

# Canadian Railway and Marine World

August, 1920

## Locomotive Fuel Economy and Smoke Prevention.

The committee on fuel economy and smoke prevention, appointed by the American Railroad Association, Section 3, Mechanical, and of which Wm. Schlafge Mechanical Manager, Erie Rd., was chairman; W. H. Flynn, Superintendent, Motive Power, Michigan Central Rd., being also a member, presented the following report at the Association's convention at Atlantic City recently:—In its 1919 report your committee endeavored to emphasize the growing importance of fuel economy to the railways, arising from increasing consumption and increasing cost of production. Both of these factors are likely to result in the largest fuel bills in railway history during this year. It is certain that there will be substantial increases in the cost of production and only the application of prompt and effective means will prevent an increased consumption out of proportion to any probable expansion in traffic. It is therefore urged that every railway check its current consumption with previous records with a view to the adoption of such measures as the situation may require.

With the return of the U.S. railways to corporate control and operation, the Fuel Conservation Section ceased to exist. The work of this important branch of the Railroad Administration was of unquestioned value in promoting economy in the purchase, distribution and use of fuel for railway purposes. The methods employed were substantially those advocated by your committee in previous reports, and they must have continued intensive application, if the cost of fuel is not to exceed even its present ratio to total operating expense. The publications of the Fuel Conservation Section no longer bear an official status and may, therefore, fail to serve their most useful purpose unless incorporated in the official publications of the American Railroad Association. This is particularly true of the pamphlet on "The Economical Use of Railroad Fuel" most recently issued. While this incorporates many features contained in the present official publication of this association issued under the title of "Fuel Economy on Locomotives," there is some additional material gathered as a result of greater experience in the application of the principles of fuel economy to locomotive operation as well as some subject matter not treated in the association pamphlet, that it is believed should be incorporated and accordingly a revision of the text of Fuel Economy on Locomotives is submitted with the recommendation that suitable action be taken to place it before the general committee for adoption as standard practice. In the original preparation of this pamphlet, your committee considered that brevity was not only desirable, but essential, and, therefore, much descriptive and explanatory matter was omitted. The same policy has been pursued in the revision, which accounts for the omission of much interesting material incorporated in the publication of the Fuel Conservation Section, which, while of value in emphasizing the importance of certain rules or recommendations, may be

sacrificed to practical requirements under well trained supervision.

**Locomotive Fuel Economy.—Introduction.**—The object of these instructions is to bring about the economical use of fuel, to promote good practice in the operation of locomotives, and to improve the methods of firing. As the locomotive man is in charge of the locomotive, his instructions must be followed, and both he and the fireman should work together to bring about the desired results. The best fireman cannot make a good showing with a locomotive man who does not co-operate with him in the proper handling of the injector, throttle and reverse lever. The fireman is not alone responsible for the saving in coal, as a great deal depends on the locomotive man in his proper operation of the locomotive, and the latter should give instructions and suggestions to the fireman, based on his experience, to bring about the best results. An efficient fireman is one having the skill and knowledge which enables him to make the fuel supplied to the fire box, evaporate into steam as much water as possible, or, in other words, he makes the fuel perform its full duty. There are other qualities which increase the value of a fireman, but the ability to keep up steam is the first consideration. Good judgment is an aid to success in every calling, but it seems especially essential in a fireman. Economy in the use of fuel is required, because the fuel used on locomotives is one of the largest items of expense to all railways. As the greatest portion of the fuel passes through the fireman's hands, he can use it economically (depending on his ability, skill and good judgment, coupled with the co-operation of the locomotive man in handling the locomotive), or he can waste it through lack of knowledge on inattention to his duties. Furthermore, by burning no more coal than is absolutely necessary, the labor of firing is lightened, and by taking an intelligent interest in the condition and operation of the locomotive, the fireman is a very important factor in the saving of coal and water. By explaining to the new fireman the reasons why certain methods should be pursued in handling his work to bring about the best results, and by directing attention, if necessary, to improper methods on the part of the experienced fireman who may not use good judgment, the operation of the locomotive can be handled to the best advantage and the greatest saving of fuel effected.

**Bituminous and Anthracite Coal.—1.** Bituminous coals are usually composed of about 60% carbon, 30% gaseous or volatile matter, which burns as flame, and 10% earthy matter, which remains on the grates as ash or clinker. Good anthracite coal contains about 85% carbon, 5% gaseous or volatile, and 10% earthy matter.

2. The burning of coal in a locomotive requires air, which must be admitted through the ash pan, grates and fire door. Smoke means imperfect combustion and waste of coal, and must be avoided as far as possible.

3. When bituminous coal is applied to the fire, the volatile or gaseous matter is expelled, and, if properly mixed with air and heated to a sufficient temperature in the fire box, the mixture will ignite, be consumed and passed from the fire box through the tubes and stack as colorless vapor, leaving the solid matter on the grates in the form of coke, which burns more slowly. If, however, the gases are unconsumed, they will produce smoke.

4. Anthracite coal burns more slowly than bituminous, and, consequently, a larger grate area has to be provided in order that sufficient coal may be burned to give the required amount of steam. In other words, means must be provided to make a hard-coal-burning locomotive of given proportions consume as much coal per hour as a bituminous burner of the same proportions, and no better way has been found than by designing this kind of locomotive with a large fire box and a liberal grate area. Anthracite coal has to be fired to suit the size of the lumps used. If the coal is in large lumps, a heavy fire must be carried, because the lumps lie so open that the air would pass too freely through the fire if it were light. The smaller the size of the coal the thinner the fire can be. The fire should be started considerably in advance of leaving time from locomotive house, in order that a good fire will be on the grates when the start is made with the train.

5. The method of light and level firing, outlined in the instructions which follow, applies to firing both bituminous and anthracite coal.

**Inspection of the Locomotive.—6.** The locomotive man and fireman should be on hand in ample time before departure from the locomotive house to thoroughly inspect and lubricate the locomotive, in order to make sure that it is in proper condition and fully equipped for making the run. Any matters which, in the judgment of the locomotive man, should receive attention before departure, must be promptly reported. The fire, grates and ash pan, as well as flue sheet, must be examined, to see that they are in suitable condition for making the run. The condition of the fire should be such that it will make steam freely from the start. The shaker rigging should be operated to see that it is in good working order. The damper rigging (where provided) should also be operated, to make sure of its condition. The ash pan and rigging should be examined, to see that the doors or slides are properly secured and in a condition to prevent hot coals dropping along the road, which are liable to start fires.

7. When locomotives are equipped with mechanically operated fire doors, grate shakers, or coal pushers, the same should be known to be in good working order before starting.

**Preparing the Fire for the Start.—8.** In preparing the fire for the start (but not before it is known the foundation or kindling fire is in good shape from corner to corner) it must be built up gradually to the proper depth for the service

required. No fast rule can be made as to this depth, the size of the coal will, however, govern as well as the service. Fine sized coal requires a larger grate surface than the larger sized coal, but the larger size coal requires a larger grate opening. With fine coal approaching buckwheat size, a fire of from 4 to 6 in. thickness should be maintained, where lump size is used a depth of from 12 to 15 in. in thickness will be necessary at times because of the openings that will exist between the large lumps as they lie on the grates. A fire of the last

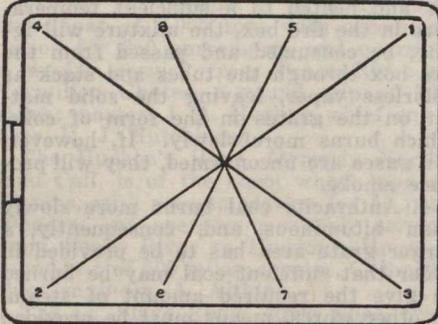


Fig. 1.

mentioned thickness will quickly burn down to a lower level after the locomotive is put into service, and this lower level should then be maintained until the train approaches the terminal.

9. When applying fuel in building up the fire, preparatory to starting, the blower should be used, to create the necessary draft, and the fire door should not be entirely closed between the shovelfuls of coal, but in all cases should be placed on or against the latch until the gases have been consumed, and the closing of the door will not result in the emission of heavy black smoke.

10. It is important that the grates should be clean and free from dead ashes and clinker. They should be left in a level position and secured there after each shaking, to prevent the fingers or edges of the bars being burned off. See that the foundation for a good fire is on the grates, that the fire is evenly distributed over the entire grate surface, and that the ash pan is clean. If these precautions are taken, the fire will be in

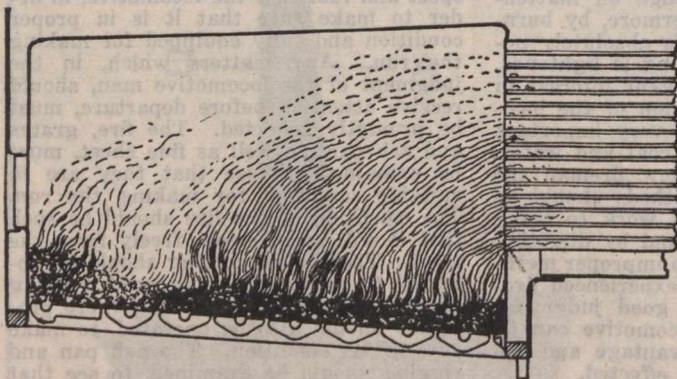


Fig. 3.

condition to maintain the steam pressure during the trip.

**Taking Coal and Water.**—11. After taking coal at coaling stations, the coal pile should be trimmed, to ensure the coal from falling off tender while in transit, which saves coal and eliminates a danger to passing trains, trackmen, etc.

12. Coal or water must not be taken more frequently than is necessary, as it requires extra coal to again bring the train up to speed, especially if on a grade.

This is a matter requiring good judgment, as it would not do to run short of coal or water before reaching the next coal chute or water tank. Where possible, take water only from tanks containing good water, and as little as possible from those containing bad water.

**Making the Start.**—13. The boiler must not be filled too full of water as soon as the locomotive leaves the locomotive house. Leave a space so that the injector can be worked to prevent popping.

14. The lubricator should be started about 15 minutes before leaving the terminal and should be set to feed regularly in order to ensure lubrication of valves and cylinders at the start of the trip. Proper lubrication of the valves, cylinders and machinery helps to save fuel by reducing friction.

15. The sprinkler hose must be used frequently, to keep down dust on the foot plate and in the cab, and to wet the coal in the tender. The use of too much water on the coal should be avoided, as it has to be evaporated by the fire, and may result in the flues stopping up.

16. Care should be taken in starting train to prevent damage to draft gear and couplers. Preventing delays saves coal, and preventing damages saves repair costs.

17. To avoid holes being torn in the fire, the fireman should have the fire in such condition that the pressure can be held up with the fire door held partly open. Slipping of the drivers should be guarded against, as the heavy exhaust tears and upsets the fire, and fuel is wasted in rebuilding it. Furthermore, slipping wears out tires and rails, and may damage the running gear.

18. When using anthracite coal no fuel should be placed on the fire at starting. After the effort of starting is over and the fire has reached a bright, glowing condition, begin firing as lightly as possible, to properly maintain the fire.

**Method of Firing.**—19. A hard and fast rule covering the depth of fire at the start cannot be made. Good judgment must be used, as the conditions under which the start is made, such as grade, weight of train, speed, etc., will influence to a great extent the kind of fire that is on the grates.

20. Large lumps of coal do not make a

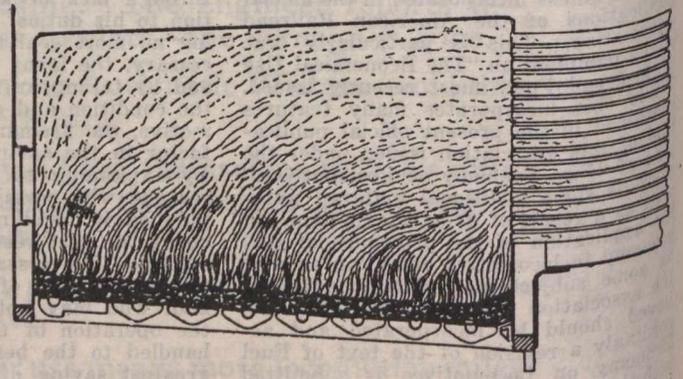


Fig. 4.

satisfactory fire, and they should be broken into pieces not larger than 3 in.

21. Always fire as light and level as possible, consistent with the steam requirements, scattering the coal over parts where the bed is thinnest and the fire brightest, in order to prevent it from becoming dead in spots. Large quantities of coal placed in the fire box at one time cool down the fire, cause smoke and waste of coal, small quantities at regular intervals will keep the fire bright, reduce smoke and take less coal to keep

up steam pressure, resulting in a reduction in the work of firing.

22. Very heavy firing is apt to cause leaks, and may cause firebox sheets to crack, as the air cannot pass readily through a heavy fire and large quantities of cold air will be drawn through the fire door and the thinnest places in the fire, resulting in chilling the flues and sheets, the formation of smoke and reduction in steam pressure.

23. The fire door should be placed on the latch, as far as possible, between each shovelful of coal, to keep down the

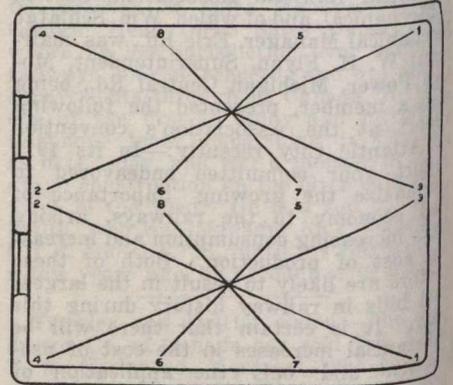


Fig. 2.

smoke by increasing the admission of air through the door.

24. Do not put four or five shovelfuls of coal into the fire box at one time. One, or perhaps two, will give better results, and if more than one shovelful is used at one firing, they should not be put into the same spot. Fig. 1 shows how coal should be introduced into a single, and fig. 2 a double door fire box, each successive shovelful being thrown to the points indicated by the numbers. This method of firing will tend to make the bed of fire uniform, but, of course, the judgment of the fireman must be depended upon to see that thin spots are kept covered. Fig. 2 shows the method of cross firing a Wooten firebox, as indicated by successive numbers on the arrows, first firing on the one side and then the other, along the walls and center of the firebox.

25. Fig. 3 illustrates the effect of

heavy firing under the door, which lowers the temperature at that part of the fire box, since the heavy bed of coal does not allow sufficient air to pass through it to supply oxygen for proper combustion, and smoke is liable to result on account of part of the fuel gases passing away unconsumed.

26. Figs. 4 and 5 show the condition of the fire when the practice of light and level cross-firing illustrated by fig. 1 is followed. The bed of fuel is slightly heavier next to the sheets than on other

parts of the grate. This is good practice, because there is a tendency for more air to pass up beside the sheets, which would cause thin spots to form around the edges, allowing cold air to pass up into the fire box. Maintaining a slightly thicker fire along the edges prevents this trouble.

27. Fig. 6 shows the thinning action of the draft around the edges.

28. Fig. 7 shows the effect of a temporary reduction in fire box temperature

brick arch and the path of the products of combustion from the fire to the flues.

**Operation of the Locomotive.** — 32. When the throttle is closed, before making a stop or for drifting, the blower must be used and the fire door placed on latch, and dampers (where provided) should be closed in order to check the fire and prevent steam from blowing off. This practice, with the exception of the use of the blower, should be followed after using the scraper or slash bar, and

er with the use of large quantities of steam, will cause a reduction of steam pressure. If firing is necessary at this time, it is better to do it while standing.

34. The grates should be shaken only when necessary to clear the fire of ash and clinker, in order to admit sufficient air for proper combustion, and in such manner as to avoid the loss of good fires, which means waste of fuel. Care should be taken after each operation to place the grates in a level position to avoid burning the fingers, which is liable to occur if the grates are allowed to remain at an angle with the fingers projecting into the fire.

35. The waste of steam through safety valves must be avoided. Frequent blowing off of safety valves shows poor judgment, and implies that economy is not being practiced. Tests have demonstrated that about 15 lb. of coal, or one shovelful, is required to supply the steam blown off in one minute, or, in other words, if the safety valves are open for 133 min. about one ton of coal is wasted.

36. Careful attention must be given to the use of the injector and to the height of the water level in the boiler. The proper handling of the injector is a very important matter in fuel economy. The best fireman cannot make a showing if the locomotive man floods the boiler. If the injector is to be used to prevent popping, a space must be left so

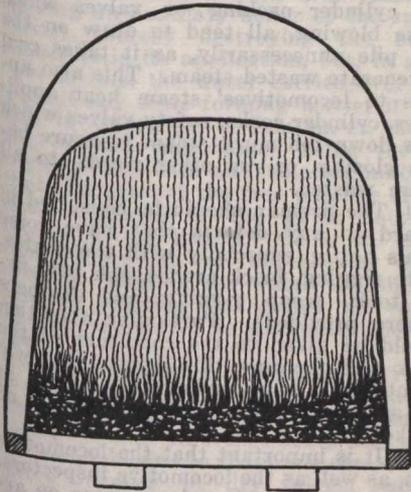


Fig. 5.

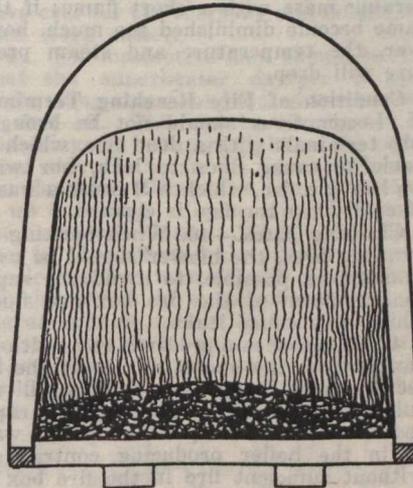


Fig. 6.

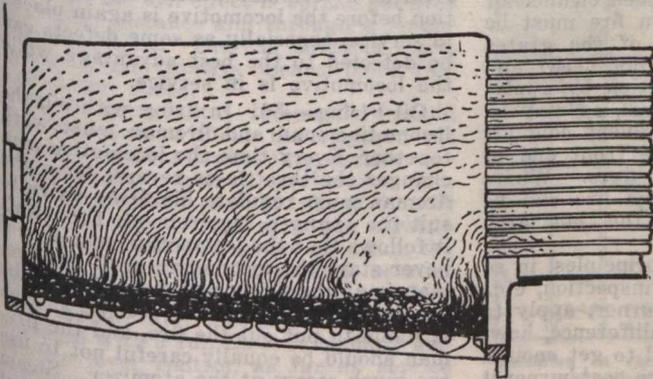


Fig. 7.

