenings, and the adhesion of barnacles was not prevented. Iron sheathings were also found to be impracticable, due to rapid corrosion, though iron sheathings in the form of flat-headed nails driven so closely together that the subsequent rusting forming a complete coating of iron oxide are still used to a limited extent, both for the protection of small ships' bottoms and piling exposed to the attacks of ship-worms. Zinc sheathing also failed to give satisfactory results, corroding very rapidly, possibly due to the galvanic action between the zinc and the fastenings used in attaching it to the hull. Copper and brass sheathings have proved to be by a considerable margin the best protection for ships' bottoms. Brass composed of from 50 to 60% of copper, alloyed with zinc, has given very satisfactory results. If the alloy is not complete, however, such sheathings will disintegrate very rapidly, as corrosion will spread very rapidly from the small nodules of zinc in the metal. Cold rolled furnace copper is the best of metal sheathings for the protection of ships' bottoms. As ship-worms cannot bore through metal, copper, of course, accomplishes its purpose in this regard. The most valuable property of copper, however, lies in the slow and very uniform corrosion of this metal. Though barnacles readily attach themselves to the metallic surface, they do not have time to reach their full development before the slow wasting of the copper loosens their attachment to the copper, compelling them to drop off. As a general thing, 20 to 30 gauge sheet copper is used. The amount of copper sheathing per gross ton, of course, varies widely with the shape and size of the hull of the vessel, small boats requiring as much as 60 lb. of copper per gross ton.

At present, the high cost of copper prohibits the use of this material in the sheathing of ships. The life of copper sheathing is at the best only from five to seven years, when it is necessary to renew the sheathing. The cost of copper has led to the development of substitutes in the form of paints, which are applied directly to the surface of the wood. There are a number of different brands of paints for this purpose in the market. Some are positively useless, others accomplish their object to a satisfactory degree. The composition of such paint is invariably supposed to be a profound secret—and some of the secrets are truly laughable. One method of preventing the attacks of ship-worms, devised by one of the Anthony Comstocks of New York city in the early part of the nineteenth century (his name has been forgotten), consisted in pitching the hull with hot coal tar pitch, and before the pitch had hardened liberally sprinkling the surface with Scotch snuff. He reasoned that as tobacco was such iniquitous stuff, the ship-worms would surely be discouraged.

Some "copper" paints, are, however, quite effective. The writer will not attempt to say which is the most effective. As the pigment of these paints is invariably copper oxide, they commonly are spoken of as "copper" paints. The nature of the vehicle varies widely, from linseed oil with a high percentage of linseed driers, to soya bean oil and kerosene. "Princess metallic" is very commonly used. Viewing the matter from an impartial standpoint, the writer feels that there is a tremendous waste of good copper oxide in marine paints. Whiting could be made to do very well, for the toxicity necessary to prevent the ingress of ship-worms can readily be supplied through the addition of small amounts of mercuric chloride, or such alkaloids as acridene. Aside from the toxic effect of the paint upon wood-borers, the basic principle in the manufacture of a successful "copper" paint seems to lie in the compounding of the paint in such a manner that the surface will slowly waste away, preventing the adhesion of barnacles and the seaweed which these will gather, and at the same time adhering properly to the wood. From the foregoing it becomes apparent why creosoting or the application of coal tar is not effective in the treatment of ships' bottoms. Either will prevent the ingress of ship-worms, but anyone who is familiar with the use of creosoted piling for dock construction will recall that such piling quickly becomes covered with a healthy growth of barnacles.

"Copper" paints, like all other paints, should only be applied to dry surfaces. In painting scows, tugs and other bottoms, the first or priming coat, which is applied after the seams have been properly caulked, is thinned with refined coal tar creosote or benzine in equal proportions, or one gallon of the paint to one gallon of the thinner. Care must be taken to cover the surface of the planking thoroughly before the painting is continued with a second coat. The caulking seams are then filled with a mixture of Portland cement and sand, in the proportions of about three parts of cement to one part of sand. Some shipbuilding concerns make a special point of the use of only pure white silica sand in this connection, but the writer feels that this is unnecessary. Care should be taken to use fine sand, however, to enable the smooth troweling of the seam. The mortar is not allowed to completely fill the caulking seam, the point of the trowel being used to remove surplus mortar. When the mortar has thoroughly set, after the course of several days, surplus mortar that has slopped upon the surface of the planking is removed with coarse sandpaper. The hull is then ready for the second coat. While cement adheres very strongly to the caulking seam, its use is objectionable when it becomes necessary to re-caulk a seam, due to the difficulty of removing it, as in time it becomes almost flint hard.