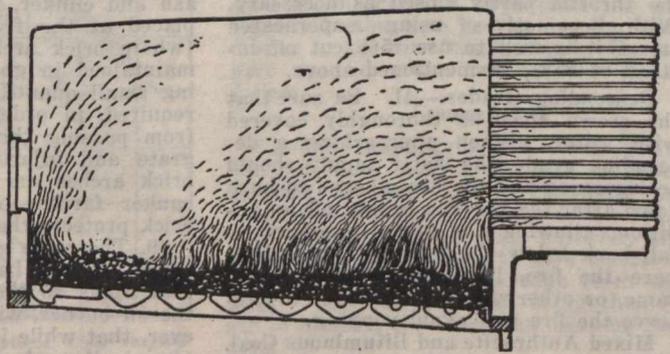


Fig. 8.

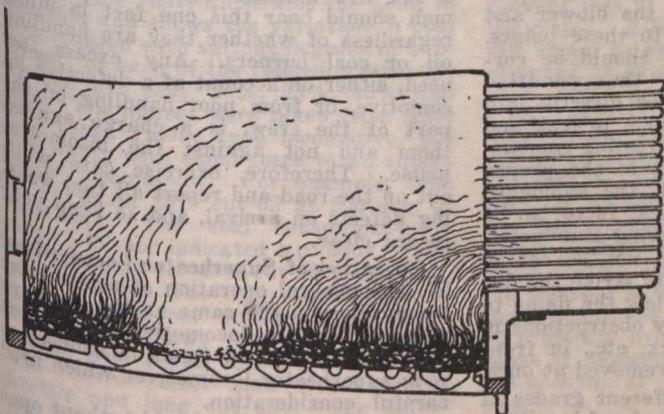


Fig. 9.

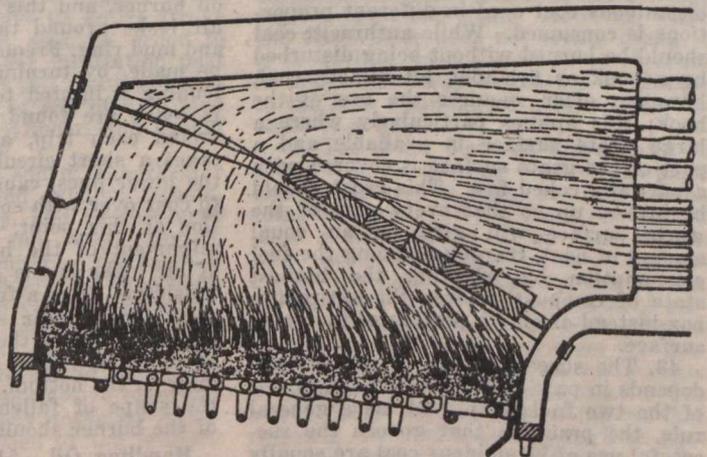


Fig. 10.

when a shovelful of coal is introduced.

29. Fig. 8 shows the restoration of temperature before the second shovelful is introduced at another part of the fire box, as is the case in the system of light and level cross-firing.

30. Fig. 9 shows the effect of a spot or hole in the firing. The admission of a large volume of cold air through such spots causes a serious chilling effect.

31. Fig. 10 shows the application of a

when on sidings, in yards or at terminals.

33. Firing should be stopped long enough before steam is shut off to prevent smoke and waste of coal; and when making station stops the fire should be in such a condition that more coal need not be added until after start is made. It is bad practice to begin firing as soon as the throttle is opened, because the deadening effect of the fresh coal, togeth-

that the injector can be worked. The injector should be put on before, and not after, the safety valve opens. The blower should also be reduced or shut off before the steam pressure rises to the blowing off point.

37. Coal can be saved by the proper use of the injector in feeding the locomotive regularly at a rate governed by the demands, and by taking advantage of every opportunity to increase the

height of the water level when not working the locomotive to full capacity; for example, while drifting, standing in stations or switching, and permitting the level to drop slightly between stations or on hard pulls.

38. It is bad practice to start out, after making a stop, with the injectors working. The cool water introduced into the boiler while the throttle was closed, starts circulating, and reduces the steam pressure. If a start is made under these conditions, the steam pressure will be still further lowered and an excessive amount of firing necessitated. It is, therefore, preferable to start the injector after a train is well under way.

39. The water level must never be high enough to allow water or very moist steam to be carried over the valve chambers and cylinders, because it will destroy the lubrication of these parts and may result in serious damage, due to knocking out cylinder heads, breaking pistons or bending of main rods.

40. The locomotive man can save coal and greatly assist the fireman in his work by handling the throttle and reverse lever in such a manner that the minimum amount of steam will be used. The locomotive should be operated with a full throttle opening (except when starting or drifting) when the cut off is 25% of the stroke or greater; but if 25% cut off with full throttle gives more power or speed than is needed, the reverse should be left at 25% cut off and the throttle partly closed as necessary. With locomotives using superheated steam it is well to use 15% cut off instead of 25%, as mentioned above.

**Descending Grades.**—41. Be sure that the crown sheet is thoroughly covered with water. When approaching a descending grade, the water supply should be increased and the fire allowed to burn down after the throttle is shut off, in addition, allowing the steam pressure to fall back below the popping point. Prepare the fire, if required, by cleaning same, or otherwise, cover it over to preserve the fire and avoid popping.

**Mixed Anthracite and Bituminous Coal.** 42. On certain locomotives, as well as in power plants, a mixture of anthracite and bituminous coal used in different proportions is consumed. While anthracite coal should be burned without being disturbed by a hook or fire tool, bituminous coal, however, often requires the use of the hook; this applies particularly where a large grate surface is available and a part of the grate surface is covered with a partially coked fire. This crust should be broken up so that every part of the grate surface will give up an equal amount of heat, thereby reducing the fuel consumption by effecting the highest state of combustion over the entire fire box instead of only a portion of the grate surface.

43. The successful use of mixed coals depends in part on the relative quantities of the two fuels employed; as a general rule, the practices that govern the successful use of bituminous coal are equally applicable in the use of mixed coals.

**Firing With Anthracite Coal.**—44. The most successful and economical method of firing anthracite depends almost entirely on the preparation of the fire. In cleaning an anthracite fire, all ashes and clinkers must be removed and a new bed of fire replaced over the entire grate surface if one is to ensure a prompt and positive burning, or to ignite the fresh coal that is placed on the cleaned fire. This will give a uniform thickness to the fire which can then be maintained by

careful attention, but if the fire is cleaned in such a manner as to allow ashes or clinkers to remain in the fire after same has been cleaned, such will soon result in the formation of more ashes or dead spots. Anthracite coal, after being placed on the fire, should not be disturbed in any manner by a fire tool, even to remove clinkers or ashes, as it will not again burn level or develop the same rate of combustion over the grates. The imperfect combustion of anthracite coal can be clearly determined by the eye, a clean burning mass with a short flame; if the flame become diminished too much, however, the temperature and steam pressure will drop.

**Condition of Fire Reaching Terminal.** 45. Locomotives should not be brought into terminals with a dead fire, which is liable to cause flues to leak, nor with too heavy a fire, which will cause a waste of coal when the fire is cleaned.

**Cleaning Fires.**—46. When banking or cleaning fires, the blower should be used as little as possible, to avoid the rapid cooling down of the fire box and flues, which may cause leaks.

47. When cleaning fires, or with a banked fire, the excessive use of the injectors must be avoided, as this will result in injury to the flues by the rapid reduction of the temperature of the water in the boiler producing contraction, without sufficient fire in the fire box to counteract this effect.

48. After the fire has been cleaned of ash and clinker, the clean fire must be placed at the front end of the grates (where brick arches are not used) and maintained in good condition by applying small quantities of fuel, as may be required, in order to prevent cold air from passing through the front end of grate and injuring the flues. Where brick arches are used, the fire can be banker farther back, as the hot arch brick protects the flues.

49. The same general principles, in so far as upkeep, handling, inspection, etc., that apply to the coal burner, apply to the oil burner, with this difference, however, that while it is hard to get enough air into the ash pan of the coal burner it is quite easy to get too much air into the oil burner, and this applies especially to air leaks around the fire box, bricwork and mud ring. Frequent inspection should be made, by turning on the blower and holding a lighted torch to these points. If leaks are found they should be corrected each trip, as air thus admitted takes a short circuit, goes directly into the lower flues, causes them to leak and to coat over with soot, arresting combustion at this point. Next to the proper alignment of the burner, the avoidance of air leaks is the greatest factor to be considered from a fuel saving standpoint.

50. The burner should not be set so high as to cause the jet to strike the fire door, nor so low as to allow the flame to drag on the bottom. Any obstructions in the shape of fallen brick, etc., in front of the burner should be removed at once.

**Handling Oil.**—51. Different grades of oil require different methods of handling. However, all oil should be heated sufficiently to cause it to flow freely to the burner. While with many grades of oil the proper temperatures can be maintained with the closed heater, yet when using the heavy Mexican oils the open heater should be turned on strong at first so as to stir up the oil, thereafter shut it off and maintain the proper temperature with the closed heater. No oil of whatever grade should, however, be heated to above a point where the back of

the hand cannot be pressed firmly against the tank without discomfort, for when oil is heated too hot many valuable heat units escape in the form of gas.

**Final Inspection and Work Reports.**—52. Great care should be exercised on the part of the locomotive man, on reaching the terminal, to make a thorough examination of the locomotive and prepare an intelligent written report for the information of the locomotive house foreman and those who make repairs.

53. Leaky piston and valve stem packing, cylinder packing or valves which cause blowing, all tend to draw on the coal pile unnecessarily, as it takes coal to generate wasted steam. This also applies to locomotives' steam heat appliances, cylinder cocks, safety valves which blow down too much steam pressure before closing, or, in, other words, to all steam wasted.

54. The fireman should be consulted in regard to any defects that have come to his notice, especially with the grates, grate rigging, brick arches, ash pan, firing tools, scoop rigging and dampers (where provided). Particular attention should be given to the condition of the brick arch, because this device, properly maintained, is a considerable factor in the saving of fuel and the reduction of smoke.

55. It is important that the locomotive man, as well as the locomotive inspectors, report all defects in a locomotive on arrival at a terminal which require attention before the locomotive is again placed in service, especially as some defects can be detected to the best advantage while the locomotive is in service.

**Oil Firing.**—56. In firing with oil, the locomotive man and fireman must work together. Every time the locomotive man changes the throttle or reverse lever the fireman must regulate his firing valve to suit the changed requirement. From this it follows that the locomotive man should never start the locomotive until the fireman is at the firing valve, and should be careful not to slip the locomotive, as such is liable to put out the fire, and the fireman should be equally careful not to use too much steam at the atomizer. Steam will not burn, and a bright fire with just a tinge of blue smoke at the stack indicates good combustion. Black smoke and a red fire indicate waste. Locomotive men should bear this one fact in mind, regardless of whether they are handling oil or coal burners. Any excess fuel used, either on account of a defective locomotive, or from poor handling on the part of the crew, is a charge against them and not against the locomotive house. Therefore, exercise care while out on the road and report all fuel wasting defects on arrival, and so keep your record clear.

**Operation of Superheater Locomotives.** 57. The general operation of superheater locomotives is the same as the ordinary saturated steam locomotive. Attention is directed to a few items in connection with superheater locomotives which need careful consideration.

58. Cylinder cocks should be kept open when standing, and, as far as possible, when starting, until dry steam appears.

59. A hydrostatic lubricator should be started at least 15 minutes before leaving time, in order that the valves and cylinders may be thoroughly lubricated when starting on the trip. The oil supply to the cylinders should be constant, as there is no water in the steam to assist in the lubrication and, on this account, the superheater locomotive requires more careful lubrication for valves

and cylinders than the saturated steam locomotive.

60. In starting, the reverse lever should be in full gear to ensure oil distribution to the full length of the valve bushings. Care must be taken that the water level in the boiler is not sufficiently high to cause water to carry over into the superheater.

61. The locomotive man should see that the water level is not carried so high that it will be drawn through the units with the steam, as this will result in making an auxiliary boiler of the superheater, thereby destroying the object aimed at in its application, but, in addition to this, the water carried over will deposit any scale forming matter it may hold in suspension or solution on the inside of the superheater units, thereby coating them with an insulating material that will prevent the free passage of the heat contained in the gases into the steam moving through the units. It is this liming up of superheater units through carrying the water too high or through foaming that causes the superheated locomotive to gradually lose its snap.

62. While there is a difference between carrying the water level too high and a foaming boiler, the results are quite the same; the only difference being that when the boiler begins to foam one can see the effect at once in dry valves, reduced speed, etc., while by carrying the water too high the evil effect is spread out over a greater distance and through a longer period of time. The bad effect is there, however, and always means more fuel and slower speed.

63. A superheater locomotive should not be moved without the required air pressure and the brakes in operative condition. When water is carried over into the superheater, part or all of it will flash into steam, even after the throttle is closed. Under the above condition the locomotive is not under control, because the valve chamber is filled with steam.

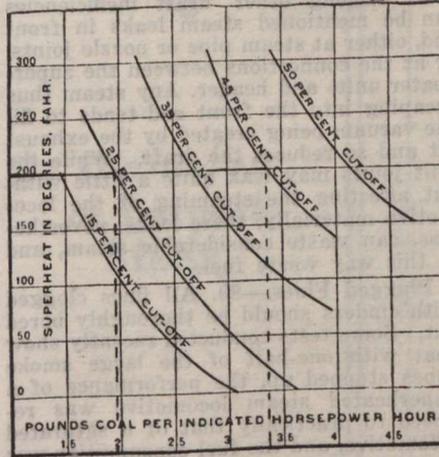
64. Superheater locomotives should be operated with a full throttle opening and reverse lever control, as far as service conditions will permit, the exceptions being: when starting a train, when using a very small quantity of steam, and when drifting. (See paragraph 40.) The accompanying chart illustrates the point in question and shows the variation in coal consumption with various degrees of superheat for each of the following cut offs: Fifteen per cent, 25%, 35%, 45% and 50%. The figures were taken from tests of a large Pacific type locomotive, but they apply with equal force to all superheater locomotives. For example, take the curve for 25% cut off at 200 deg. of superheat. The coal consumption is about 2 lb. per indicated h.p. hour. Then take the curve for 45% cut off at 200 deg. of superheat. The coal consumption is about 3.3 lb. per indicated h.p. hour. This clearly shows why it is better to operate with a full throttle and reverse lever control rather than with a partial throttle and long cut offs. The difference for the example taken is 1.3 lb., or 39% over the incorrect method. The chart also shows the advantages of a high degree of superheat at any cut off in reducing the coal consumption per indicated h.p. hour.

65. It is advisable, in order to avoid the suction of hot gases from the smoke box into the steam chest and cylinders, to keep the throttle slightly open when drifting or making stops, as by passing a very slight amount of steam through the cylinders the front end gases cannot

be drawn into the exhaust column. The throttle must be completely closed just before coming to a full stop.

66. The firing should be light and regular, to produce as high flame temperature and as perfect combustion as possible in the fire box. A high fire box temperature results in high superheat, which will be obtained by a small coal consumption. A heavy, black fire means low temperature, low superheat and coal consumption. Firemen who carefully follow the above outlined practice will save coal for the company and make their own work easier.

67. The locomotive man should be sure that the superheater damper is open while using steam, and closed when steam is shut off. This can be ascertained by observing the counterweight on the right-hand side of the smoke box attached to the damper. When the counter weight is up the damp is open, and when down the damper is closed. When the locomotive is shut off and the blower is used, the locomotive man should observe that the damper is in a closed position. If the damper is open with the blower on, the superheater tubes are apt to be burned out, due to no steam circulating through the superheater tubes. When



Variation in coal consumption, with varying superheat at different cutoffs.

using steam, the piston in damper cylinder should always move its entire stroke and stop against its seat, in order to prevent loss of cylinder lubrication past the piston. A leak at this point will permit steam to escape at end of drip pipe attached to damper cylinder, and should be reported promptly.

68. Leaks in front end of superheater units, steam pipes and exhaust column, fire tubes stopped up, and derangement of draft appliances not only interfere with the proper steaming of the locomotive, but reduce the degree of superheat. Blows in cylinder and valve packing will cause scoring, due to removal of oil from the wearing surfaces. All leaks such as those mentioned above should be reported promptly by the locomotive man, because if neglected, they seriously affect the economical operation of the locomotive.

**The Locomotive Stoker.**—69. On arrival at the locomotive the fireman should see that the stoker is in operative condition, by trying it; next, see that it is properly lubricated, so it will stay in working order over the road; next, build up the fire by hand and see that it is ignited all over the grate surface. Don't try to build up the fire with the stoker, as the stoker may start a bank, and a bank with some certain grades of coal causes clinkers and clinkers mean trouble. Don't start the stoker feeding until you have

pulled out of the yard, and then feed just as little coal as possible to maintain the desired pressure. Look into the fire box occasionally to see how the stoker is distributing the coal, it may save hot work with the hook later on. Shut off the stoker when standing in sidings or drifting down hill. Keep up the fire with the scoop. Close the slides in the deck before reaching the terminal, but keep the stoker running, so as to empty the conveyor trough. This will give the locomotive house men a chance to try the stoker and get it in shape for the next trip. Inspect it on arrival and report any defects found. The locomotive man should know as much about a stoker and its care and operation as the fireman. It is as much a part of the locomotive as the injector or air pump, and a locomotive man that cannot run it is not fully qualified.

70. Although the stoker may make it possible to keep ample steam pressure at all times, any failure on the part of the locomotive man to handle the locomotive skillfully will result in the same increase in the cost of fuel and maintenance as when a hand fired locomotive is abused. When you see foreign material in the coal throw it out before it enters the conveyor.

71. Should the stoker stop operating on the road, don't keep on using steam until the pressure runs down, but stop, if possible, locate the trouble, and fix it. If you cannot locate or repair the defect, give the fireman an opportunity to get the fire in shape so he can fire the locomotive to the terminal by hand. Do not give up the train because the stoker failed.

**General.**

72. **The Diaphragm and Draft Plate** are put in to control the flow of gases through the flues and to distribute the draft over the grate surface as desired.

73. The draft plate has, however, another function, namely, to give direction to the gases in their passage from the flues to the stack, and in doing this, to aid in keeping the front end clear of cinders.

74. The draft plate simply serves to distribute the draft and to assist in keeping the front end clean. However, while the draft plate does not create draft, it is frequently so adjusted as to obstruct it, and in this way becomes a hindrance to the free steaming of a locomotive instead of a help.