The writer has experimented with mastic for this purpose, composed of paving pitch, asphalt and wood pulp, thinned with engine distillate until it acquires a workable consistency, with seemingly favorable results. A definite statement cannot, however, be made at this time. Some ship owners require the first coat to be unthinned copper paint, though the necessity for this is disputed by some experienced shipbuilders.

After the seams have been cemented, the second coat of copper paint, full strength, is applied. As these paints have approximately the consistency of ordinary paint, though in some cases they may be a little thicker, no difficulty is experienced in finding painters who are capable of doing the work.

After the second coat has dried for at least two days, the application of a third coat is necessary. As an example of the antique ideas that have survived since the earlier days of our shipbuilding industry, the writer regretfully cites the following requirement of one "expert" inspector who is supervising the construction of vessels for the United States Emergency Fleet Corporation at one of the Pacific Coast yards. This inspector has ruled that the third or final coat of paint shall not be applied to the hull until at least the day before the launching of the vessel; preferably the day on which the vessel is to be launched. The effect of such a procedure is, of course, bad in every respect, as the wet paint is washed from the surface of the wood, making the third coat quite useless. Rational practice demands that the final coat be given at least three days before the launching of the vessel, allowing at least time enough for the paint to set before the ship goes down the launching ways.

Formerly all copper paint was applied to the planking by the brush method. This method is almost entirely used in the smaller yards. On the Pacific Coast, however, the larger yards are using paint "guns," or sprayers, which are operated by compressed air. With this method the paint is quickly and evenly applied to the surface of the wood, with a considerable saving in the labor cost of painting. Five good painters, with brushes, will cover the hull of a typical vessel about 250 ft. long in one day. When the "gun" is used, two men will cover the same vessel in one day. Though some paint is, of course, lost when the "gun" is used—about 15 gallons in giving the vessel three coats—this expense is more than compensated for by the saving in labor costs and the added convenience of the method. In spite of the fact that the paint is applied more

evenly and thoroughly with the "gun," the same government inspector mentioned above has ruled against its use, demanding the painting by brush as in the "good old days."

In barrel lots, the cost of copper paint averages about $2.20 a gallon, and when used without thinning for three coats, one gallon will cover about one and one-fifth squares. By thinning the first coat with an equal quantity of thinner, one gallon of paint will cover approximately two squares.

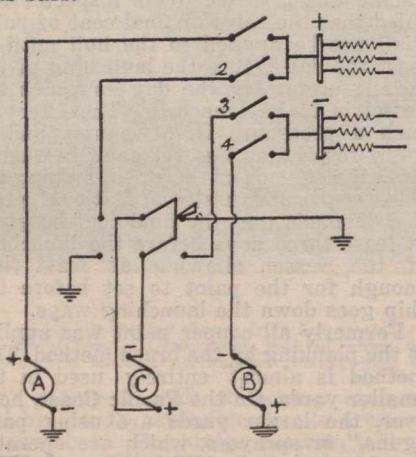
Sea going vessels that have been properly painted with "copper" paints must be repainted at intervals varying from six to eight months. One company operating a large fleet of scows on Puget Sound reports the repainting of scow bottoms at intervals of 12 months. The first repainting must be done about 6 months after the vessel has been placed in service, as spots that are covered by the propping used in supporting the vessel during construction receive only one coat, which is applied immediately before launching after the vessel is safely resting in the launching cradle.

In conclusion, the writer wishes to emphasize the necessity of allowing each coat of paint to dry thoroughly before the next is applied. When properly applied, copper paint is an excellent substitute for copper sheathing, and where it is convenient to dock the vessel at intervals of from 6 to 8 months, will give even superior service.

Motor Generator and Switch Arrangement C.P.R. Telegraphs.

W. J. Camp, Assistant Manager, C.P.R. Telegraphs, Montreal, forwards a sketch of the motor-generator and switch arrangement designed by him and which is in use at the company's large terminal offices.

Referring to the diagram, it will be noted that when the single-pole single-throw switches 1 and 4 are closed, positive and negative machines are connected respectively to the positive and negative bus-bars.



When it is desired to run machine C to relieve machine A, the double-pole double-throw switch is thrown to the left. Then, closing switch 2 places machines A and C in multiple to the bus-bar. After machine C has reached running speed switch 1 may be opened, thereby maintaining an uninterrupted application of positive potential to the multiplex sets while one machine is started and another stopped.

Machine C can, in like manner, be used to supply negative potential in place of machine B, by throwing the double-pole double-throw switch to the right.