75. The draft plate should always be set so that the opening between the plate and smoke arch is equal to 100% of the total flue area. If the front end should show a tendency to fill up with cinders when the plate is raised, change the angle of the plate by drawing the bottom farther back so it will stand nearly vertical. Furthermore, if the draft plate is too close to the front flue sheet the flow of the gases is so restricted as to cause the locomotive to be what is termed "hot at the door," consequently it follows that carrying the draft plate as high as possible not only decreases the work of the fireman, but also makes his work more comfortable. As it has been shown that the draft plate has but two functions, why change it after it has once been properly adjusted?

76. All front end appliances should be maintained according to the blue print standards as furnished by the mechanical department, keeping them in first class repair and adjustment. Records should be kept of front-end adjustments, so that when the locomotive is reported not steaming, the foreman or man in charge

of front ends will be able to tell whether someone has changed the size of the nozzle or any other adjustable parts, or whether the defect is in the locomotive. If the setting is on record, and the locomotive has steamed for months, or years possibly, and is reported "not steaming," no changes should be made in the front end, but the real trouble should be found and corrected. If such practice is followed, front ends can be set standard and so maintained.

**The Petticoat Pipe.**—77. In the modern locomotive the only function of the petticoat pipe is to increase the stack length, therefore it should fit tight into the base of the stack and be made non-adjustable, that is, it should simply be a stack extension.

**The Exhaust Nozzle.**—78. Reducing the nozzle to make a locomotive steam should be the last resort, as it not only reduces the efficiency of the locomotive, but materially increases the coal and water consumption as well as the work of the locomotive man.

79. Changes in the physical characteristics of the fuel or climatic conditions make it necessary at times to increase the draft, but instead of bushing the nozzle better results can be obtained by applying a rectangular or dumb-bell shaped tip of the same area, or better yet, bore the tip out  $\frac{1}{4}$  in. larger, then apply a  $\frac{3}{8}$  in. round bridge, spot welded at each end to make it stay in place.

80. Nozzles should be maintained at the greatest possible diameter consistent with good steaming. Locomotives assigned to yard switching should have nozzle tips substantially as large as the opening in the nozzle pot. Yard locomotives do not require a sharp nozzle blast to make steam, and a large exhaust opening will not only materially reduce the fuel consumption but will make the work of the engine crew much more comfortable.

81. While bushing a nozzle will make a locomotive steam by lengthening the exhaust jet and increasing its velocity, yet what is gained in freer steaming is invariably lost in locomotive efficiency. Nozzles should not be reduced for any reason, however, except on the authority of some responsible officer, and not then until after thorough tests it has been shown that it is necessary.

**Locomotive Efficiency.**—82. A locomotive may be able to handle its stated rating and yet be far from an efficient locomotive under the meaning of the term as applied in this book.

83. By an efficient locomotive we mean one that will handle its stated rating over a given district in the shortest time on a minimum quantity of fuel.

84. Therefore, when we say a locomotive is 85% efficient, or that its efficiency is reduced 15% we mean one that will require 15% more time to make the same distance with the same tonnage as one that is 100% efficient, or else that it will consume 15% more fuel in doing the same work.

85. As a rule, poor time and excessive fuel consumption go hand in hand, therefore the locomotive man should report everything that tends to decrease the efficiency of the locomotive.

**Draft Efficiency.**—86. Under this head would come anything that in any manner interfered with or reduced the draft. The worst offender in this direction is the front end air leak, especially in superheated steam locomotives with steam pipes extending through the smoke arch. As a rule, in order to permit of their easy application and removal, the hole

through the arch is cut large enough to accommodate the flange of the pipe. This opening is then partially closed by means of a split collar or bushing. In practically all of the locomotives built prior to 1918, this collar or bushing still left an opening around each pipe equal to a round hole  $5\frac{1}{4}$  in. in diameter, consequently, when the exhaust creates a partial vacuum in the front end, some air moving along the line of least resistance will be drawn in through these openings, instead of through the fuel bed, thereby decreasing the draft by that amount, making it necessary to reduce the nozzle in order to maintain the necessary vacuum. Tests have proved that sealing these opening permitted an increase of from  $\frac{1}{4}$  in. to  $\frac{3}{8}$  in. in the diameter of the nozzle, resulting in a decrease of from 14% to 21% in fuel, with a corresponding increase in locomotive efficiency, at the same time very materially improving the locomotive's steaming qualities.

87. Another draft inefficiency found in superheated steam locomotives is the superheater damper. This should always be set at an angle of 60 deg. when open, the top of the damper leaning back; if set vertical, it obstructs the draft through the bottom flues.

88. Among other draft inefficiencies can be mentioned steam leaks in front end, either at steam pipe or nozzle joints, or at the connections between the superheater units and header. Any steam thus escaping into the front end tends to fill the vacuum being created by the exhaust jet and so reduces the draft. While the unit joints may leak quite a little without affecting the steaming of the locomotive materially, these leaks, nevertheless, can waste considerable steam, and in this way waste fuel.

**Plugged Flues.**—89. All flues clogged with cinders should be thoroughly bored out. Some tests conducted recently show that with one-half of the large smoke tubes stopped up, the performance of a superheated steam locomotive was reduced to practically that of a saturated locomotive, and the fuel consumption was increased 24%; a lesser number of these tubes stopped up affected the fuel consumption proportionately. Other tests proved that with 100 small tubes stopped up and the grate openings partially obstructed with clinkers the fuel consumption was increased 47%. This shows that cleaning flues, grates, etc., should receive the same careful attention accorded any other work.

**Scale on Flues and Fire Box Sheets.**—90. Tests have shown that a deposit of scale  $\frac{1}{8}$  in. in thickness resulted in a fuel loss of 15.6%. While the locomotive house foreman cannot entirely prevent the formation of scale on flues and fire box sheets, he can, however, help reduce it by careful, conscientious boiler washing.

**Steam Losses.**—91. Under this head are losses due to defective valves and valve seats in slide valve locomotives, valve rings and bushings in superheated steam locomotives, and losses due to defective cylinder packing rings in either or both. Some of these defects exist at times for several trips, especially in superheated steam locomotives, due to the fact that the leak is often of such a nature as not to cause a very loud blow except at full stroke; if, however, the escaping steam were measured, the amount of steam lost would often prove surprising. It has been found a good plan on many railways to make a regular inspection of valve rings and bushings, as well as cylinder packing rings,

at stated periods.

**Losses Due to Improper Steam Distribution.**—92. Among locomotive house men it is a generally accepted opinion that valves but slightly out of adjustment make no material difference, in so far as steam consumption is concerned, they failing to realize the locomotive man will invariably work a locomotive at a cut off at which the locomotive sounds most nearly square. This will always be at a point of cut off longer than would be necessary to handle the train and make time were the valves in perfect adjustment; this results in the use of more steam than would otherwise be required, resulting in a corresponding loss of fuel and that much extra work for the fireman. Locomotive men should always report locomotives that do not sound square, and the locomotive house should make the proper adjustment as soon as reported. Lost motion will gradually develop in any valve gear, and lost motion will throw valves out of adjustment and so affect the steam distribution, steam consumption and general locomotive efficiency.

**Testing Safety Valves.**—93. The U.S. Federal Rules call for a quarterly test of pop or safety valves on all locomotives. The locomotive house man should endeavor to anticipate these tests so as to make them on dates when it is known that the locomotive will be ordered for service. This will save a part of the heat stored in the boiler, as well as the fuel remaining in the fire box after the test has been completed. It requires from 1200 to 1800 lb. of fuel to make this test, and, consequently, if made on date when the locomotive is not wanted this fuel is practically wasted.

**Stored Locomotives.**—94. When locomotives are stored or housed with the fire in them the fire should not be cleaned but should be banked on top of the old fire, allowing the ash to remain on the grate to reduce the draft through the fire while the locomotive is stored.

95. Where locomotives are equipped with a brick arch the bank should be placed under the fire door, and where not so equipped, against the back flue sheet. Then, just before the locomotive is required for service, the fire should be cleaned. Where it is not necessary to draw fires, the stack should always be covered to retain the heat stored in the water and to prevent unequal expansion between flues and boiler which might result in leakage. A simple handy stack cover can be made, as per accompanying figure. This can be placed over the stack from the floor and when not in use hung up on the locomotive house wall, one at each pit.

96. Without maximum steam pressure a locomotive may be ever so well maintained but will be unable to handle the proper tonnage successfully, either from an operating or from an economical point of view.

97. The locomotive house supervision should exert every effort to eliminate defects on the locomotive which will in any way interfere with free steaming qualities.

**Sand Pipes.**—98. The use of good sharp sand is essential in all classes of service to prevent fuel losses due to locomotives slipping, but the best of sand is useless unless delivered on the rail. This means that the sanding apparatus must be kept in good condition, and that the sand pipes must be clamped so as to retain the correct alignment.

**Direct Fuel Losses.**—99. In this class would come such losses as are visible

when they occur, such as coal rolling off the tender on account of the tender being overloaded; coal rolling out of the gangway, due to defective or poor design of coal gates; lack of coal guards, etc.; coal falling through holes in deck of locomotive; coal jarred off when drifting or running fast, due to excessive slack between locomotive and tender, etc. The remedy for such defects is obvious.

**Suggestions to Locomotive Men.—100.** Your rating as a locomotive man depends on your ability to operate the locomotive in your charge in the most efficient and economical manner. The suggestions in this book, if followed, will assist you to do this. The man who fails to follow same places himself in a position which may bring censure upon himself and others and seriously injure his reputation as a successful locomotive man.

101. When you are called to go out, endeavor to report at the locomotive house in plenty of time to check the register and bulletin boards and to thoroughly inspect the locomotive on which you are to make the trip. This applies to all locomotive men, whether regularly assigned or otherwise. A close inspection before leaving terminal, particularly if work has been reported, and frequent inspections during the trip, when conditions will permit, will prevent possible delays and locomotive failures that might otherwise occur.

102. Try the water glass cocks and gauge cocks and know that they are registering correctly. Know that all bearings are properly lubricated before leaving terminal, and thereby avoid having to stop later on account of some bearing running hot to which you had not given proper attention. Try both injectors and know that they are in good condition. Start the lubricator about 10 to 15 minutes before leaving the terminal, in order that oil will reach valves and cylinders before any work is to be done.

103. In testing air brakes, notice the fall of train line pressure while valve is on lap, and if this exceeds 5 to 7½ lb. per minute, notify car inspectors and be governed by the rules of the road by which you are employed.

104. It is well to note the condition of the fire unless you have an experienced fireman. Keep your fireman informed as to train movements in order that he may fire successfully.

105. In leaving the terminal, endeavor to work your locomotive as lightly as possible until the fireman has his fire in good condition. Work the locomotive at shortest cut off consistent with the work required in order to get the benefit of the expansive use of the steam. Carry water at the proper height in order to get as dry steam as possible to cylinders. Water that is carried over into superheater or the cylinders of a saturated locomotive is reducing the effectiveness of the locomotive regardless of the steam pressure shown on the gauge. Overfeeding a boiler to a point where priming occurs on a superheated locomotive will reduce the temperature 80 deg. or 100 deg. F.

106. Avoid rough handling in starting trains, as this may cause drawbar trouble later on. If you are unfortunate and pull out a drawbar, study the conditions and try to avoid a recurrence.

107. Avoid unnecessary stops for coal and water. Stop at points that will require the least effort to get the train away. It costs from 600 to 1500 lb. of coal to restore a train to speed, depending on the grade. Where conditions will

permit, run coal dock in the direction in which coal is handled to coal dock.

108. Supervise the work of your fireman, giving him your help and the benefit of your experience. Team work is what counts. A locomotive is the equivalent of a large power plant; one, however, that is in motion when employed. Without a fixed foundation and compelled to carry its fuel and water supply with it, its management and operation under a continuous variety of conditions present problems that must be met instantly by the two men in charge. Robust, conscientious, industrious effort will always bring to men of character a high measure of personal satisfaction and material reward. There is much met with that is irritating in every vocation. Keep good-natured and your work will be correspondingly light.

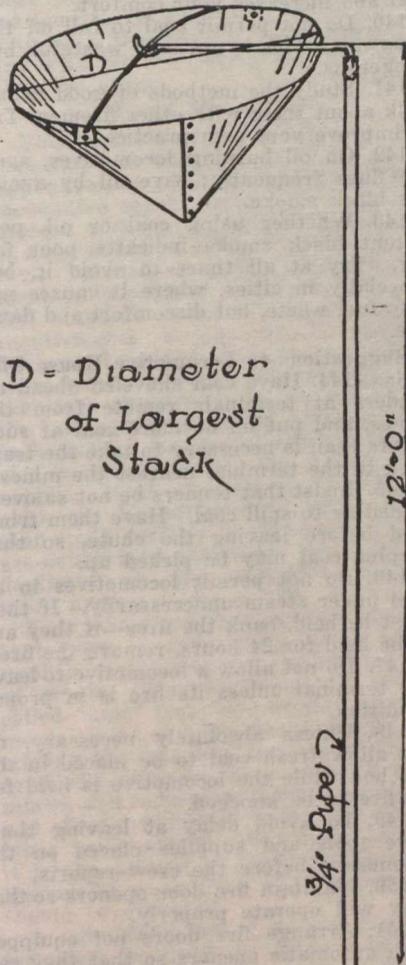


Fig. 11. Stack Cover.

109. If your fireman does not employ the best practice, instruct him yourself, and ask the road foreman or locomotive supervisor to have a friendly talk with him, setting him right.

110. Advise the fireman as to grades, shut off points, the length of time it is probable the train will be held on side track, etc., and explain to him your manner of handling the injector, so that he can anticipate your needs and fire accordingly.

111. Endeavor to work your locomotive at the shortest practicable cut off at all times, so as to obtain full benefit of the expansive force of the steam.

112. Endeavor to feed the boiler uniformly, and do not allow the water level to rise so high that the effectiveness of the locomotive or the superheater will be destroyed.

113. By careful handling, good lubrication of the valves and cylinders can be maintained with a very small quantity of oil. Oil that is fed with steam sticks to the metal surfaces and will lubricate for a long time unless it is washed off by water or burned off by drifting. If a proper water level is maintained and attention is paid to the position of the throttle and the reverse lever when drifting, a few drops of oil will protect a large rubbing surface. If, however, in order to cover up errors in judgment too high a water level is carried when running or if the boiler is overfilled when standing, water from the boiler with its scum and impurities will pass over with the steam and will scour the oil film from the cylinder and valve surfaces.

114. Whenever a high water level does occur, it will prove cheaper to use oil freely than to suffer the friction loss and fuel waste which result from dry valve seats and cylinder walls. Forethought will save both coal and oil, and locomotive men who make a good fuel performance generally make a good oil performance.

115. Avoid wasting steam at the pops. When conditions, such as emergency stops, make popping unavoidable, close your injector heater cocks and lightly blow steam back into the tank, thus heating the feed water. Injectors will lift water as warm as your hand (100 deg.) and feed water heated to this temperature saves about 4% of the fuel and increases the locomotive's steam capacity on hard pulls.

116. Careful judgment in handling the train brakes will save fuel. A moving train contains energy. Make the best use of this energy, consistent with safety. If you lose it by unwise braking, it must be restored through the use of fuel, both for the train and the air pump.

117. Avoid slipping your locomotive. It tears the fire and wastes coal.

118. Do not use your cab lights on your headlight in the daytime.

**Suggestions to Locomotive Fireman.—** 119. A man in accepting a position as a locomotive fireman should make a study of his work, mastering it in the same manner that he would any other trade or profession.

120. A skillful locomotive fireman becomes a skillful locomotive man, and thereby places himself in a position for further advancement.

121. A few minutes each day, reading some authority on matters pertaining to your present duties, and those to which you aspire, will very materially assist you.

122. In firing a locomotive you are serving your apprenticeship as a prospective locomotive man and should consider the locomotive man for whom you are firing in the same position as the man of the shop in which you might be learning a trade, or the lawyer or doctor in whose office you might be studying the profession of law or medicine.

123. Harmony between the locomotive man and the fireman must exist in order to secure the best results. As the locomotive man is responsible for the performance of the locomotive while in his charge, so is the fireman responsible to the locomotive man for the manner in which he performs his duties. No one is better fitted to properly instruct the fireman than the locomotive man, as by his years of service he has learned by experience the manner in which these duties should be performed.

124. The duties of a locomotive fireman are varied, and merely keeping the

locomotive up to the popping point is not an indication that he is a successful fireman. While proper steam pressure is essential, there are many other things which are just as important.

125. A good start goes far toward making for a successful trip. Get around early enough to try the grates, blower, fire door, stoker, etc. See that you have all necessary supplies, then arrange your fire, so you will not have to work with it when you should be looking for signals.

126. Before leaving, have your fire built so that the heavy exhaust due to starting the train will not tear holes in it, thereafter fire as lightly as possible. Avoid "slugging" the fire regardless of whether the locomotive is hand or stoker fired—this will save work later on. Do not try to carry the steam pressure at the popping point, but within about 5 lb. of same, in order to avoid opening the door to prevent popping in case of an unexpected stop. Every time the pops open, fuel is wasted.

127. Worry wears more than work. The fireman will worry if he cannot keep steam. Try cracking the coal, firing light and often, closing the door between scoops. Keep the deck clean. This looks better, saves coal, and may save a sprained ankle. Wet the coal just enough to keep down the dust. Too much water on the coal retards combustion. Water will not burn.

128. Avoid the excessive shaking of grates, but keep the fire down in order that sufficient air can pass through the fire. By firing light and keeping the fire shaken down so that the fire box will not fill up with ashes, you will ensure the absence of black smoke, which is one indication of perfect combustion. An excessive amount of black smoke escaping from the stack is an indication of improper firing and should be avoided. Keep the fire free from banks, as the brighter the fire, the more heat is produced.

129. Do not use the rake unless it is absolutely necessary, and then only to remove clinkers or to remove a bank. Learn the profile of the road so that you can have your fire in condition to do the work required. When locomotive is not using steam, and water is being supplied to the boiler, have your fire in such condition that the water entering the boiler will not reduce the temperature of the fire box and sheets to a degree that would cause them to leak.

130. The overloading of tanks with coal is a serious proposition. You not only waste the coal that falls off, but employes and passengers may be seriously injured. A few minutes of your time taken in leveling the coal down will avoid this. Think about it. Is it worth your time to save someone from possible injury? At the end of your run, when the locomotive is placed on the receiving track, have your fire in such a condition that it can be either dumped or maintained as conditions demand, and see that there is sufficient water in the boiler to keep it safe until the hostler takes charge. Notify the locomotive man of all defects that should be corrected, that he may report them.

131. Close the fire door after each scoopful of coal is fired.

132. Do not shake the grates except when absolutely necessary — and then shake them gently. They should never be shaken while the locomotive is working hard; the high draft will then carry ash up into the tubes and superheater flues and clog them.

134. When your locomotive is running with a drifting throttle, fire only enough coal to keep the fire in good condition.

135. If large lumps of coal reach your tender, break them down before firing them.

136. Use the blower as lightly as possible, and no longer than is necessary.

137. When entering a terminal let your fire burn down to the proper level; but do not starve it to the point where, in order to get a boilerful of water, it will become necessary to rebuild it just before the locomotive goes on the cinder pit.

138. Do not use the injector when there is little or no fire in the locomotive. To do so starts the flues and side sheets leaking.

139. Keep your deck clean. A well swept deck with the coal in the tender sprinkled, but not flooded, helps save coal and increases your comfort.

140. Do not permit coal to fall off the gangway. This is not only wasteful, but dangerous.

141. Study the methods of good firing. Talk about them with other firemen. Try to improve your own practice.

142. On oil burning locomotives, sand the flues frequently; save oil by avoiding black smoke.

143. Whether using coal or oil, persistent black smoke indicates poor firing. Try at all times to avoid it, but especially in cities, where it causes not only fuel waste, but discomfort and damage.

**Suggestions to Locomotive House Officials.**—144. Have coal shoveled ahead on tenders at terminals remote from the mines, and put on no more coal at such points than is necessary to take the train back to the terminal nearest the mines.

145. Insist that tenders be not so overloaded as to spill coal. Have them trimmed before leaving the chute, so that surplus coal may be picked up.

146. Do not permit locomotives to be held under steam unnecessarily. If they must be held, bank the fires—if they are to be held for 24 hours, remove the fires.

147. Do not allow a locomotive to leave the terminal unless its fire is in proper condition.

148. Unless absolutely necessary, do not allow fresh coal to be placed in the fire box while the locomotive is held for its fire to be knocked.

149. To avoid delay at leaving time, have tools and supplies placed on the locomotive before the crew reports.

150. Maintain fire door openers so that they will operate properly.

151. Arrange fire doors not equipped with automatic openers so that they can be easily swung open and will remain latched open in rounding curves, and so they can be easily swung shut after firing each scoop of coal.

152. Brick arches must be maintained.

153. Injectors which are too large should be replaced with those of proper capacity.

154. When locomotive fires are cleaned, have a competent inspector enter the fire box. He should assure himself that the grates are thoroughly clean, that there are no broken grate fingers or excessive openings, that the grate is level when the grate lever keepers are in place and locked, and that the arches are clean and in repair. He should also see that the flues are clean and free from leaks, particularly the superheater flues. Superheater flues when clogged with soot and cinders are useless.

155. See that all coal burning locomotives have a total ash pan air opening

equal to at least 14% of the grate area.

156. Maintain boilers up to their highest efficiency; wash them when necessary, and have the flues bored and blown out every trip. Give special attention to the superheater flues.

157. Eliminate front end air leaks.

158. Do not allow locomotives to run with mud ring leaks. This leakage represents a considerable waste of fuel.

159. Make a special inspection of all locomotives to see that the exhaust nozzles are opened up to the largest area consistent with proper steaming. Keep a nozzle record of all locomotives, showing the class, size, date of cleaning, and date of nozzle changes.

160. Holes in the cab decking, defective aprons, and lost motion in the tender connections all lead to direct coal losses.

161. Make certain that steam pipes and superheaters are tested at frequent intervals. Cold water tests should not, however, be made when the parts are hot.

162. See that cylinder and valve rings are maintained so that they do not blow; and keep the valves squared up on all locomotives.

163. On oil burning locomotives, maintain all piping, valves and operating fittings in good condition. Keep the burner clean and in proper alignment, making periodical inspections of burners to determine if defective. Pans must be maintained in good condition and rigidly secured to avoid air leaks at sides and front behind brickwork. Inspection should be made each trip to ensure brickwork being in good condition and all carbon and sand removed. Keep air openings free from slag and carbon accumulations.

164. The flues in an oil burning boiler require the same attention as a coal burner. Dampers should be maintained over all air openings, and must be easy to operate.

#### Exhaust Nozzles.

In addition to the subjects heretofore treated, your committee was instructed to investigate the shape of exhaust nozzles to determine that which would produce the highest vacuum and least back pressure. It is believed that this a problem requiring for its solution the preservation of practically uniform conditions throughout the investigation and, therefore, one demanding a series of test plant observations. While it may be possible to obtain rough approximations in tests under road conditions, the variables are so numerous and so great as to impair the value of conclusions demanding a reasonable degree of accuracy. Variations affecting the results by as much as 5% would be fatal to an investigation in which such a variation is of as much importance as it is where both hauling capacity and fuel economy are involved. The facilities for the required investigation are not now at the service of the association and it is, therefore, impossible to submit any final conclusions at this time, but through the courtesy of the Pennsylvania Rd. a partial report may be made from tests conducted in the Altoona test plant. The investigations made by the Pennsylvania were for the purpose of ascertaining the maximum equivalent evaporation and the least average back pressure under uniform operating conditions with different shape nozzles.

1. The circular nozzle is circular in diameter at the entrance and gradually tapers to the exit diameter at a distance of one inch from the exit, the sides be-

ing parallel beyond this point.  
 2. The rectangular nozzle has a circular entrance area, this area gradually tapering into a rectangular at 2% in. from the inlet. From this point the sides of the opening are parallel for a distance of one inch to the tip of the nozzle.

3. The four internal projection consists of a circular nozzle having triangular shaped bars projecting 1 in. toward the center from four equal distant points to the edge of the nozzle. The bars have an edge turned toward the discharge jet.

4. The alligator nozzle, 12 in. high, consists of a circular nozzle having two jaws or points projecting 12 in. above the tip of the nozzle. The jaws are 6 1/4 in. apart at the tip, and this diameter remains constant to a point 3/4 in. below the tip of the nozzle, from which point the diameter is gradually increased to the nominal dimension.

5. The alligator nozzle, 6 in. high, is similar to the 12 in. alligator nozzle already described, except that the jaws are 6 in. high.

6. The four vertical projection differs from the alligator nozzle, in that it has four points instead of two. The diameter is uniform to a point 1 in. below the tip of the nozzle, from which point it gradually increases to the nominal diameter at the bottom.

7. The vertical projection and splitter is circular, a splitter being fitted at the top, and a conical piece attached to the splitter at the center, projecting downward 6 1/2 in. below the tip of the nozzle.

8. The special shaped nozzle consists of a circular nozzle, having four projections from the tip 4 in. high, which are bored conical, the diameter at the top being 3/4 in. smaller than at the bottom of the projections. These projections are 2 in. wide at the bottom and flare out to about 4 in. in width at the top.

9. The splitter consists of a circular nozzle tapering on the interior for 2% in. from the inlet, from which point the sides are parallel to the nozzle tip. Across the center is fitted a triangular piece, having one edge directed downward toward the discharge jet and having a width of 3/8 in. at the top.

10. The four notched circular nozzle is somewhat similar to no. 1, except that it has four notches set into it at the top. These notches are so shaped that they would form a rectangle were it not for the sides of the rectangle being cut in the form of a circle.

Tests were made on a Pacific type locomotive equipped with a Schmidt superheater and a brick arch. The same arrangement of front end details was maintained throughout the tests. With each design of nozzle, the evaporative rate was increased until the boiler limit was reached, the usual observations being taken of boiler and locomotive performance.

The results of the tests corresponding to the various shapes of nozzles are shown in the accompanying table. They indicate that under the conditions peculiar to this test with a nozzle having four internal projections it was possible to obtain a higher equivalent evaporation per hour with less back pressure than with a circular or rectangular nozzle having approximately the same net area.

Summary of Results of Nozzle Tests.

Description.	Dry coal per hour.	Equivalent Evap. per hour.	Average least back pressure.	Rank.
Four internal projections	9 421	65 129	14.9	1
Rectangular	9 810	64 316	14.3	2
Circular, area 33.29	4 218	49 249	9.2	3

Circular, area 30.68	6 734	52 223	10.5	5
Alligator, 12 in. high	5 292	47 852	9.6	11
Alligator, 6 in. high	6 186	49 129	11.2	9
Four vertical projections	5 833	50 773	8	6
Vertical projection and splitter	7 048	59 624	10.8	5
Four notched circular	5 003	50 833	8.1	7
Splitter	7 304	58 586	10.9	4
Special shape	5 854	47 890	5.8	10

**Conclusions.**—Your committee does not consider the information now available sufficiently complete to justify positive conclusions as to the most efficient shape of nozzle, and is only in position to report that the circular form of nozzle does not result in the highest vacuum and the least back pressure. As to what form will produce those conditions it is impossible to say without an extended investigation involving a long series of test plant observations. It seems evident, however, that all preconceived ideas of exhaust jet action must be revised, to agree with the apparent fact that the best results will be obtained when the jet contour is interrupted as is the case both with the internal projection nozzle and with the one having one axis longer than the other.

**Front End Design.**

Your committee has given some consideration to the matter of front end appliances, as affecting fuel economy and locomotive repair costs, but is unable to present a design applicable to all types of locomotives in different classes of service. In fact, from the information at hand, it is believed that a suitable general standard would not meet practical requirements, because of the variables introduced through differences in dimensions vitally affecting the problem. It, therefore appears to be necessary that the best arrangement be determined for each class of locomotive and normal service conditions using the regular fuel supply. It is probable that better results can be produced by these means than could possibly be obtained from any pre-determined standard that did not duplicate all the variables, including those arising under service conditions.

Your committee does believe, however, that there is opportunity for increased facility in maintenance, and reduced cost of repairs through the use of the so-called "unit" front end netting arrangement. It is obvious that a design permitting the complete removal of the assembled netting will be more easily maintained, will reduce locomotive shop hours, and effect a reduction in the cost both of labor and material. For these reasons, it is the opinion of the committee that the use of some form of unit front end should be extended.

A suitable standard having been determined, the front end details should be permanently fastened to prevent further adjustments. Diaphragm plates and stack extensions or so called "petticoat pipes" should be riveted or welded in position and never changed except on the recommendation of the authority establishing the correct relations. The only variable in the front end should be the exhaust nozzle and this should never be altered to cure a steam complaint until the cause of the complaint has been determined.

**Running Stoker Fired Locomotives Over More Than One Division.**—Your committee recognizes that there may be some fuel economy in running stoker fired locomotives over more than one division, but does not find that the practice prevails on any of the larger systems operating these locomotives. While it may be practicable to increase the mileage of such locomotives, the net economy of operation is doubtful, especially

as topographical conditions are frequently such that it is impossible to handle the most economical rating on the second division, the loss in fuel per thousand ton miles therefore exceeding the saving otherwise effected. This is a question that must be determined by local operating conditions, including terminal facilities.

In conclusion, your committee desires to emphasize the continued importance of the fuel problem, especially at this period of rising costs, of inadequate labor supply, and of car shortage. It must be admitted that the outlook for more favorable conditions is not promising, and it, therefore, becomes a paramount duty to employ all reasonable means of economy in order that the available fuel supply may be conserved and diverted to useful productive purposes.

**Canadian National Railways Earnings.**

	1920	1919
January	\$ 7,727,562	\$ 6,787,517
February	6,516,059	6,265,562
March	7,761,326	7,160,036
April	8,207,478	6,936,635
May	8,805,860	7,884,287
June	7,776,538	6,433,035
	\$45,834,823	\$41,467,072

**Canadian Northern Railway System.**

	1920	1919
January	\$4,200,700	\$4,026,000
February	3,862,300	3,363,800
March	4,587,700	3,554,350
April	4,732,623	3,878,149
May	4,863,500	4,337,750
	\$22,246,823	\$19,160,049

**Canadian Pacific Railway Earnings, Expenses, Etc.**

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net	Increase or decrease
Jan...	\$13,914,569	\$13,328,628	\$585,941	*\$967,571
Feb...	13,557,104	12,843,231	713,873	*267,242
Mar...	15,715,937	13,758,171	1,957,766	418,721
Apr...	15,929,416	13,587,570	2,341,846	253,222
May...	16,459,986	13,262,044	3,197,942	164,182
June...	16,480,574	13,849,757	2,630,817	559,604
	\$92,057,586	\$80,629,400	\$11,428,186	*\$758,292
Incr.	\$15,335,319	\$16,093,611	758,292	
Deer.				

Approximate earnings for three weeks ended July 21, \$11,275,000, against \$9,047,000 for same period 1919.

**Grand Trunk Railway Earnings, Expenses, Etc.**

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net	Decrease
Jan.	5,054,034	\$ 5,867,445	*\$813,411	\$ 97,406
Feb.	4,660,831	5,159,742	*498,911	188,987
Mar.	5,756,372	5,491,293	265,079	575,215
Apr.	5,477,816	5,187,340	290,476	465,592
May	5,878,934	5,547,513	331,421	337,200
	\$26,827,987	\$27,253,333	*\$425,346	\$1,664,400
Incr.	\$2,194,867	\$3,859,267		
Deer.			\$1,664,400	

\*Deficit.

**Government's Railway Policy.**—The National Liberal and Conservative Party's platform, announced at Ottawa July 1, contains the following:—"Recognition of the necessity, under existing conditions, of amalgamating and unifying the various railway lines owned by the Dominion, with a view to eliminating duplication and effecting economies in construction and administration. Expert management and operation of the entire railway systems, unfettered by partisan political interference. The fixing of a proper capitalization for the National Railway System."

## Merging the Grand Trunk Railway into the Canadian National Railways.

### Arbitration of Stock Values.

The act confirming the agreement between the Dominion Government and the G.T.R. Co. for the acquisition by the Government of the company's capital stock, except the 4% guaranteed stock, passed by the Dominion Parliament at its last session, provides in sec. 6 as follows:—The value, if any, to the holders thereof, of the preference and common stock shall be determined by a board of three arbitrators, one to be appointed by the government, one by the Grand Trunk, and the third shall be Sir Walter Cassels, Judge of the Exchequer Court of Canada, who shall be Chairman of the board. Should Sir Walter Cassels die or be unable to act, the said parties shall agree upon another third arbitrator who shall be either the then Judge of the Exchequer Court of Canada, or one of the judges of the Supreme Court of Canada, and who shall likewise be Chairman. Should any vacancy occur in the board of arbitrators other than the third arbitrator, the arbitrator to fill the vacancy shall be appointed in the same way as the arbitrator whose seat has become vacant was appointed."

On July 9 the Dominion Government passed an order in council appointing Rt. Hon. Sir Thomas White as its arbitrator on the board. The G.T.R. Co. has appointed W. H. Taft, ex-President of the United States, as its arbitrator. The government will be represented by the following counsel: N. W. Tilley, K.C., Toronto; Hector McInnes, K.C., Halifax; H. A. Lovett, K.C., Montreal, and Pierce Butler, St. Paul, Minn. The G.T.R. will be represented by W. H. Biggar, K.C., Vice President and General Counsel; Eugene Lafleur, K.C.; A. W. Atwater, K.C., Montreal, and F. H. Phippen, K.C., Toronto.

### Co-ordination of Services.

Canadian Railway and Marine World has given in previous issues full particulars of the appointment of the managing committee, representing the Dominion Government and the G.T.R., to ensure the operation of the latter in harmony with the C.N.R., pending the arbitration as to G.T.R. stock values, and the transfer of the company's property to the government. Sub-committees, appointed by the managing committee, have done a large amount of work in this connection, some of the results of which were given in Canadian Railway and Marine World for July, and particulars of others are given below.

### Traffic Department Changes.

Boston, Mass.—C. J. Pierce, heretofore General Agent, Freight Department, G.T.R., will also act in same capacity for Canadian National Rys. in New England District, vice C. K. Howard, heretofore General Agent, C.N.R., appointed General Tourist Agent, C.N.R., Toronto.

Buffalo, N.Y.—Ira W. Gantt, heretofore Assistant General Freight Agent, G.T.R., will also act in the same capacity for Canadian National Rys., with supervision of traffic through the Niagara frontier, also of traffic under jurisdiction of freight traffic offices at New York, Philadelphia, Buffalo, Pittsburg, Toledo, Cleveland and Cincinnati.

G. A. McGuire, heretofore Commercial Agent, Freight Department, G.T.R., will also act for the C.N.R. Both these Buffalo officials continue their offices in the Chamber of Commerce Building.

Cincinnati, Ohio.—W. K. Evans, here-

before Commercial Agent, Freight Department, G.T.R., will also act for C.N.R., continuing his office in Traction Building.

Cleveland, Ohio.—D. M. Crawford, heretofore Commercial Agent, G.T.R., at Pittsburg, Pa., has been appointed General Agent, C.N.R. and G.T.R., at Cleveland, Ohio, with office in Kirby Building.

Hamilton, Ont.—R. J. S. Weatherston, heretofore Division Freight Agent, G.T.R., will also act in the same capacity for C.N.R., vice G. M. Thomas, heretofore District Freight Agent, C.N.R., appointed Commercial Agent, C.N.R.-G.T.R., at Windsor, Ont.

F. T. Nelson has been appointed City Freight Agent for the C.N.R. and G.T.R. at Hamilton.

Montreal.—H. A. Carson, heretofore City Freight Agent, G.T.R., will also act in the same capacity for Canadian National Rys., vice S. E. Leger, of the C.N.R., who has been assigned to special duties in Montreal.

New York, N.Y.—J. O. Adams, heretofore General Eastern Freight Agent, G.T.R., will also act in same capacity for C.N.R., vice F. A. Young, General Agent, C.N.R., transferred. Mr. Adams' office continues at 1405 Woolworth Building.

Ottawa.—E. J. Hilliard, heretofore Division Freight Agent, G.T.R., will also act in same capacity for C.N.R. Territory, east of North Bay, Ont., to Hawkesbury, also Kingston-Harrowsmith and east. The position of acting Division Agent, C.N.R., held heretofore by Geo. Collons, has been abolished, Mr. Collons reverting to Special Agent, C.N.R., at Trenton, Ont.

A. H. Gow has been appointed City Freight Agent for C.N.R. and G.T.R. at Ottawa.

Philadelphia, Pa.—C. G. Haigh, heretofore Commercial Agent, Freight Department, G.T.R., will act in same capacity for C.N.R., continuing his office at 114 Customs House Place.

Pittsburg, Pa.—F. G. Wood, heretofore General Agent, C.N.R., has been appointed General Agent, Freight Department, for both the C.N.R. and G.T.R.

W. J. Burr, heretofore General Agent, Passenger Department, G.T.R., will also act in the same capacity for Canadian National Rys., vice F. G. Wood, heretofore General Agent, G.T.R., Pittsburg, who has been appointed General Agent, Freight Department, C.N.R. and G.T.R., at Pittsburg.