This arrangement of switches provides against short-circuits between generators; the only precaution required being that the single-pole switch of the generator to be stopped must be opened before the switch in the motor circuit of that machine is opened.—Telegraph Age.

Telegraph and Telephone Lines' Estimates for 1918-1919.

The Public Works Department estimates, for the year ending Mar. 31, 1919, contain, among others, the following items:—

NOVA SCOTIA.	
Cape Breton telegraph system, renewal of poles between Eskasoni and East Bay	$ 700.00
PRINCE EDWARD ISLAND.	
Half cost of reconstruction of telegraph lines jointly owned by Anglo-American Telegraph Co., and Dominion Government	17,000.00
QUEBEC.	
Improvements to repair service	3,000.00
SASKATCHEWAN AND ALBERTA.	
Moose Jaw, Wood Mountain telegraph line, renewal of poles, to complete	3,000.00
Peace River line, office and dwelling at Grande Prairie	4,000.00
Peace River line, office and dwelling at Dunvegan	4,000.00
Peace River line, woods clearance at Edmonton to Peace River	5,000.00
Peace River line, completion of pole renewals between Edmonton and Athabaska	570.00
Peace River line, repairs and renewals between Spirit River and Pouce Coupe, and between Athabaska and Grouard	1,545.00
Qu'Appelle, Edmonton line, shifting wire to pole line of C.N.R. between Humboldt and Warman, Sask.	1,000.00
Repairs and improvements to office buildings	2,750.00
Shifting line to roadways	5,500.00
BRITISH COLUMBIA.	
Mainland telegraph and telephone lines, general repairs and improvements	3,300.00
Mainland telephone line, extensions in Kootenay District	4,000.00

The following items are chargeable to collection of revenue:—

Telegraph and Telephone Lines.	
Prince Edward Island and mainland	$7,000.00
Land and cable telegraph lines, Lower St. Lawrence and Maritime Provinces, including working expenses of vessels required for cable service	202,000.00
Saskatchewan	58,000.00
Alberta	79,000.00
British Columbia, mainland	60,000.00
British Columbia, Vancouver Island district	100,000.00
Yukon system (Ashcroft-Dawson)	250,000.00
Telegraph and telephone service generally	10,000.00
	$766,000.00

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

L. C. Chase & Co., car upholstering, Boston, Mass.—Frank Hopewell, head of the firm, died, Apr. 25, aged 61. He had been associated with the company since 1881.

The Northern Electric Co., Montreal, has established a department for the sale of water sterilizing equipment, on the ultra violet ray system, in charge of S. H. Opdyke.

Commercial Acetylene Supply Co., Inc. Commercial Acetylene Welding Co., Inc., New York, has changed its name to Commercial Acetylene Supply Co., Inc. H. H. Wood, 18 Toronto St., Toronto, is Canadian Manager.

Robert W. Hunt & Co., Ltd., Montreal, has received an order from the Dominion Government to inspect the 100,000 tons of steel rails which it has ordered from the Dominion Iron & Steel Co.

Independent Pneumatic Tool Co.—A reorganization has been effected of the Independent Pneumatic Tool Co., a New Jersey corporation, and the Aurora Automatic Machinery Co., which was incorporated in Delaware. Both companies were owned by the same interests, the Independent Pneumatic Tool Co. being the selling division for the Thor pneumatic and electric tools, and the Aurora Automatic Machinery Co. being the manufacturing department. The latter company also manufactures and sells Thor motorcycles and gasoline engines. The combining of the two companies under one corporate name is for convenience in handling business. Under the re-organization plans the company is known as the Independent Pneumatic Tool Co., incorporated in Delaware for $3,000,000. The directors are:—J. P. Hopkins, Chairman; J. D. Hurley, President; R. S. Cooper, Vice President; Fletcher W. Buchanan, Secretary, and E. G. Gustafson, Treasurer; J. J. McCarthy, W. A. Libkeman, L. S. Florsheim, R. T. Scott, and A. Gatzert. The general offices are in the Thor Building, 1307 South Michigan Boulevard, Chicago. Branches are maintained in New York, N.Y.; Pittsburg, Pa.; Detroit, Mich.; Birmingham, Ala.; San Francisco, Cal.; Toronto and Montreal. The pneumatic and electric tool factory is located in Aurora, Ill., and the motorcycles and gasoline engine plant is at 361 West Superior St., Chicago.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

Canadian Car Service Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—Acton Burrows, 70 Bond Street, Toronto.

Canadian Freight Association (Eastern lines)—G. C. Ransom, Canadian Express Building, Montreal.