Quebec, Que.—E. Labreque, heretofore City Freight Agent, Canadian National Rys., will also act in the same capacity for the G.T.R.

Toledo, Ohio.—S. G. Wagstaff, heretofore Commercial Agent, Freight Department, G.T.R., will also act in same capacity for C.N.R., continuing his office in Bank of Commerce Building.

Sherbrooke, Que.—L. J. Rouleau, heretofore Commercial Agent, G.T.R., Quebec, Que., has been appointed Commercial Agent, C.N.R. and G.T.R., at Sherbrooke, Que.

Windsor, Ont.—G. M. Thomas, heretofore District Freight Agent, Canadian National Rys., Hamilton, Ont., has been appointed Commercial Agent, Canadian National-Grand Trunk Rys., at Windsor.

### Changes in Station Services, Etc.

Belleville, Ont.—As the G.T.R. Toronto-Montreal day local trains 9 and 10, and Kingston-Toronto trains 29 and 30, now operate over the C.N.R. from Napanee to Colbright Jct., Belleville station,

C.N.R., E. M. Kiske, agent, is now joint with the G.T.R., for handling passenger traffic. It is also joint with the C.P.R.

As Canadian National Toronto-Ottawa trains 6, Capital City, and 5, Queen City, now operate via G.T.R. double track between Toronto and Napanee and via C.N.R. east thereof, the G.T.R. station at Belleville, T. H. Coppin, agent, is now joint with the C.N.R. for passenger traffic.

Brighton, Ont.—Until the permanent track connection is installed both the C.N.R. and G.T.R. stations are being continued.

Cobourg, Ont.—All traffic is now handled at the G.T.R. station, E. J. Warmington, agent, and the C.N.R. station, A. D. Leonard, agent, has been closed, except that for handling C.N.R. Toronto-Ottawa night trains, 7 and 8, and the C.N.R. Cobourg-Toronto morning local, 31, a night ticket seller and operator is maintained at the C.N.R. station, reporting to the joint agent.

Colborne, Ont.—The C.N.R. has discontinued all passenger train service at Colborne, and its station (G. Merkley, agent) has been closed. All traffic is being handled at the G.T.R. station, J. Thorne, agent.

Deseronto, Ont.—As the G.T.R. Toronto-Montreal day locals 9 and 10, and Kingston-Toronto trains 29 and 30, now operate over C.N.R. from Napanee to Colbright Jct., Deseronto station, W. R. Thomas, agent, is now joint with the G.T.R. for handling passenger traffic.

Grafton, Ont.—The C.N.R. has discontinued all passenger train service at Grafton, and its station (H. L. Gummer, agent) has been closed. All traffic is being handled at the G.T.R. station, H. Ford, agent.

Kingston, Ont.—All C.N.R. passenger trains now operate to and from G.T.R. Kingston joint station, J. W. Hanley, Agent. The C.N.R. formerly used the C.P.R. Kingston passenger terminals.

Montreal, Que.—The C.N.R. operates the sleeping and dining car service on new trains placed in service from Montreal to Sudbury and Montreal to Winnipeg, and the Pullman ticket office at Bonaventure station is now a joint office handling sleeping and parlor car tickets for both the Canadian Northern and Canadian Government Rys. Division of the Canadian National Rys. and also for G.T.R. trains.

The C.N.R. motor truck now handles all railway business mail and company's supplies between all C.N.R. and G.T.R. offices and stations in Montreal.

Napanee, Ont.—The C.N.R. station has been closed and C.N.R. traffic is now handled at the G.T.R. station, F. B. Allison, agent. All C.N.R. passenger trains now operate to and from the G.T.R. station, except the Toronto-Ottawa night trains 7 and 8, which stop at Selby Road crossing.

Parry Sound, Ont.—The C.N.R. passenger station, W. G. Fowler, agent, is now joint with the G.T.R., on account of G.T.R. Ottawa-Parry Sound trains 47 and 52 operating to and from C.N.R. station, Parry Sound, via James Bay Jct.

Pembroke, Ont.—The C.N.R. has built a connection with its Pembroke station to the G.T.R. track, a mile and a half length of the connection being one mile. The C.N.R. has changed the name of its Pembroke station to Pembroke Jct. C.N.R. local passenger trains between Pembroke and Ottawa run to and from the

G.T.R. Pembroke station, using the C. N.R. line between Pembroke Jct. and Ottawa. C.N.R. through trains between Montreal and Sudbury do not run to and from the G.T.R. Pembroke station, but pick up and discharge passengers at the C.N.R. Pembroke Jct. station. The G.T.R. station agent at Pembroke, J. G. Valier, is joint agent for both railways, the C.N.R. Pembroke Jct. station being merely a junction point from which the agent has been removed, and at which only operators are stationed, who also sell tickets for the through trains. Freight for Pembroke, collected on the C.N.R., is taken to the G.T.R. freight shed there, where delivery is made, and conversely shipments from Pembroke are received at the G.T.R. station and handled by the C.N.R. from Pembroke Jct.

Smithfield, Ont.—Owing to the operation of G.T.R. trains 9, 10, 29 and 30 via C.N.R. between Colbright Jct. and Napanee, the C.N.R. has established a flag stop at Smithfield, 2.8 miles east of Brighton, for accommodation of traffic which was handled previously on these trains at the G.T.R. Smithfield station.

Toronto union station.—The C.N.R. and G.T.R. ticket offices have been consolidated, W. Grundy, station ticket agent, G.T.R., being appointed station ticket agent for both G.T.R. and C.N.R.; G. A. Gould, heretofore station ticket agent, C.N.R., being appointed assistant station ticket agent for both lines.

The Pullman ticket office at Toronto union station, G. W. Deyell, agent, has taken over the sale of all sleeping and parlor car space for C.N.R. trains, in addition to the sale of space for G.T.R. trains previously in effect.

Trenton, Ont.—The C.N.R. Toronto-Ottawa trains, 6, Capital City, and 5, Queen City, now operate via G.T.R. double track between Toronto and Napanee and via C.N.R. east thereof. The G.T.R. Trenton station, M. A. Harris, agent, is now joint with the C.N.R. for passenger traffic.

As the G.T.R. Toronto-Montreal day local trains 9 and 10, and Kingston-Toronto trains 29 and 30, now operate over the C.N.R. from Napanee to Colbright Jct., Trenton station, C.N.R., C. A. Reid, agent, is now joint with the G.T.R. for passenger traffic.

Wicklow, Ont.—As local passenger service on the C.N.R. between Cobourg and Brighton has been withdrawn, a new stop, named Wicklow, has been established on the G.T.R., 2.2 miles east of Grafton, for handling milk traffic, which formerly moved via Wicklow station on the C.N.R.

Winnipeg, Man.—The C.N.R. and G.T.R. freight terminals and cartage matters have been amalgamated under E. W. Warner, local freight agent, C.N.R., there.

#### Co-ordination of Express Services.

The Canadian Express and the Canadian National Express Company's services are being co-ordinated in accordance with the general plan adopted in connection with the Canadian Northern and Grand Trunk Railways lines. The changes will avoid duplication of service and secure increased efficiency. The officers of the two express companies are working in close harmony, under directions of the managing committee, and arrangements have been made whereby, at common points where both express companies have maintained separate offices, staffs, and wagon service, they will be consolidated and managed under a joint agent for both companies. Under this arrangement the agency of the express

company doing the preponderance of business at any particular point will take charge of the business of the other company as well. In the east this, in a general way, works out that the Canadian Ex. agency becomes the joint agency of both the Canadian Ex. and the Canadian National Ex. Cos., but in the west the reverse is the case, the Canadian National Ex. Co.'s agency becoming the joint agency of the two companies. Consolidations have been effected at the following points:—Guelph, Hawkesbury, Brockville, Trenton, Port Hope, Cobourg, Oshawa, North Bay and Pembroke, Ont.; Winnipeg, Man.; Regina, Moose Jaw and Saskatoon, Sask.; and Calgary and Edmonton, Alta. Similar steps will be taken at the larger cities, as soon as details can be worked out. Following are details of some of the changes made:—

Cobourg, Ont.—The Canadian National Ex. office has been consolidated with the Canadian Ex. office, F. W. Baker, of the Canadian Express Co., being joint agent. The Canadian National Ex. Co.'s former agent, A. G. Leonard, has been assigned to other duties.

Guelph, Ont.—The Canadian National Ex. office has been consolidated with the Canadian Express, J. E. Phelan, Canadian Express, being joint agent. The Canadian National Ex. Co.'s former agent, T. H. Belt, remains at Guelph as agent for Toronto Suburban Ry.

Kingston, Ont.—The Canadian National Ex. office has been consolidated with the Canadian Express. The Canadian National Ex. Co.'s former agent, N. C. Dunn, has been assigned to other duties with the Traffic Department.

Napanee, Ont.—The Canadian National Ex. office has been consolidated with the Canadian Express, G. A. Taylor, of the Canadian Express, being joint agent. The Canadian National Ex. Co.'s agent, E. J. McLaughlin, has been assigned to other duties.

North Bay, Ont.—The Canadian National Ex. Co.'s office has been consolidated with the Canadian Express, B. W. Baily of the Canadian Express being joint agent. The Canadian National Ex. Co.'s former agent, E. J. Tilt, remains at North Bay as Freight Agent, C.N.R.

Pembroke, Ont.—The Canadian National Ex. Co.'s office has been consolidated with the Canadian Express, G. J. Valin, of the Canadian Express, being joint agent. The Canadian National Ex. Co.'s former agent, J. B. Scanlan, being assigned to other duties.

Port Hope, Ont.—The Canadian National Ex. Co.'s office has been consolidated with the Canadian Express, C. G. Dohney, of the Canadian Express, being joint agent. The Canadian National Ex. Co.'s former agent, H. W. Mitchell, remains in Port Hope in commercial business.

Trenton, Ont.—The Canadian Express Co.'s office has been consolidated with the Canadian National Ex. Co.'s office, D. Harrison, of the Canadian National Ex. Co., being joint agent. The Canadian Ex. Co.'s former agent, N. R. Duell, has been transferred to Oshawa, Ont.

The Canadian Ex. Co. has arranged for the operation over the G.T.R. between Toronto and Montreal, also serving intermediate points, of a train carrying express shipments exclusively. This train leaves Toronto eastbound at 9.25 p.m., and leaves Montreal at 8.30 p.m., arriving at destinations in time to secure deliveries of express in the cities concerned early on the following morning. This train is made up of express cars that were hauled hitherto between these

points on night passenger trains. It will ensure the prompt handling of express matter and prevent the possibility of delays to passenger trains.

A daily express service, instead of tri-weekly as heretofore, has been established from Montreal and from Toronto, to Winnipeg and Vancouver, in connection with the new passenger train service which has been inaugurated from Toronto via Grand Trunk, Timiskaming & Northern Ontario and National Transcontinental Railways to Winnipeg, Grand Trunk Pacific to Edmonton, and Canadian National to Vancouver. From Montreal the route is by Grand Trunk to Ottawa, Canadian National to Winnipeg, Grand Trunk Pacific to Edmonton and Canadian National to Vancouver.

The Canadian Ex. Co., which operates over the Intercolonial Ry., has extended its service over the Halifax & South Western Ry. from Halifax to Yarmouth, N.S., which was handled heretofore as a local service by the H. & S. W. R. express department.

#### Important Changes in Train Service.

Daily night train service has been inaugurated between Montreal, Bonaventure station and Quebec, Palais station, leaving Montreal 11.15 p.m., arriving Quebec 6.30 a.m.; leaving Quebec 10.55 p.m., arriving Montreal 6.30 a.m. Connections are made at Bonaventure station with G.T.R. trains and transfer between stations in Montreal is thereby eliminated. A through sleeping car is also operated between Ottawa and Quebec, leaving Ottawa 7.20 p.m. daily except Sunday, arriving Quebec 6.30 a.m.; leaving Quebec 10.55 p.m. daily except Saturday, and arrive Ottawa 11.45 a.m.

Toronto-Montreal-Quebec train services make connections at Quebec with Quebec & Saguenay Ry. trains between Quebec and Murray Bay. This line is being operated by the contractors for the government. A parlor car is now operated on the Saturday morning train Quebec to Murray Bay, and the Sunday evening train Murray Bay to Quebec, while a buffet parlor car is in service on the daily except Sunday trains, leaving Quebec in the afternoon for Murray Bay, returning from Murray Bay in the morning.

The Quebec-Cochrane, Ont., service is now daily, leaving Quebec 5.30 p.m., arriving Cochrane 5.20 p.m. the following day; leaving Cochrane 8.45 p.m., arriving Quebec 8 p.m. the following day. Standard sleepers and dining cars are operated and close connections are made at Cochrane in both directions with Toronto-Winnipeg trains, thereby providing a daily service between Quebec and Winnipeg.

Daily service has been established between Montreal and Sudbury via G.T.R., between Montreal and Ottawa and C.N.R. west thereof, leaving Montreal 6.10 p.m., arriving Sudbury 11.30 a.m.; leaving Sudbury 8.15 p.m., arriving Montreal 1.15 p.m. Standard sleepers and cafe parlor cars are operated.

G.T.R. Toronto-Montreal trains 9 and 10 (old nos. 6 and 7) run via C.N.R. line between Napanee and Colbright Jct.

Canadian National Toronto-Ottawa day trains 5 and 6, now operate over the G.T.R. double track between Toronto and Napanee, and the Canadian National east thereof, providing a fast day service, the run being made in 7 hr. 15 min.—a reduction of 1 hr. 45 min. from schedule previously in effect. The service is daily except Sunday. No. 5, the Queen City, leaves Ottawa 1.15 p.m., arrives Toronto 8.30 p.m. No. 6, the Capital City, leaves Toronto 12 noon, arrives Ottawa 7.15

p.m. Cafe parlor and observation parlor cars are operated on these trains.

G.T.R. trains 29 and 30 now operate between Toronto and Kingston, Ont., and run via C.N.R. between Colbright Jct. (2.4 miles west of Brighton) and Napanee, daily except Sunday. No. 29 leaves Kingston 6 a.m., arrives Toronto 11.15 a.m. No. 30 leaves Toronto 6 p.m., arrives Kingston 11.30 p.m. Cafe parlor car service is provided on these trains.

Local Canadian National passenger trains now operate between Ottawa union station and Pembroke, Ont., G.T.R. station, daily except Sunday.

Canada National Trenton - Picton trains connect at Trenton and Trenton Jct. with Canadian National and G.T.R. trains, providing an improved service to and from all points east and west of Trenton.

G.T.R. trains 47 and 52 use C.N.R. Parry Sound station. These trains operate daily except Sunday between Parry Sound as follows: leave Ottawa 8.35 a.m., arrive Parry Sound 9.25 p.m.; leave Parry Sound 6.45 a.m., arrive Ottawa 6.40 p.m.

Daily night trains have been placed in operation between Toronto, Sudbury and Capreol, leaving Toronto 9.30 p.m., arriving Sudbury 8 a.m., and Capreol 9 a.m.; leaving Capreol 9.35 p.m., leaving Sudbury 10.30 p.m., arriving Toronto 8.50 a.m. Standard sleeping cars are operated daily between Toronto, Sudbury and Little Current, via Algoma Eastern Ry. between Sudbury and Little Current. Buffet sleeping car operates between Toronto, Sudbury and Capreol.

Through service has been established between Montreal and Winnipeg via G.T.R. between Montreal and Ottawa, C.N.R. west thereof, leaving Montreal 6.10 p.m. Tuesdays, Thursdays and Saturdays, arriving Winnipeg 9.45 p.m., the second day; leaving Winnipeg 8.30 a.m., Mondays, Wednesdays and Saturdays, and arriving Montreal 1.15 p.m. the second day. The equipment consists of dining cars, standard tourist and compartment observation library cars.

The National trains 3 and 4 (old nos. 9 and 10) operate daily between Toronto and Winnipeg via G.T.P.R. North Bay and T. & N. O. R. to Cochrane, thence over the National Transcontinental Ry., leaving Toronto 11 p.m., arriving Winnipeg 6 p.m. the second day; leaving Winnipeg 5 p.m., arriving Toronto 3 p.m. the second day. Standard and tourist sleeping cars and dining cars are operated on these trains and compartment observation library cars will be added shortly.

The connections at Port Arthur for steamship passengers Winnipeg and beyond are as follows: Montreal-Winnipeg trains arriving Port Arthur, Mondays, Thursdays and Saturdays connect with Northern Navigation Co. steamships from Detroit and Sarnia, arriving Port Arthur 6.30 a.m. (eastern time) on these days, and service is thus provided for boat passengers for Western Canada who will arrive Winnipeg the same evening at 9.45 (central time).

The Canadian National now provides a daily Winnipeg-Edmonton service, trains 5 and 6 via Regina, Saskatoon and North Battleford, leaving Winnipeg 10.20 p.m., arriving Edmonton 9 a.m. the second day. Leaving Edmonton 8 p.m., arriving Winnipeg 7.45 a.m. the second day. Standard sleepers are operated between Winnipeg and Regina, Winnipeg and Edmonton, and dining cars between Winnipeg and Edmonton.

Through service between Winnipeg and Calgary has been arranged by Canadian National Rys. via Dauphin, Saskatoon and Hanna, trains 9 and 10 operating as follows: Leave Winnipeg 10.40 p.m., arrive Calgary 12.50 noon the second day; leave Calgary 4.30 p.m., arrive Winnipeg 8.05 a.m. the second day. Standard sleeping cars between Winnipeg and Dauphin, Winnipeg and Calgary; dining car between Winnipeg and Calgary.

Between Regina and Prince Albert, daily night trains 7 and 8 are in operation as follows: Leave Regina 11.50 p.m., arrive Prince Albert 9.45 a.m.; leave Prince Albert 8 p.m., arrive Regina 6.35 a.m. Standard sleeper, Regina and Saskatoon; buffet sleeping car Regina and Prince Albert.

Improved service has been provided between Winnipeg and Vancouver, daily trains operating via G.T.P.R. between Winnipeg and Edmonton, and Canadian National between Edmonton and Vancouver, leaving Winnipeg 10.25 p.m., arriving Vancouver at 9 the third morning; leaving Vancouver 8 p.m., arriving Winnipeg 11 the third morning. Standard and tourist sleeping cars and dining cars are operated between Winnipeg and Vancouver, parlor observation cars between Winnipeg and Edmonton, and compartment library cars between Edmonton and Vancouver. Additional compartment observation library cars, now nearing completion, will be placed in service between Winnipeg and Vancouver.

**Optional Ticket Arrangements.**—The following arrangements have been placed in effect:—C.N. Rys. issue of tickets and other lines issues of tickets good for passage over the C.N.R. are good for passage and will be honored on G.T.R. trains as shown below. G.T.R. issue of tickets and other lines issue of tickets good for passage over the G.T.R. are good for passage and will be honored on C.N.R. trains as shown below. These arrangements apply to all classes of tickets reading between, or valid for passage between or through the points named below:—1. Any two stations on C.N.R. or G.T.R., Toronto to Napanee, inclusive. 2. Toronto and Montreal. 3. Stations named in section 1 and Kingston, Brockville and Montreal. 4. Kingston and Montreal. 5. Ottawa and Montreal. 6. Ottawa and Quebec or Levis. 7. Any two stations, Montreal to St. Rosalie. 8. Any two stations, Chaudier to Levis and Quebec. 9. Any station, Montreal to St. Rosalie, any station Chaudier to Levis and Quebec. 10. Ottawa and Montreal and North Bay, Pembroke and South March. 11. Toronto and Mount Albert, Beaverton, Gamebridge and Brechin. 12. Perth Road and east, and Napanee and west.

Tickets reading via C.N.R. or G.T.R. between Winnipeg and Edmonton, also Winnipeg and Saskatoon, are valid and may, if passengers so desire, be honored for passage on the trains of either line between such points. This arrangement applies to all tickets which are valid between, or to or from, or through the points named above.

The optional ticket arrangements places at the disposal of the public all the train services of the Canadian National-Grand Trunk between the points shown, and in actual practice means that in carrying passengers the two lines are operating on one line.

**Grand Trunk Pacific Railway Co-ordination.**

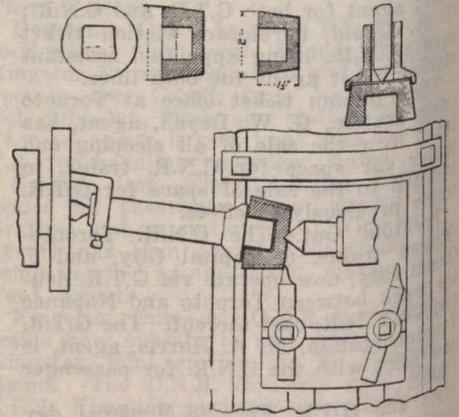
Hon. J. D. Reid, Minister of Railways, is reported to have said at Winnipeg, July 16, that on his return to Ottawa

the question of joint management for the Canadian National Rys. lines in the west, and the Grand Trunk Pacific Ry. would be taken up, and he is reported to have added: "I shall have the personnel of the board definitely in mind when I return in a few weeks. The board will be along the lines of the one which operates the eastern lines, that is, five railway officials, with a man who has been actively engaged in managing a railway system, as chairman."

### Producing Core-Hole Plugs in a Locomotive Shop.

The accompanying drawing shows a method of attaining rapid production in the machining of locomotive piston core-hole plugs or work of a similar nature, with an ordinary screw cutting lathe. By the use of this method I have found it possible to center, turn, and thread to a standard size an average of one plug every two minutes.

First a quantity of plugs are centered with the centering device shown in the drawing, a heavy punch mark being sufficient for this job, as absolute precision



Quantity Production of Core-Hole Plugs.

is not necessary. Two toolposts are set in position, the first holding a turning tool and the second a threading tool. The turning tool is set about  $\frac{1}{4}$  in. closer to the work than the threading tool, with the tools about three inches apart.

After the first plug has been turned to size, note the position of the cross feed handle which will enable the second and succeeding plugs to be turned to size with one cut and without using the calipers. When the plug has been turned the threading tool is brought into use.

After threading the first one to size, a stop clamp placed on the cross-slide will enable the operator to cut all following threads to the correct depth without the use of calipers or gauge.

The end of the driver is squared to fit the cored recess in the plug. The tail center is offset to give the required taper. When the threading tool is in use the turning tool travels in the space forward of the plug.—H. L. Ruark in American Machinist.

**Belgian Rolling Stock Orders.**—Belgium has within the past few months ordered 450 locomotives, including 100 from Belgian manufacturers, 200 from Great Britain, 50 from Canada, and 100 from the United States. Orders for 1,200 steam railway passenger cars and a number of electric train passenger cars have also been given, mostly to Belgian manufacturers.

### Aerial Transportation Notes.

Work is reported to have been started upon the preparation of an area behind the Rockliffe rifle butts at Ottawa for a government aviation field.

A press report states that it is expected that Camp Borden, Ont., will be opened on Aug. 1 as the chief training center of the Canadian Air Force.

The Aeronautical Federation of Canada was formed July 5 at a meeting of representatives of Canadian aero clubs at Winnipeg. It is proposed to hold a general meeting in connection with the new organization at Camp Borden, Ont., in October.

The Canadian Air Board and the Customs, Immigration and Colonization Departments have authorized the Virden Municipality, Man., to use by day only an area of land 800 yards in diameter, in the s.w. ¼ Sec. 15, Tp. 10, Range 26, west 1st Meridian, as a public customs air harbor.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., and H. O. Bell-Irving, both of Vancouver, have been appointed civilian members of the Canadian Air Board's British Columbia advisory committee, the Lieutenant Governor of the province being chairman.

Two flying boats were delivered at Lake St. John, Que., July 19, by the "air route" from Halifax, N.S., to be used for exploration purposes in the region north of Lake St. John. The exploration and survey work, it is stated, is being financed by the Dominion and Quebec governments jointly.

W. Templeton, late Lieutenant Royal Navy, is reported to have been appointed pilot navigator at the government seaplane base, Jericho Beach, B.C. Work is reported to have been started June 12 on clear the site for the erection of the hangars, which were expected to be completed within six weeks thereafter. The personnel at the station will, it is stated, number 25, including 4 pilots and 18 mechanics.

The Canadian Air Board announced recently that flying certificates had been issued as follows,—pilots, commercial, 48; private, 46; engineers, 41; registered craft, 52; harbors, 25; the last named being located as follows:—Vancouver, one, and two projected; Edmonton, two; Winnipeg, two; Toronto, two; Montreal, three; and Hanna, Calgary, Saskatoon, Fiske, Moose Jaw, Virden, Brandon, Sault Ste. Marie, Niagara Falls, Grandmere, Truro and Ottawa, one each.

Bell-Baldwin Hydrodromes Ltd. has been incorporated under the Dominion Companies Act, to manufacture, deal in and let or hire hydroplanes and all other kinds of water craft; to provide hydrodromes, etc., and to carry on other allied business. The capital stock is to consist of 1,000 shares without nominal or par value, provided that the capital employed in the business shall be \$5,000 in \$5 shares. The office is to be at Baddeck, N.S. The company is to be classed as a private company.

Price Brothers & Co. Ltd., Quebec, Que., has started an aerial service to cover the territories over which the company operates. The chief work of the aerial service will consist at present of photographing with special aerial cameras, the company's timber limits and the various dams, river heads, burnt areas, etc., throughout the territory. It is stated that the machines engaged in

the service are two Martinsyde, type A, mark 1 sea planes convertible into land planes, with a climbing power under full load of 1,000 lb., and of 10,000 ft. in 15 minutes, with a maximum speed of 127 an hour.

The Canadian Air Force Association has been incorporated under the Dominion Companies Act with office in Ottawa, but without share capital, to promote the efficiency and advance the interests of the Canadian Air Force and to assume such share of the administration of such force constituted under the provisions of the Air Board Act, 9-10 Geo. V, chap 11, as may be authorized by the Governor in council. The incorporators are:—Hon. H. Guthrie, K.C., Minister of Militia; O. M. Biggar, K.C., Vice Chairman of the Air Board; Major General Sir Willoughby Gwatkin, K.C. M.G., C.B.; Lieut. Col. R. Leckie, D.S.O., Superintendent of Flying Operations; Lieut. Colonel J. S. Scott, M.C., Superintendent of Certificate Branch; E. Deville, LL.D., D.L.S., Surveyor General.

### Freight and Passenger Traffic Notes.

The Association of United States Railway Executives has issued the following traffic data:—From Mar. 21 to June 13 the principal railways moved 8,264,485 carloads of freight, compared with 7,708,927 carloads during the corresponding period in 1919. From Jan. 1 to June 12, the railways carried 39,000,000 tons of coal more than in the same period in 1919.

The Cumberland Ry. & Coal Co. has made some changes in its freight and passenger tariffs, with the approval of the Board of Railway Commissioners, to conform with the tariffs of the Canadian National Rys., with which the company's line connects at Springhill Jct., N.S. The company's freight and passenger rates are now the same as those on the C.N.R. for the same distances.

Canadian National Rys. has put on a new night train between Moncton and Campbellton, N.B., leaving Moncton daily, except Sunday, at 3.20 a.m.; arriving Campbellton, 9.30 a.m.; leaving there 9.50 a.m.; arriving Mont Joli, 2.30 p.m.; Riviere-du-Loup, 4.35 p.m.; Levis, 9.20 p.m.; and Joffre, 9.55 p.m. Eastbound, leaves Joffre daily, except Sunday, at 6.35 a.m.; Levis, 7.20 a.m.; Riviere-du-Loup, 11.50 p.m.; Mont Joli, 3.50 p.m.; Campbellton, 8.35 p.m.; arriving Moncton 2.25 a.m. A standard sleeping car leaves St. John, N.B., daily, except Saturday and Sunday, at 11.45 p.m., connecting at Moncton for Campbellton, and leaves Campbellton daily, except Saturday and Sunday, on train 32, connecting at Moncton with train 9 for St. John.

### Application for Increase in Express Rates.

The Express Traffic Association, acting for the express companies doing business in Canada, has applied to the Board of Railway Commissioners for an increase of 40% in rates. Following is the application, in part:—"Previous to 1911 our board made an exhaustive investigation into the express business in Canada. The investigation resulted in certain concessions to the public by the express companies, increasing the operating expenses of the companies and re-

ducing the express rates. In 1913 a further reduction in practically all the express rates was ordered. The express companies unavailingly protested against these reductions.

"In 1918 an increase was granted. What has actually happened shows that the increase in rates, instead of amounting to 37% east of Sudbury and 23% west of Sudbury, amounts to less than 23% on the whole traffic. The result is that the tolls as increased are not sufficient to take care of the actual operating expenses. The cost of living has gone up 100%, and the operating cost of the express companies has gone up proportionately. The Canadian railways have received freight rates increases of (so called) 15 and 25% respectively. These increases in reality represent a natural advance of about 31%, which, if granted, will entail a further substantial cost to the express companies, and narrow the spread between express and freight rates. The result is the express companies are operating on less than 61% of what the board in 1911 declared to be a fair and reasonable tariff. Reviewing the increased costs, the companies submit that they are entitled to further protection. When granted, this will still leave the totals 15% below parity of those put in force by the board in 1913. The companies claim a loss of \$2,800,000 for one individual company, and a continuing loss."

### Railway Rolling Stock Orders and Deliveries.

The Timiskaming & Northern Ontario Ry. is reported to be in the market for about \$45,000 worth of general shop tools.

The Anglo-Newfoundland Development Co. has ordered 18 flat cars, 20 tons capacity, from Canadian Car & Foundry Co., for delivery in September.

Six hundred freight cars, part of the railway equipment ordered by the old Russian Government and which have been lying around Vancouver, B.C., for two or three years, are reported to have been sold to United States railways.

National Steel Car Corporation has received an order for 10 standard gauge gondola cars 18 ft. 9¼ in. long, 8 ft. 8 in. wide, 10 tons capacity, double truck, with forged couplers for link and pin, for operation on a southern sugar cane plantation.

Canadian National Rys. have received 17 mail cars from Canadian Car & Foundry Co. out of an order of 20 placed in 1919; 22 medium type Pacific locomotives from Montreal Locomotive Works, out of an order of 32, and 3 switching locomotives from Canadian Locomotive Co., out of 30 ordered this year.

The C.P.R., between June 20 and July 13, ordered 2 vans 29 ft. long, from its Angus shops, Montreal; bought 1 D.T. locomotive crane, 12 tons capacity, and 1 Christie portable coal loading machine; and received 1 Santa Fe locomotive from its Angus shops, and 2 vans from its Winnipeg shops.

The Canadian Car & Foundry Co., between June 16 and July 16, delivered 1 observation car and 5 first class cars to Canadian National Rys.; 45 dryer cars to Citadel Brick Paving & Block Co.; 118 tank cars to Imperial Oil Ltd., all from Montreal, and 326 repaired box cars to Grand Trunk Pacific Ry., from Fort William, Ont.

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

**Grand Trunk Pacific Ry.**—A press report states that work has been started on the construction of the new dock at Prince Rupert, B.C., a description of which was given in Canadian Railway and Marine World for June, pg. 297. Grant Smith & Co. and Magaffin Limited are reported to have the contract. (June, pg. 297.)

**Kettle Valley Ry.**—A press report states that a contract has been let to P. J. Salvus for grading a branch line from South Penticton to the head of Dog Lake, B.C., 2.5 miles. The line will run for a portion of the distance through the Indian reservation. The route is through a level country covered with small brush, and the grading is expected to be completed within two months after a start has been made. This is the beginning of a line authorized to be built under an agreement with the British Columbia Government, which agreement was confirmed at the recent session of the B.C. Legislature. The total length of the projected line is 50 miles from Penticton to the irrigation settlement in the southern Okanagan Valley, near the International Boundary. The second section of the line will run from the southern end of Dog Lake and will extend to the International Boundary at Oroville, Wash. The two sections of the line will be connected by steamboat communication. It was reported at the time the bill confirming the agreement was before the Legislature that 25 miles of the total mileage would be built this year, and the remainder in 1921. (July, pg. 326.)

**Northern Light Rys. Co.**—A press report states that surveys are being made for a line from Swastika through the Kirkland Lake, Beaverhouse Lake, Larder Lake and Boston Creek mining areas to Boston Creek, on the Timiskaming & Northern Ontario Ry. C. E. Pinelle is reported to be in charge of the work. This is the second of the lines proposed to be built by the company.

A meeting of shareholders was called to be held in Toronto July 5, to complete organization of the company, to authorize the issue of bonds for the construction of the Elk Lake-Gowganda line, and for the other projected lines. (July, pg. 386.)

**North West Route Limited.**—The Dominion Parliament has incorporated a company with this title, with office at Winnipeg, to establish a system of railway and steamboat communication between Baker Lake and Great Slave Lake in the unorganized territory lying north of Manitoba, Saskatchewan and Alberta. The projected railway is to start at the westerly end of Baker Lake and to proceed northwesterly to the easterly end of Schultz Lake; a second stretch of railway is to start at the confluence of the Hanbury and Thelon Rivers and to proceed westerly and southwesterly to old Fort Reliance at the eastern end of Great Slave Lake; another line is to start from the confluence of the Hanbury and Thelon rivers and to proceed westerly to the northeasterly end of Artillery Lake and from the southwesterly end of the lake southwesterly to Old Fort Reliance on Great Slave Lake. These lines may be operated by steam, electricity or any other power. The company is also given power to dredge and otherwise improve the navigation of the Thelon River; to operate steam and other vessels on the

navigable waters reached, and to build wharves, docks, elevators, etc., along the route of the railway and navigation route. (Mar., 1920, pg. 136.)

**Quebec and Chibougamou Ry. Co.**—A press report states that a contract between the Quebec Government and the Quebec & Chibougamou Ry. Co. for the construction of a belt line round Lake St. John, Que., is ready for signature. The company was incorporated at the last session of the Quebec Legislature to build a railway from Quebec City northerly to Chicoutimi, on the Saguenay River, and thence to Chibougamou Lake, with branch lines. The Legislature voted two land subsidies at its recent session, one for the building of a line from Malbaie to Ha Ha Bay, 75 miles, and the other for a line from Chicoutimi to St. Felicien, to the west of Lake St. John, running through the region situated east and north of Lake St. John, and branch lines, a total of 120 miles. This latter subsidy would apparently cover the line for which a contract is reported to be ready. (Mar., pg. 136, and Quebec Subsidies, Mar., pg. 122.)

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

**Joliette Freight Sheds Burned.**—The freight sheds at Joliette, Que., were destroyed by fire, together with seven cars and a quantity of freight, on July 10, the total loss being estimated at \$100,000. The passenger station was saved with difficulty.

**Timiskaming District.**—A press report states that a contract has been entered into between the C.P.R. and the Quebec Government for the construction of a line from near Timiskaming or Kipawa to the Des Quinze River, Que., and that it has been arranged that the line will pass through Ville Marie, instead of running at the foot of the hills near by, thus adding two miles to its proposed length, but bringing it considerable additional territory. Construction work, it is stated, will be started at once.

Under the Interprovincial & James Bay Ry. charter the C.P.R., some years ago, built about 10 miles of line from Kipawa towards the Quinze River, and completed surveys for its extension to the Kipawa River. The Quebec Legislature voted a subsidy of \$1,600 for a line from Timiskaming to Kipawa via Ville Marie to the Des Quinze River, 66 miles, and an additional subsidy of \$6,400 a mile for the same mileage in the event of the Dominion Parliament not voting a subsidy on the usual terms. H. Roberts, Assistant Engineer, was given charge of a party to complete the survey work on the line. April, pg. 174. See also C.P.R. Construction, June, pg. 291.)

**Levis Siding.**—A press report states that a contract has been let to W. H. Patterson, Belleville, Ont., for rock excavation at Levis, Ont., mileage 150.6 on the lake shore line from Leaside to Smiths Falls, where it is proposed to put in some sidings.

**Hamilton Jct. Interlocking Plant.**—An order has been given for a 48 lever, Saxby & Farmer, improved interlocking and mechanical interlocking machine and mechanical interlocking ground parts, for the reconstruction of the interlocking pro-

tection at Hamilton Jct., Ont. The plant, when completed, will have 42 working levers and 6 spare spaces, power operated signals, track circuit detector locking, with approach locking, and annunciators. A special illuminated track diagram will be provided in the tower for the information of the leverman.

**Windsor Yard.**—A press report states that plans for extensive yard improvements at Windsor, Ont., have been submitted to the Board of Railway Commissioners for approval, and that construction will be started as soon as this has been obtained. The improvements, it is stated, consist of a rearrangement of a number of existing tracks, the extension of the track accommodation, and the building of a freight shed to provide for handling 500 freight cars.

**Sarnia, Ont.**—In connection with the proposal made to the C.P.R. recently to build a line from near London to Sarnia, Ont., a press report states that the company's officials have been favorably impressed with the proposal and will probably recommend its adoption. The report also states that one of the company's engineers has been over the ground following the recent trip of President E. W. Beatty and his party.