Canadian Freight Association (Western lines)—W. E. Campbell, 305 Boyd Block, Winnipeg.

Canadian Railway Club—J. Powell, St. Lambert, Que. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Canadian Society of Civil Engineers—F. S. Keith, 176 Mansfield St., Montreal.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—R. W. H. Smith, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 96 King Street West, Toronto.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—James Morrison, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, New York.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Quebec.

Railway Association for National Defence—W. M. Neal, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Toronto Transportation Club—W. A. Gray, 143 Yonge Street, Toronto.

Transportation Club of Vancouver—H. W. Schofield, 553 Church Street, Vancouver, B.C.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1914, 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 the paper have a continuous record of the Board's proceedings. No other paper has done this.

General order 229. May 9.—Extending to Sept. 30, 1919, time within which railway companies subject to board's jurisdiction shall make changes in safety appliances on freight cars, as required under general order 128, Apr. 20, 1914; companies to continue present practice of filing monthly reports of progress made in complying with requirements of said order.

General order 230. May 17.—Defining the interpretation, application and operation of interswitching of freight traffic, and rates to be applied.

27138. Apr. 23.—Relieving C.P.R. from providing further protection at crossing near Sceptre, Alta.

27139. Apr. 22.—Authorizing G.T.R. to build siding and spur for Thomas Davidson Mfg Co., Montreal.

27140. Apr. 23.—Authorizing Canadian Northern Ontario Ry. to connect its main line and spur to drydock at Port Arthur, Ont., as authorized by order 25315, Aug. 25, 1916, until Dec. 31., trains to stop before crossing diamond and be flagged over C.P.R. spur.

27141. Apr. 23.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Kinsella, Alta., as soon as it can obtain services of competent man and not later than June 1.

27142. Apr. 22.—Authorizing C.P.R. to rebuild bridge at mileage 25.9, Orangeville Subdivision, Ont.

27143. Apr. 23.—Suspending order 27015, Feb. 20, re installation of G.T.R. locomotive repair facilities at Brockville, or Prescott, Ont., pending further hearing.

27144. Apr. 20.—Extending to Aug. 1, time within which Kettle Valley Ry. shall complete enlargement of freight shed end of station at Rock Creek, B.C., by 12 ft., so that freight shed room will be 14 x 20 ft.

27145. Apr. 24.—Approving re-location of C.P.R. station at Oakbank, Man.

27146. Apr. 19.—Approving proposed alteration and additions to C.P.R. coaling plant at John St., Toronto; and approving clearances.

27147. Apr. 22.—Relieving C.P.R. from providing further protection at crossing, about 2½ miles west of Blind River, Ont.

27148. Apr. 22.—Ordering C.P.R. to raise road on south side of track about 5 ft. at its lowest point for approximately 250 ft. from track to erect standard guard railing and blast off top of rock bluffs on each side of road; to be completed by June 1.

27149. Apr. 23.—Ordering G.T.R. to operate trains 389 and 390 between Lindsay and Haliburton, Ont., Tuesdays, Thursdays and Saturdays; present schedule between Lindsay and Kinmount Jct., Mondays, Wednesdays and Fridays, and connection with C.P.R. train at Kinmount Jct. to be maintained; effective Apr. 28 and until further order.

27150. Apr. 25.—Ordering C.P.R. to restore train service between Moose Jaw and North Portal, Sask.; effective by Apr. 29.

27151 to 27155. Apr. 19.—Extending to June 1. time within which G.T.R. shall install gates at St. Ferdinand, Convent, St. Ambroise, St. Philippe, and Ste. Marguerite Sts., Montreal.

27156. Apr. 18.—Authorizing G.T.R. to build two extensions to sidings for Canada Foundries & Forgings, Ltd., Welland, Ont.; and to remove existing siding built under order 23954, July 8, 1915.

27157. Apr. 24.—Authorizing C.P.R. to build spur for Canada Steamship Lines, Ltd., Cap de la Madeleine Parish, Que.

27158. Apr. 22.—Authorizing C.P.R. to rebuild bridge 7.6, Kimberley Subdivision, B.C.

27159. Apr. 26.—Authorizing British Columbia Electric Ry. to increase by 10% its freight rates on portions of its system, subject to Board's jurisdiction; rate on coal to be increased 15c a ton; effective within 15 days from date.

27160. Apr. 26.—Suspending, pending hearing and order, proposed joint freight tariff of class rates, C.P.R. C.R.C. no. E-3439 and G.T.R. C.R.C. no. E-3842.

27161 to 27164. Apr. 26.—Approving proposed locations of C.P.R. stations at Tramping Lake, Sask.; Amisk, Alta.; Primate, Sask.; and Magrath, Alta.; all according to C.P.R. standard A-2 plan, on file.