**Lanigan Northeasterly Branch.**—A press report states that five townsites are being laid out along the branch line under construction from Lanigan, Sask., northeasterly. The line authorized to be built extends from Lanigan, through Melfort into the Carrot River district, and plans for 60.90 miles have been approved by the Board of Railway Commissioners. A contract for building 50 miles of the line out of Lanigan was let in May, 1919, to Stewart & Welch, Calgary, Alta., but only 5% of the grading had been completed to Dec. 31, 1919. The new townsites are located as follows: Daphne, n.w. 34-37-18 w. 2nd meridian; Unwin, s.w. 13-35-20 w. 2nd meridian; Romance, s.w. 2-36-19 w. 2nd meridian; Magallen, n.w. 2-39-18 w. 2nd meridian; Naicam, n.w. 2-40-18 w. 2nd meridian. It is stated that Naicam will be the terminus of the branch for the present. (July, pg. 389.)

**Spokane & British Columbia Ry.**—Pursuant to the winding up order, in the matter of the Dominion Permanent Loan Co., the official referee advertised recently for tenders for \$1,500,000 of bonds and \$10,000 capital stock of the Spokane & British Columbia Ry., these bonds and shares comprising all securities issued by the railway company, whose line runs from Danville, near Grand Forks, B.C., to Republic, Wash., about 36 miles, further particulars of which were given in Canadian Railway and Marine World for June, pg. 103. We are advised that a number of tenders were received, but that none were sufficiently high to warrant acceptance by the liquidator.

**Sir William Van Horne's Estate.**—The Supreme Court of Canada gave judgment recently in the action brought by the British Columbia Government as to the collection of succession duties on the estate of the late Sir William Van Horne. The total estate was valued at \$6,000,000, of which \$300,000 was in British Columbia, and the B.C. Finance Minister claimed that in fixing the amount of succession duty to be collected in the province he could take into account the total value of the estate. This view has been upheld by the Supreme Court, on a final appeal. This decision, it is said, will govern the settlement of some 20 other estates.

## Mainly About Railway People Throughout Canada.

**William B. Bamford**, whose appointment as District Freight Agent, C.P.R., Nelson, B.C., was announced in our last issue, was born at Belleville, Ont., Sept. 10, 1863, and entered railway service in 1880, with the Credit Valley Ry., which was afterwards taken over by the C.P.R., and has been, to 1886, telegraph operator at various points; 1886 to 1888, agent, Corbetton, Ont.; 1888 to 1892, agent, Elora, Ont.; 1892 to 1902, agent, Peterborough, Ont.; 1902 to 1906, Travelling Freight Agent, Toronto; 1906 to 1910, District Freight Agent, London, Ont.; 1910 to 1916, Division Freight Agent, St. John, N.B.; 1916 to 1920, District Freight Agent, Toronto.

**E. W. Beatty, K.C.**, President, C.P.R., attended the Association of Railway Executives annual meeting at New York, July 16, when, among other matters, the more intensive use of railway equipment, was discussed.

**Sir George Bury** has resigned the Presidency of Whalen Pulp & Paper Mills Co. Ltd., Vancouver, B.C. A press dispatch says he has received "an appointment in an advisory capacity under certain large interests on the Atlantic seaboard."

**W. G. Chace**, Chief Engineer, Greater Winnipeg Water District Commission, which operates a railway between Winnipeg and Shoal Lake, Lake of the Woods, has resigned, and organized Research & Development Ltd., to initiate new industries for Manitoba.

**A. Blake Chown**, who has been appointed General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, was born at Belleville, Ont., Aug. 4, 1887, and entered railway service, Apr. 1, 1907, since when he has been, to May, 1909, night ticket clerk, G.T.R., Belleville, Ont.; May 1909, to Mar. 1911, day ticket clerk, G.T.R., Belleville, Ont.; Mar. 1911 to Mar. 1913, Soliciting Passenger Agent, G.T.R., Toronto; Mar. 1913 to Dec. 1918, Travelling Passenger Agent, G.T.R., Pittsburg, Pa.; Dec. 1918 to Mar. 1919, acting General Agent, Passenger Department, G.T.R., New York; Mar. 1919 to July 1920, General Agent, Passenger Department, G.T.R., New York.

**Don Matthews Crawford**, who has been appointed General Agent, Canadian National and Grand Trunk Rys., Cleveland, Ohio, was born at South Bend, Ind., May 28, 1886, and entered railway service Sept. 1, 1901, since when he has been, to Mar. 1, 1903, clerk and stenographer, Freight and Passenger Departments, Chicago Great Western Ry., Pittsburg, Pa.; Mar. 1, 1903, to June 1, 1905, similar position, Seaboard Air Line Ry., Pittsburg, Pa.; Oct. 1 to Nov. 5, 1905, stenographer, Freight and Passenger Departments, Pittsburg & Lake Erie Rd., Pittsburg, Pa.; Nov. 5, 1905, to Nov. 1, 1909, stenographer and clerk, G.T.R., Pittsburg, Pa.; Nov. 1, 1909, to Feb. 16, 1914, Travelling Freight Agent, G.T.R., Pittsburg, Pa.; Feb. 16, 1914, to July, 1920, Commercial Agent, G.T.R., Pittsburg, Pa.

**W. R. Devenish**, Superintendent, Canadian National Rys., Moncton, N.B., is spending a month's vacation at Shelburne and other Nova Scotia points.

**Mrs. Dickson**, widow of M. C. Dickson, at one time District Passenger Agent, G.T.R., Toronto, died at Hamilton, Ont., July 14.

**James Dunsmuir**, formerly owner of the Esquimalt & Nanaimo Ry., the Wellington collieries, etc., and formerly Lieutenant Governor of British Columbia, and for some time a director of the C.P.R., who died at Victoria, B.C., June 6, bequeathed his entire estate, of which no estimate is made in the will, to his wife, and the hope is expressed that at her death, she will divide the property among the nine children, consideration being given to about \$10,000,000 of Canadian Northern Ry. 3% debentures guaranteed by the Dominion Government, which had been distributed to some of the children prior to his death.

**R. H. Foster**, formerly agent, C.P.R., Fort William, Ont., who died there recently, was buried at Montreal. He had been in C.P.R. service since a boy, and was the son of the late Wm. Foster, a former C.P.R. employe at Montreal.

**Mrs. D. E. Galloway**, wife of the Assistant to the President, Grand Trunk Ry., Montreal, has taken a cottage at Little Metis Beach, Que., for the summer.

**U. E. Gillen**, General Manager, Toronto Terminals Ry., Toronto, has been appointed chairman of the board of conciliation, dealing with the Toronto & Niagara Power Co.'s electrical workers' demands at Toronto and Niagara Falls, Ont.

**Henry Goldmark**, who was engaged by the C.P.R. in connection with the Angus shops construction in Montreal some years ago, is Vice President of the new engineering firm, Goethals, Wells & Co. Inc., which has been established in New York, N.Y., with Major General Goethals as President.

**D. B. Hanna**, President, Canadian National Rys., was on a C.N.R. train which was derailed near Honor, Man., July 13, it being stated that the derailment was caused by a switch having been tampered with.

**J. H. Hanna**, who has been appointed Secretary of the Board of Trade, Calgary, Alta., was in G.T.R. service for about 30 years before going to Calgary in 1903, resigning at that time as District Freight Agent, Hamilton, Ont. During the construction of the Grand Trunk Pacific Ry. he was engaged in making certain right of way purchases.

**Lieut. Col. Thos. A. Hiam** has been appointed Railway Expert, to the permanent Commission on Communication and Transit, under the League of Nations. He is expected to arrive in Toronto, from Stewart, early in August, and to sail from New York on Aug. 21, and proceed to Geneva. He was in the Canadian Northern Ry. service for some years prior to the war, and during the latter part of the time as private secretary to Sir Donald Mann. He went overseas with the Canadian Buffs in the autumn of 1916 as a lieutenant, and was at Witley Camp, Eng., for nearly a year, while the Buffs formed part of the 5th Canadian Division, and during which time he was promoted to captain and made assistant quartermaster. On the Buffs being broken up, for reinforcing purposes, he transferred to the Imperial Railway Troops, going to France in Feb. 1918, at captain, and was engaged for some time in railway operating work. He returned to England in Oct., 1918, on leave, and was sent almost immediately to Salonica, as railway transport-

ation officer, and after being there a very short time, was transferred to Constantinople, promoted to major and made Deputy Assistant Director of Railway Transport, which department had charge of the Orient Ry. in European Turkey (Compagnie d'Exploitation des Chemins de Fer Orientaux) and also the Bagdad Line, which commences on the Bosphorus and extends to Bagdad, with a break from Nissibin to Samara, which is still under construction. This line is operated by the Societe Imperiale Ottomane de Chemin de Fer de Bagdad. From Constantinople he was transferred to Haidar Pasha as Assistant Director of Railways, and was promoted to lieutenant colonel. On his return to Canada at the close of the war he was appointed Vice President, Canadian North Eastern Ry. Co., and Vice President, Pacific Coast Exploration Co., at Stewart, B.C., of both of which companies Sir Donald Mann is President. It is said that there will be a conference in January to discuss the freedom of communications and transit, to which Canada and other members of the League of Nations are expected to send delegates.

**Lady Hickson**, widow of Sir Joseph Hickson, at one time General Manager G.T.R., is spending the summer at Murray Bay, Que.

**E. J. Hilliard**, who has been appointed Division Freight Agent, Canadian National Rys.-Grand Trunk Ry., Ottawa, Ont., was born at Montreal, Apr. 14, 1870, and entered G.T.R. service in 1886, since when he has been consecutively, to June, 1904, clerk, Passenger Department; in Chief Accountant's office; stenographer, General Manager's office and Division Freight Agent's office; Contracting Freight Agent, Montreal; Contracting Freight Agent, New York; Travelling Freight Agent, Montreal; chief clerk, Division Freight Agent's office, Montreal; Travelling Freight Agent, Moncton, N.B.; June, 1904, to June, 1919, Commercial Agent, Buffalo, N.Y.; June, 1919, to June, 1920, Division Freight Agent, G.T.R., Ottawa, Ont.

**Charles Ketchum Howard**, who has been appointed General Tourist Agent, Canadian National Rys., Toronto, was born at St. Andrews, N.B., Aug. 28, 1877, and entered railway service April, 1893, since when he has been, to 1900, operator and agent at various points, Atlantic Division, C.P.R.; 1900 to 1901, agent, C.P.R., Brownville Jct., Me.; 1901 to 1906, agent, C.P.R., McAdam Jct., N.B.; 1906 to 1910, agent, C.P.R., Fredericton, N.B.; 1910 to 1911, Superintendent, Aroostook Valley Rd., Presque Isle, Me.; 1911 to 1912, Travelling Freight Agent, C.P.R., St. John, N.B.; 1912 to 1915, Right of Way Agent, St. John and Quebec Ry., Fredericton, N.B.; 1915 to Mar., 1916, agent, Canadian Government Railways, Woodstock, N.B.; Mar., 1916, to Sept. 1, 1917, Commercial Agent, Canadian Government Railways, Boston, Mass.; Sept. 1, 1917, to July 1, 1920, General Agent, Traffic Department, Canadian Government Rys., latterly Canadian National Rys., Boston, Mass.

**H. G. Kelley**, President, G.T.R. and Grand Trunk Pacific Ry., attended the Association of Railway Executives annual meeting in New York in the early part of July.

**E. R. Lenoir**, a freight claims adjuster on the C.P.R., died suddenly at his home at Montreal July 17, following paralysis.

He was 61 years old, and had been in railway service for 47 years, and with the C.P.R. from its inception. One son is in the Stores Department, Angus shops, C.P.R., and a daughter is wife of L. Brosseau, District Engineer, Canadian National Rys., Quebec, Que.

**W. Marchbank**, formerly of the Export Department, C.P.R., Montreal, who retired on superannation in the spring, died at Montreal recently, aged 70, after a few days illness from pneumonia.

**Sapper J. L. B. Murdock**, son of Jas. Murdock, Vice President Brotherhood of Railroad Trainmen, and until recently a member of the Dominion Board of Commerce, died in Toronto July 24, aged 22.

**Lt. Col. R. L. Nelles**, formerly Local Freight Agent, G.T.R., Toronto, now on the pension list, was entertained at dinner, by Freemasons recently, at Caledonia, Ont., and made an honorary member of St. Andrew's Lodge, which he joined 50 years ago.

**H. E. W. Nicholson**, for 43 years station agent on the G.T.R., during the last 30 years of which he was at Kingston Jct., Ont., died there recently. He was a brother of Capt. C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C.

**M. T. Pearson**, Travelling Passenger Agent, C.P.R., St. John, N.B., died at Houlton, Me., June 29, following an operation for appendicitis.

**Hon. J. D. Reid**, Minister of Railways and Canals, which position was vacated by Sir Robert Borden's resignation of the Premiership, was re-appointed in Hon. Arthur Meighen's administration, and sworn in at Ottawa July 13. He left the same day for the Pacific coast, to look over the Canadian National and Grand Trunk Pacific Railways.

**L. J. Rouleau**, who has been appointed Commercial Agent, Canadian National and Grand Trunk Rys., Sherbrooke, Que., was born at Montreal, Jan. 6, 1879, and entered G.T.R. service, Apr. 1, 1899, since when he has been, to Mar., 1903, clerk and timekeeper, Local Freight Department, Montreal; Mar. 1903, to Nov. 1905, claims investigator, Freight Claims Department, Montreal; Nov. 1905, to Apr. 1907, rate clerk, Division Freight Office, Montreal; Apr. 1907, to Apr. 1909, Soliciting Freight Agent, Montreal; Apr. 1909 to Dec. 30, 1916, Travelling Freight Agent, G.T.R., and Agent, National Dispatch-Great Eastern Line, Montreal; Dec. 30, 1916, to July, 1920, Commercial Agent, G.T.R., Quebec, Que.

**H. R. Safford**, at one time Chief Engineer, Grand Trunk Ry., and who, since the return of United States railways to corporate control, has been Assistant to President, Chicago, Burlington & Quincy Rd., at Chicago, has been given the degree of Doctor of Engineering by Purdue University.

**H. C. Taylor**, whose appointment as Superintendent of Car Service, Eastern Lines, C.P.R., Montreal, was announced in our last issue, was born at Wingham, Ont., Nov. 5, 1887, and entered railway service in 1905, since when he has been, to 1906, operator, G.T.R.; 1906 to 1908, agent and operator, Timiskaming & Northern Ontario Ry.; 1908 to 1910, agent and operator, Lake Superior Division, C.P.R.; 1910 to 1917, dispatcher, Lake Superior Division, C.P.R.; Feb., 1917, to Nov., 1918, night chief dispatcher, and chief dispatcher, C.P.R., Smiths Falls, Ont.; Nov., 1918, to May, 1920, Car Service Agent, C.P.R., Toronto.

**George Mitchell Thomas**, who has been

appointed Commercial Agent, Canadian National and Grand Trunk Rys., Windsor, Ont., was born at Dundas, Ont., Apr. 21, 1876, and entered transportation service in Aug., 1898, since when he has been, to 1903, in office, chief clerk, on the road, and Soliciting Agent, for Beaver Line Steamships, afterwards owned by Elder, Dempster & Co., and in 1903, taken over by the C.P.R. as the nucleus of its Atlantic steamship service; Apr., 1903, to Feb. 1, 1919, travelling Freight Agent, Canadian Government Rys., all at Toronto; Feb. 1, 1919, to July, 1920, District Freight Agent, Canadian National Rys., Hamilton, Ont.

**Guy Tombs**, Traffic Manager, Canadian Export Paper Co., Montreal, formerly Assistant Freight Traffic Manager, Canadian National Rys. there, Mrs. Tombs and Laurence Tombs, left Montreal at the end of June, to spend July at the Pacific Coast.

**F. W. Wanklyn**, son of F. L. Wanklyn, General Executive Assistant, C.P.R., Montreal, was accidentally shot at Banff, Alta., July 8, while examining a gun. He was removed to a Calgary hospital, where an operation was performed, and he is reported to be progressing satisfactorily. His father left Montreal immediately on being notified of the accident, to be with him.

**Robert James Scott Weatherston**, who has been appointed Division Freight Agent, Canadian National Rys.—Grand Trunk Ry., Hamilton, Ont., was born at St. Thomas, Ont., Jan. 27, 1878, and entered G.T.R. service July 4, 1893, since when he has been, to Dec. 31, 1901, clerk in Transportation Department, Hamilton, Ont.; Jan. 1 to July 22, 1902, clerk in Traffic Department, Hamilton, Ont.; July 23, 1902, to May 10, 1903, Soliciting Freight Agent, Hamilton, Ont.; May 11, 1903, to June 17, 1906, Soliciting Freight Agent, Toronto; June 18, 1906, to May 31, 1907, Travelling Freight Agent, Ottawa, Ont.; June 1, 1907, to Oct. 31, 1911, chief clerk to Division Freight Agent, Hamilton, Ont.; Nov. 1, 1911, to Jan. 31, 1919, Division Freight Agent, Stratford, Ont.; Jan. 31 to June, 1919, Division Freight Agent, Ottawa, Ont.; June, 1919, to June, 1920, Division Freight Agent, G.T.R., Hamilton, Ont.

**Edward N. Hurley on Business Papers.**

Edward N. Hurley, President, Hurley Manufacturing Co., Chicago, founder of the Standard Pneumatic Tool Co., now the Independent Pneumatic Tool Co., Chicago, formerly Chairman of the United States Federal Trade Commission, and Chairman of the U.S. Shipping Board, in addressing the Associated Advertising Clubs of the World at Indianapolis, Ind., recently, said:—"I am fearful that our manufacturers, merchants, and advertising men do not appreciate the trade publications, which are doing so much from a scientific, as well as a practical, standpoint in stabilizing conditions and working out the many problems existing in their respective fields. When I was Chairman of the Federal Trade Commission I made it a point to have the principal trade papers in the United States sent to me regularly. These were read, not only by me, but by the entire staff, so that we might have a finger on the pulse of the country's industry. Advertising agencies placing national and international advertising could well insist on every man in their employ reading the trade journals of the industries of their clients, so that they may keep

themselves currently informed on the conditions in the businesses for which they are writing copy. I believe in the business journals. I have been closely associated with the work of many and have made a study of them, and I am firmly convinced of the editorial strength and value of many of these publications."