27165. Apr. 29.—Extending for two months from date time within which C.P.R. shall complete work, within limits of its right of way, in connection with removal of old piles and abutments from bed of Big Creek, Tilbury Tp., Ont., as per order 24295, Act. 7, 1915.

27166. Apr. 30.—Amending order 24825, Mar. 10, 1916, re G.T.R. crossing of C.P.R. spur to Dominion Sugar Co., Chatham, Ont.

27167, 27168. Apr. 25, 27.—Approving Bell Telephone Co. agreements with Greenwood Telephone Association, Algoma District, Ont., Jan. 15, 1915; and Lievre River Telephone Co., Labelle and Ottawa Counties, Que., Mar. 6, 1918.

27169. May 2.—Authorizing Canadian Northern Ry. to build main line and siding across highway at Grahamdale, Man.

27170. Apr. 30.—Ordering C.P.R. to build transfer track with Canadian Northern Ry. west of Baintree station, Alta.; to be completed within 60 days after approval of plans; cost to be apportioned equally.

27171. May 1.—Authorizing C.P.R. to build spur for Northern Electric Co., Regina, Sask.

27172. Apr. 22.—Approving plan of structure across Canadian Northern Ry. on public road between Lot 359, Cote St. Laurent Subdivision and Lt. 622, Cote St. Laurent Nord, St. Laurent Parish, Que., as authorized by order 17414, Sept. 7, 1912; and approving clearances.

27173. May 2.—Approving Canadian Northern Ry. revised location in north ½ Sec. 14, Tp. 26, R. 25, west 3rd meridian, Sask.

27174. May 2.—Authorizing Esquimalt & Nanaimo Ry. to build spur for Lake Lumber Co., in Block 37, Newcastle District, Vancouver Island, B.C.

27175. May 2.—Authorizing G.T.R. to take up siding and spur in Verdun, Que., as authorized by order 15160; to remove piles across tail-race of aqueduct and Little St. Pierre River, and restore dyke on other side of tail-race which was cut when siding was built; and rescinding order 15160, Oct. 24, 1911.

27176. May 2.—Ordering G.T.R. to erect station and platform at Glen Robertson, Ont., by Nov. 1.

27177. May 3.—Amending order 27150, Apr. 25, re C.P.R. train service between Moose Jaw and North Portal, Sask.

27178. May 2.—Ordering Canadian Northern Ry. to enlarge waiting room at Lamont, Alta., and provide heated room for perishable and express shipments; work to be completed by Oct. 1.

27179. May 3.—Ordering Michigan Central Rd. forthwith to appoint day watchman at Tuscarora St., Hagersville, Ont.; wages to be paid 80% by M.C.R. and balance by Hagersville Village.

27180. May 3.—Authorizing Lake Erie & Northern Ry. to install an electric train staff system for protection of G.T.R. in Port Dover, Ont., to be operated jointly.

27181. Apr. 30.—Approving clearances of Oshawa Ry. poles carrying electric wires along, and across G.T.R. yard track at Oshawa, Ont.

27182. May 6.—Approving Temiscouata Ry. bylaw, Apr. 29, authorizing C. A. Stewart, Manager, and A. Nadeau, General Freight and Passenger Agent, to issue tariffs of tolls.

27183. May 6.—Ordering G.T.R. to stop trains 13 and 16, on flag, at Hillhurst, Que.

27184. May 10.—Approving British Columbia Electric Ry. standard freight tariff of maximum mileage tolls, C.R.C. 107, effective May 20.

27185. May 8.—Authorizing G.T.R. to build additional sidings for Beaver Wood Fibre Co., Thorold Tp., Ont.; and approving change in existing sidings, as shown on plan.

27186. May 6.—Authorizing G.T.R. to build sidings for Goodyear Tire & Rubber Co. of Canada, New Toronto, Ont.

27187. May 6.—Authorizing Canadian Northern Quebec Ry. to build two sidings for Howard Smith Paper Mills, Crabtree, Que.

27188. Apr. 26.—Ordering C.P.R. to build highway crossing at mileage 82.08, Ste. Agathe Subdivision, Que., at expense of Joly Tp.

27189. May 7.—Approving agreement between Bell Telephone Co. and Megantic People's Telephone Co., Megantic County, Que., Apr. 1.

27190. May 7.—Ordering G.T.R. to make connection between its eastbound passenger trains, due to leave Cornwall 4.15 and 4.45 p.m., arriving Coteau Jct. 5.18 and 5.30 p.m., respectively; and train due to leave Montreal at 5 and now due at Coteau Jct. at 6, arriving in Ottawa at 8.45 p.m.

27191. May 8.—Authorizing C.P.R. to rebuild bridge 41 over Quisibis stream on Edmundston Subdivision, N.B.

27192. May 6.—Authorizing C.P.R. to remove station agent at Senate, Sask., until Sept. 1, when order 26246, Jan. 25, shall be put into effect.

27193. May 9.—Approving Grand Trunk Pacific Ry. revised location of right of way and land required for station grounds in Lot 4200, Cariboo District, B.C.

27194. May 8.—Relieving G.T.R. from providing further protection at crossing of Hespeler road, Galt, Ont.

27195. May 10.—Approving amendment to London & Lake Erie Ry. & Transportation Co.'s bylaw 3, Nov. 19, 1912, substituting W. N. Warburton, General Manager, for S. W. Mower.

27196. May 8.—Ordering Grand Trunk Pacific Ry. to install at least a one unit stock yard at Carvel station, Alta., to be completed by Aug. 1.

27197. May 8.—Authorizing C.P.R. to build spur for Fraser, Brace & Co., Montreal.

27198. May 10.—Approving plan, Nov. 1, 1917, showing general layout of falsework for truss span over C.P.R. at Moose Jaw, Sask., subject to conditions to be fixed after hearing by Board in Winnipeg.

27199. May 10.—Authorizing C.P.R. to operate locomotives and cars over G.T.R. siding to John Inglis Co.'s premises at Toronto, and approving clearances.

27200. May 10.—Approving Kettle Valley Ry. location between Princeton and Copper Mountain, B.C.

27201. May 10.—Authorizing G.T.R. to build siding and spurs for Imperial Munitions Board at Beamsville, Ont.

27202. May 10.—Relieving G.T.R. from providing further protection at highway near Dorchester station, Ont.

27203. Apr. 25.—Ordering Canadian Northern Ry. to maintain day and night watchmen at crossing of Marmora St., Trenton, Ont., and to install indicator bell to warn watchmen when trains are approaching from the east.

27204. May 9.—Dismissing application of Provincial Stone & Supply Co., Toronto, for order directing C.P.R. to publish specific commodity rates from Burritts, Ont.

27205. May 6.—Authorizing form of "Release of liability in respect of persons travelling in non passenger cars," for Algoma Central & Hudson Bay Ry.

27206. May 10.—Amending order 21350, Feb. 11, 1914, re crossing protection at Bennet Ave., Maisonneuve, Que., by Canadian Northern Quebec Ry. and Montreal Terminal Ry.

27207. May 11.—Authorizing C.P.R. to rebuild bridge 104.1 over Old Man River, Macleod Subdivision, Alta.

27208. May 7.—Authorizing Quebec Ry., Light & Power Co. to file tariffs increasing passenger tolls 15%, to maximum of 2,875c a mile; effective after compliance with sec. 331 of Railway Act.

27209. May 13.—Authorizing G.T.R. to build two sidings for Ford Motor Co. of Canada, Sandwich Tp., Ont.

27210. May 13.—Authorizing Alberta Public Works Department to build highway over C.P.R. at Czar, Alt.

27211. May 13.—Declaring that Grand Trunk Pacific Ry. is senior company at crossing with Midland Ry. of Manitoba in Lot 55, St. Boniface Tp., Winnipeg.

27212. May 14.—Approving agreement, May 2, between Bell Telephone Co. and Town Line Telephone Association of Stafford and Pembroke, Renfrew County, Ont.

27213. May 14.—Approving Napierville Jct. Ry. bylaw 29, authorizing N. J. Ferguson, G. F. & P. A., to issue tariffs of tolls.

27214. May 15.—Approving Grand Trunk Pacific Ry. revised location across Pine and Mule creeks, mileage 92.20 to 94.60, west of Winnipeg.

27215. May 9.—Ordering G.T.R. to appoint watchmen at crossing of Main St., Hawkesbury, Ont., from 8 a.m. to 8 p.m.; wages to be paid two-thirds by G.T.R. and balance by Town of Hawkesbury.

27216. May 9.—Ordering G.T.R. to install, within 60 days from date, improved type of automatic bell at Regent St., Hawkesbury, Ont., 20% of cost to be paid out of railway grade crossing fund.

27217. May 9.—Dismissing application of Town of Welland, Ont., for order directing Michigan Central Rd. to stop train no. 1 at Welland, as formerly.

27218. May 17.—Amending order 27202, May 10, re crossing protection by G.T.R. near Dorchester station, Ont.

Quebec & Saguenay Ry. Purchase.—It was announced, May 17, that an agreement has been reached between the Dominion Government and the company as to the price to be paid for the partially completed line and its rights. The supplementary estimates submitted in the House of Commons May 20, provided not exceeding $3,489,313 for the purpose of acquiring freeway and clearing of all charges, encumbrances or claims at any public sale, the Q. & S.R. extending from a junction with the Quebec, Montmorency & Charlevoix Ry. to Nairn Falls, 62.3 miles.

Board of Railway Commissioners' Western Sitting.—D'Arcy Scott, Assistant Chief Commissioner, and A. H. Boyce, K.C., commissioner, will hold sittings at various points in the west for the hearing of land cases, as follows:—Victoria, June 4; Vancouver, June 6; Calgary, June 10; Edmonton, June 11; Saskatoon, June 12; Regina, June 13; Winnipeg, June 14; Fort Francis, June 17; Port Arthur, June 18.

The Toronto, Hamilton & Buffalo Ry. has obtained power, under sec. 364 of the Railway Act, to enter into running and other arrangements with the Grand Trunk Ry. Power to make similar arrangements with the C.P.R. was obtained in 1917.

The Canadian Railway War Board's Work.

Name Changed.—The Canadian Railway Association for National Defence has changed its name to the Canadian Railway War Board.

Administrative Committee Meetings.—Heretofore the administrative committee has met in Montreal, but in view of the number of matters presented having to do with conditions in Ontario, and for the convenience of members whose headquarters are in that territory, it has been arranged to hold meetings alternately in Montreal and Toronto.

Accidents to Employes Through Carelessness.—The Chief Operating Officer of the Board of Railway Commissioners has drawn the board's attention to personal injuries sustained by railway employes through being struck by material falling from partly loaded or unloaded cars. By way of illustration, he mentioned a case where a yardman was seriously hurt by lumber falling from a flat car during switching operations. The car had been placed for unloading, some of the stakes and cross pieces had been removed. When the car was moved the load shifted, causing the remaining stakes to break, and releasing the lumber. The shortage of labor and necessity for obtaining maximum service from railway employes, apart from the interests of the men themselves, make it desirable that railway officers constantly keep before their employes the need for care in the performance of their duties, to the end that casualties incident to railway work may be kept at the minimum.

Agricultural Exhibitions.—Representations having been made that, in view of the desirability of giving the greatest impetus possible to the campaign for increased food production, the influence that agricultural exhibitions undoubtedly have in stimulating production, and the lack of accommodation in most of the places where exhibitions are held for persons staying over night, the railways should provide reasonable extra train service for those travelling to and from the exhibitions. The board has recommended to the railways that they should provide, up to the extent furnished last year, extra train service, for the accommodation of parties travelling to and from agricultural exhibitions this year.

Army and Navy Veterans Conventions. Applications having been made for passenger rates for delegates to conventions to be held in Winnipeg, May 11 to 14, and in Toronto in July, the board decided that as special consideration is rightfully due those who have returned from the front, railways should be recommended to give special rates to delegates attending the conventions named.

Cinders Prices.—It is suggested that in order to provide a standard arrangement for sale of cinders by railway companies, all member lines adopt the schedule now in effect on certain roads, whereby a charge of not less than $10 a car is made for cinders, plus regular tariff frieght rate covering railway haulage.

Embargo Exemptions.—In laying other than general embargoes, it is requested that member lines make the following exemptions in the order of priority shown:—1. Livestock and perishable; 2. Fuel (coal, coke, charcoal, cordwood, slabs, edgings); 3. Shipments consigned to or on account of Imperial Munitions Board and Director of Overseas Transport; 4. Agricultural implements for spring work and materials required for manufacture of same; 5. Field and garden seeds; 6. Fertilizers and components; 7. Spraying materials and spraying implements; 8. Food for human consumption, including grain, grain products, sugar, salt, canned goods; 9. Food for animals and poultry; 10. Railway material and supplies (other than coal or coke); 11. Supplies for coal mines; 12. Oils; 13. Tank cars, loaded and empty; 14. Empty gas cylinders.

Freight Tracing.—With a view to further discouraging unnecessary freight tracing and relieving telegraph wires which are heavily overburdened, the board has suggested to all member lines that they place in effect the arrangement recently adopted by the U.S. Railroad Administration, whereby in wiring replies to shippers or consignees, either in answer to letter request for wire reply or to telegrams, such replies are sent by collect telegram. It is suggested also that unless applicant for information expressly requests telegraphic reply, such communications be answered by mail.

Glue Stock, Hides, Oil, Etc.—The board's attention has been directed to the practice existing at certain points of using box cars in good condition for the carriage in bulk of commodities such as green hides, oil, glue stock, etc., which render the car unsuitable for the handling of foodstuffs. In view of the very great demand for equipment for the movement of foodstuffs, at present, which will become still heavier during the year, members are asked to take action to restrict the loading of commodities such as the above mentioned to cars which are unsuitable for the handling of foodstuffs.

Labor Negotiations.—Certain railway labor unions, including those whose members are engaged in car and locomotive shops, expressed a desire recently to deal with the railways as a whole, on questions of schedule revision and similar matters, instead of with individual companies as heretofore. This desire was conveyed to the board, by the Dominion Government, and the board decided to appoint a sub-committee of three, with the necessary staff, to deal with all questions of railway labor, on behalf of all the railways which are members of the board, the sub-committee to report to the board's administrative committee. The sub-committee's work includes dealings and negotiations with representatives of railway labor organizations, the obtaining of data required for the conduct of the work assigned to it by the administrative committee, and the submission of the result of negotiations with labor organizations to the administrative committee, whose approval of any proposed agreement or arrangement with labor organizations must be obtained before it can become effective. The board's administrative sub-committee will, under the proposed arrangement, deal on behalf of railways west of the Great Lakes, and in the case of the Canadian Government Railways west of the City of Quebec, with labor matters pertaining distinctly to the lines mentioned, and will refer to the administrative committee all questions of a general nature which may affect the east as well as the west.

The administrative committee appointed as a sub-committee on wages agreements, S. J. Hungerford, General Manager, Eastern Lines, Canadian Northern, as chairman; Geo. Hodge, Assistant to General Manager, Eastern Lines, C.P.R., and H. E. Whittenberger, General Superintendent, Ontario Lines ,G.T.R. On Mr. Whittenberger being transferred to Chicago, Robt. Patterson, ex-Master Mechanic, G.T.R., Stratford, Ont., was appointed to succeed him. We are advised that the appointments to the sub-committee are all a temporary nature, and that the personnel may be changed as may become necessary later. The sub-committee was engaged in Montreal during parts of May in negotiations with representatives of employes of the car, locomotive and mechanical departments of the following railways: Algoma Central, Canadian Government, Canadian Northern, Canadian Pacific, Dominion Atlantic, Duluth, Winnipeg & Pacific, Edmonton, Dunvegan & British Columbia, Esquimalt & Nanaimo, Grand Trunk Pacific, Halifax & Southwestern, Kettle Valley, Quebec Central, Timiskaming & Northern Ontario. After spending some time in the negotiations, they were adjourned pending a decision by the United States Railroad Administration on the wages question, and some representatives of the board went to Washington in connection with the matter.

Open Top Car Situation.—At the end of April, Canadian railways owed the United States 14,165 open cars, and so that U.S. railways will not be compelled to restrict the deliveries of their coal cars to Canada, all Canadian railways have been asked to closely follow up the handling of coal cars, to check up the placing and unloading, and to place embargoes against consignees who fail to give disposition orders for their cars within 48 hours of service of notice of arrival, or who fail to unload cars within 5 days after time of placing for unloading.

Private Sidings Applications.—Certain member lines have informed the board that on many occasions they have been caused useless expense, and loss of time, as a result of parties applying for lease of site on railway property or construction of private sidings, and after plans and leases were prepared the matter was dropped. With a view to affording protection against such losses, it is suggested that all member lines adopt the practice of requiring a deposit of, say, $20 to accompany the application for site or siding, of which amount $10 be applied against engineering and legal expenses and the remainder be credited to the first year's rental, the whole amount to remain in the hands of the railway company in the event of the application being withdrawn.

Settlers' Effects, With Stoves.—In view of the danger to life and property involved in the handling of cars of settlers' effects when the cars contain lighted stoves, the board has suggested to member lines that they adopt generally the practice in vogue on certain railways whereby cars of settlers' effects containing stoves lighted, or set up for lighting, are not accepted at shipping point, or interchange point with connecting railway, as the case may be, or moved over the line until the stove is dismantled.

Ticket Offices.—Member companies having furnished particulars of up town ticket offices maintained in Canada, the administrative committee is considering what offices can be closed or consolidated without serious detriment to the railway business or inconvenience to the travelling public.

Tickets To Be Bought Before Boarding Trains.—The board issued the following notice to the public on May 1:—"Effective May 15, passengers will be required to purchase tickets at ticket office, and will be called upon to show their tickets be-