**Railway Department's Supplementary Estimates.**

The further supplementary estimates for the year ending Mar. 31, 1921, passed at the Dominion Parliament's recent session, contain the following items:—

<b>Chargeable to Capital.</b>	
Canadian Government Railways—Construction and betterments—Additional amount required .....	\$290,430
To provide for the purchase, at prices not exceeding the amounts herein specified, of the following railways (the debts of each railway to the Canadian Government Rys. to be cancelled): interest on the purchase price of each to be payable at the rate of 5% per annum from the date of taking possession to the date of transfer of title: (Such of the said railways as are within the jurisdiction of the Parliament of Canada are hereby authorized to sell their respective assets and undertakings accordingly):	
York & Carleton Ry., \$18,000, Revote	\$ 4,500
St. Martins Ry., \$65,000, Revote.....	16,250
Moncton & Buctouche Ry., \$70,000, Revote .....	70,000
Elgin & Havelock Ry., \$30,000, Revote	30,000
Salisbury & Albert Ry., \$75,000, Revote ..	75,000
Caraque & Gulf Shore Ry., \$200,000, Revote .....	200,000
Cape Breton Ry., \$100,000, Revote ..	100,000
Interest estimated, from date of taking possession to March 31, 1921, not exceeding (including revote \$34,000) .. .. .	58,000
	<b>\$553,750</b>

To provide for the purchase of the Lotbiniere & Megantic Ry. under authority of Chapter 22, Statutes of Canada, 1916, together with interest at 5% from April 1, 1920 .. .. .	\$386,875
To pay claims for right of way, Revote (1919-1920) .. .. .	50,000

<b>Chargeable to Income.</b>	
Canadian Government Railways—To provide for payment of expenses in connection with acquisition of the Grand Trunk and associated railway systems, additional amount required.....	\$400,000
Governor General's cars, attendance, repairs and alterations, additional required .. .. .	\$12,000

Loan not exceeding \$25,000,000 to be made to the Grand Trunk Ry. Co. of Canada, or made in part to any company comprised in the G.T.R. System, to be used for any or all of the following purposes in connection with such companies or any of them, viz., in meeting expenditures made, or indebtedness incurred or payable in respect of, or in operating expenses, interest on securities, maturing loans, construction, equipment, renewals and betterments; such loan or loans to be secured by mortgages approved by the Governor in council in favor of the King on the undertaking of each company participating therein to the extent of such participation, and in each case to be repayable on demand with interest at 6% per annum, payable half yearly, or the loan or any part of it may be made to the managing committee of the G.T.R. System in accordance with the provisions of clause 4 of the agreement herein-after mentioned. And for the purpose of retiring maturing secured loans or other funded indebtedness, and interest thereon of any such company or companies, which loans or indebtedness were in existence on or before the date of the agreement between the King and the G.T.R. Co. of Canada, viz., Mar. 8, 1920, the Minister of Finance instead of applying toward the retirement thereof portions of the loan above authorized, may, with the approval of the Governor in council, guarantee the principal and interest of securities of the G.T.R. Co. of Canada or of any such company or companies in such form and on such terms as the Governor in council may determine.

<b>Chargeable to Collection of Revenue.</b>	
Canadian Government Railways—To pay deficit of working expenditure for year ended Mar. 31, 1920, authority being hereby given to apply toward payment of the total amount of the said working expenditure the amount of the receipts and revenues for the said year; additional amount required .. .. .	\$1,000,000
	<b>\$25,000,000</b>

## The Board of Railway Commissioners Empowered to deal with Coal Situation.

The Minister of Railways, Hon. J. D. Reid, and the Minister of Labor, Hon. G. D. Robertson, made the following report June 28:—"The undersigned, having been delegated by the Governor in council to give special attention to the coal situation and alleged shortage in coal supply, have the honor to report that: From Jan. 1 to June 1, 1920, the importations of both anthracite and bituminous coal from the United States exceeded the quantity received during the same period in 1919, but, because of the reserves being low, was scarcely sufficient to supply the normal requirements. Since April 15, 1920, and particularly June 1, receipts of coal have been very irregular and unsatisfactory.

"Ontario and Quebec are wholly dependent upon outside sources for their supply of coal. Ontario alone requires 3,500,000 tons of anthracite a year, or approximately 64,500 cars, which means an average shipment of about 200 cars a day for each day in the year. Since April 1 we were short on our daily receipts 125 cars a day. Ontario requires 11,000,000 tons of bituminous coal annually, equivalent to 220,000 cars of 50 tons each, or a daily shipment of 600 cars. From April 1 to June 15, 28,930 cars, or 380 cars a day were received, leaving a shortage in daily receipts of bituminous coal of 220 cars a day. The situation in Quebec is much similar, though accurate figures are not at the moment available.

"Our investigations clearly indicate a most serious situation so far as transportation in the United States is concerned, inadequate car supply and strikes of railway employes largely contributing to the serious congestion. Industries in the U.S. are, in many instances, curtailing their output or closing down for lack of fuel, and the government of that country has placed the control of the distribution of coal in the hands of the Interstate Commerce Commission, who have, we are informed, made three orders which have a bearing on the situation here, i.e., (1) Embargoed the exportation of coal from the Atlantic ports to outside countries; (2) Fixed priorities; (3) Are permitting only such cars to come to Canada as they are assured will be unloaded within 24 hours from the time they are placed, and, further, that the cars will be returned direct for re-loading. It is further apparent that this pooling arrangement and distribution through the commission in order of priority is having the effect of sending many Canadian coal cars to other destinations, rendering the car situation still more difficult.

"It is to be further observed that there were exported from Canada, between Jan. 1 and June 1, 1920, approximately 160,000 tons of coal from Nova Scotia to European ports, principally Holland and France. Prior to the war approximately 2,000,000 tons a year were brought from the Nova Scotia fields up the St. Lawrence, principally to Montreal, which supply has been almost entirely cut off. In view of the United States having embargoed the exported coal to foreign countries, because of the serious shortage at home, it will be difficult for Canada to consistently contend for increased supply from the U.S. unless an embargo is also placed upon the exportation of Canadian coal overseas.

"The provincial fuel commissioners find

their task rendered more difficult as a result of the order in council 3004, of Dec. 1918, becoming inoperative. In view of all the foregoing facts the undersigned recommend that the fuel control such as existed under order in council 3004 should again be made effective and that a fuel controller, or some board with the necessary power, should be established, with a view of making an agreement with the Interstate Commerce Commission of the U.S. to ensure a permanent and steady delivery such as will meet the Canadian requirement as far as is reasonably consistent, and to enable the provincial fuel commissioners to effectively direct and control distribution equitably."

Acting on the above recommendations, Sir Robert Borden introduced a bill in the House of Commons, which was amended, and finally passed as follows:

1. The Railway Act, 1919, chapter 68 of the statutes of 1919, is amended by inserting the following section as section 71a, immediately after section 71 thereof:—

"71a. (1) The Board shall have power to do and authorize such acts and things and to make from time to time such orders and regulations as the Board, by reason of real or apprehended scarcity of coal or other fuel supplies in Canada, may deem necessary or advisable for the provision of such supplies and for the distribution, control and disposition thereof.

"(2) Without restricting the generality of the foregoing terms, it is declared that the powers hereinbefore conferred upon the Board shall extend to the trading in and to the exportation, importation, production and manufacture of coal and other fuel supplies.

"(3) All orders and regulations made under this section by the Board shall have the force of law, and may be varied, extended, or revoked by any subsequent order or regulation; but if any order or regulation is varied, extended, or revoked, neither the previous operation thereof nor anything duly done thereunder, shall be affected thereby, nor shall any right, privilege, obligation, or liability acquired accruing, or incurred thereunder be affected by such variation, extension, or revocation.

"(4) This section shall continue in force until the last day of the next succeeding session of Parliament and no longer."

**Protection of Maintenance of Way Employes.**—The Railway Association of Canada has been giving consideration to the possibility of providing further protection for maintenance of way department employes, against accidents resulting from being struck by trains, and has recommended to member lines that the following instructions be issued to locomotive crews:—"Engineers on all trains shall sound whistle signal 14(L) when approaching curves where view of track is obscured."

**Victoria Bridge, Montreal.**—The sixtieth anniversary of the completion of the G.T.R. Victoria bridge over the St. Lawrence River at Montreal will occur Aug. 25. The original tubular bridge was opened for traffic by King Edward VII., then Prince of Wales, Aug. 25, 1860, and this was replaced by the present Diamond Jubilee bridge, which was completed in 1898.

## The Great Northern Railway's Canadian Lines.

The annual report of the Great Northern Ry. Co. for the year ended Dec. 31, 1919, contains the following information regarding its Canadian lines:—"The company's investment in Canadian companies, on account of advances made to pay for property, construction, additions and betterments, has been increased during the year as follows:—

Manitoba Great Northern Ry.....	\$1,486.10
Brandon, Saskatchewan & Hudson's Bay Ry.....	894.09
Nelson & Fort Sheppard Ry.....	2,370.79
Red Mountain Ry.....	Credit 72.06
Crow's Nest Southern Ry.....	5,991.34

Total . . . . . \$10,670.26"

The President's report as to betterments during 1919 states that a half interlocking plant, with 6 levers, was installed at the crossing of the British Columbia Electric Ry. at Georgia St., Vancouver, B.C. The amount actually expended during the year on additions to Canadian lines was \$116,240.02 (credit), and the amount expended in betterments on the same lines was \$66,443.15. It was explained that the credit to additions for the Canadian lines occasioned by the removal of 7.8 miles of track of the New Westminster & Southern Ry.

## Intensive Use of Railway Equipment.

At a meeting of the Association of Railway Executive in New York, July 16, a resolution was adopted, calling upon the member companies to devote their engineering energies to the more intensive use of existing equipment. The following programme was outlined:—

An average daily minimum movement of freight cars of not less than 30 miles a day. (The average daily movement now is 23 9-10 miles and the highest ever attained by the railways was 26 miles a day during the war period from Apr. to Dec., 1917).

An average loading of 30 tons a car. Reduction of bad order cars to a maximum of 4% on the total owned.

An early and substantial reduction in the number of locomotives now unfit for service, and,

Use of more effective efforts to bring about the return of cars to the owner roads.

**Kettle River Valley Ry. Construction Financing.**—An action has been brought in an Ontario court in the name of the Dominion Permanent Loan Co. against the Columbia & Western Ry. Co., the Kettle Valley Ry. Co., and the C.P.R. Co., to recover \$200,328 and interest under the terms of an agreement dated May 26, 1910, or in the alternative the like sum for breach of contract. It is claimed that under the agreement the loan company agreed to sell to the Columbia & Western Ry. 40% of the capital stock of the Kettle River Valley Ry. (now the Kettle Valley Ry. and a C.P.R. undertaking) and the defendant companies undertook to pay to the loan company 40% of the subsidies received from the Dominion Government for a railway from Midway to Merrit, B.C. It is further alleged that the defendants contracted to pay the loan company 40% of a British Columbia Government grant in respect of the construction of 150 miles of line. It is admitted that the defendants have paid various sums, but it is alleged by the loan company's liquidator that the amount claimed is still due.

## The Express Service.

By T. E. McDonnell, Vice President and General Manager, Dominion Express Co.

I received a call recently from a real old time expressman, and we had a real old fashioned visit about old times and old timers, and about new times, and, as he put it, "clock timers". At the end of this visit I had a subject to write something on and here it is:—Old time expressmen, those who did the work a quarter of a century ago, and there are many of them still active in the business, are frequently heard discussing the relative efficiency and loyalty of the rank and file today, as compared with earlier times.

The old timers have in mind the days when hours were long and pay was short; when there was overtime a plenty, but when nobody thought of pay for it; when the "split shift" was popular and some went to work several times a day to earn a day's pay; the days when there were no vacations, no workmen's compensation; when everybody put in some time every Sunday; when everybody "checked his freight"; when the loss and damage account was so small that a magnifying glass was needed to find it; when the despicable pilferer was so scarce that the finding of one was a sensation in the business; when a serious street accident was considered a disgrace, and yet in those days everybody was fairly happy and contented and anxious to hold his job until promoted. Each man took his job seriously, and intended to make his future in the business. He wasn't working on an hourly basis, and looking for his pay every night. In those days it did not require the services of an army of clerks to do nothing more than keep record of the changing employes. Every man knew the "boss" and the "boss" called almost everybody by his first name. The men were so well satisfied that when a vacancy occurred they always had some friend who was anxious to get the job.

As the old timer sees things today, with the shorter hours, higher pay, overtime pay and all the other inducements, he wonders at the change, and at what he considers the indifference and the lack of pride of service which was so noticeable in the older times. He wonders all the more, because never before in the history of the business was it so easy for a man to make good, and land one of the better jobs, because he has so little competition. The old timers who make these observations are not by any means "on the shelf," but are actively on the job, and pretty well up to date on all things affecting the business. They are able to do, and are doing, every day a good honest day's work, not limited by any number of hours, because they like their jobs and want to hold them. It may be that is the whole point of difference, liking one's job.

It has been my privilege to keep in close touch with express matters in both Canada and the United States, and at the risk which always attends the making of comparisons, I venture the opinion that in the express service in Canada today, there is more of the old time efficiency and loyalty than is apparent elsewhere, and constant improvement in that direction is quite noticeable. There is "pride of service" and we "like our jobs". The labor turnover (the number of changes in the various positions) since the close of the war has been small by comparison, and is improving. It begins to look as if the old timer in Canada

would soon have little to complain of. If this observation be correctly made, and if in Canada expressmen are getting back to first principles more rapidly than their neighbors, the reason may be found in the fact that in Canada the status of the express service was more clearly defined and more generally accepted during the war; that it held a larger percentage of its experienced staff, who by their skill and good example have shown the newcomers what real expressmen stand for; they were sufficiently strong in numbers and in character to compel the newcomer to adopt their standards. With the stabilizing of express matters in the United States, surely the real expressmen are numerous enough and strong enough to win over the newcomers who are worth making into expressmen.

The old timers feel that expressmen are a fraternity with high standards and high ideals; that the business, though not ancient, is an honorable one, and desirable for the welfare of the community; that anything tending to discredit the business also tends to discredit the staff. That is why they are concerned about the attitude of the newcomer and that is why they will convince the newcomer he must become a real expressman. When the old timer hears the excuse offered for unthinking men, that they are easily led, he replies that it should then be easy to lead them in the right direction, and it's up to the old timers to do the leading. There is some good in the worst of us, it's up to the old timers to locate the good and develop it.

The expressmen of Canada are staunch members of the express fraternity, they have the welfare of all expressmen at heart and are doing their best to get all expressmen thinking and acting along right lines.

### The Edmonton, Dunvegan & British Columbia Ry.'s Future.

An Edmonton, Alta., press dispatch of July 20 stated that J. D. McArthur, President E., D. & B. C. Ry., and its allied companies—the Central Canada Ry., and the Alberta & Great Waterways Ry.—had advised the local management of the lines that an operating agreement had been arranged with the C.P.R. and that the agreement would go into effect at once. A Victoria, B.C., press dispatch of July 21 quoted D. C. Coleman, Vice President Western Lines, C.P.R., as stating that the C.P.R. had made an agreement to operate the system for a term of years on account of the owners, and that full information as to the agreement would probably be given out by the Premier of Alberta, on his return to Edmonton from Montreal, where he had been in connection with the negotiations.

The three McArthur lines are the Edmonton, Dunvegan & British Columbia Ry., running from Edmonton to Spirit River, 360.8 miles, with a branch from Spirit River to Grande Prairie, 54.8 miles; the Central Canada Ry., from McLennan to Peace River, 49.8 miles; and the Alberta & Great Waterways Ry., in regular operation from Carbondale to Lac la Biche, 131.4 miles, and practically completed to McMurray, a further distance of about 160 miles.

An Edmonton press dispatch says that Premier Stewart of Saskatchewan, on

returning there on July 26 from Montreal, stated that the C.P.R. will operate the E., D. & B. C. Ry. for five years, with an option to buy it at any time during that period. The Saskatchewan Legislature, at its last session, appropriated \$1,000,000 for improving the line, which will be done by the C.P.R., subject to the Saskatchewan Minister of Railways' approval. The dispatch also states that J. D. McArthur and his associates have withdrawn from the directorate and that D. C. Coleman, Vice President, Western Lines, C.P.R., has been elected President, and C. Murphy, General Manager, Western Lines, C.P.R., Vice President, other new directors being Major W. M. Kirkpatrick, M.C., Assistant Freight Traffic Manager, Western Lines, C.P.R., Winnipeg; G. A. Walker, Calgary, and Premier Stewart, the latter representing the province. It is also stated that Mr. Coleman announced the appointment of J. A. MacGregor, heretofore Superintendent, Edmonton Division, C.P.R., as Manager E., D. & B. C. Ry., with office at Edmonton.

### Two Per Cent. Sales Tax Applied to Transportation Companies.

The Act to amend the Special War Revenue Act, 1915, passed at the Dominion Parliament's recent session, provides in sec 2, sub.sec. BBB as follows:—"In addition to the present duty of excise and customs, a tax of 1% shall be imposed, levied and collected on sales and deliveries by manufacturers and wholesalers, or jobbers, and on the duly paid value of importations, but in respect of sales by manufacturers to retailers or consumers, or on importations by retailers or consumers, the tax payable shall be 2%."

A large deputation from Montreal waited on the Finance Minister in Ottawa to protest against the 2% tax being applied to purchases made by public utility companies, Senator Beaubien and F. L. Wanklyn, General Executive Assistant C.P.R., being the principal speakers, but they were unsuccessful, and the following ruling was given by the Inland Revenue Department:—

"Sales tax of 2% applicable on sales by manufacturers to railways, power companies, municipalities, public utilities and steamship lines. Sales tax of 1% applicable on sales by wholesaler to such corporations. Sales tax not applicable as respects material for construction of ships licensed to engage in Canadian coasting trade."

The Inland Revenue Department holds that the companies referred to are consumers.

**C.P.R. Information Bureaus.**—The C.P.R. Colonization and Development Department has established three information bureaus at London, Eng., New York, N.Y., and Chicago, Ill., with headquarters at Montreal. Well equipped reference libraries, containing the fullest information about Canada, are attached to each of the bureaus, and are kept supplied with the latest information regarding new developments or opportunities, through the main reference library at the department's headquarters at Montreal and also through the medium of a C.P.R. news service, which has been obtained through the co-operation of the various branches of the company's service. The London branch is in charge of Major E. A. Moore, Manager, Colonization and Development Department overseas.

# Transportation Appointments Throughout Canada.

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

**Canadian Government Merchant Marine Ltd.**—W. B. FINGLASS has been appointed Assistant Marine Superintendent, Vancouver, B.C.

B. C. KEELEY has been appointed General Agent, Vancouver, B.C.

T. LOUDEN has been appointed Assistant Superintendent Engineer, Vancouver, B.C.

**Canadian National Rys.**—C. BOVARD, Terminal Agent, is acting as Assistant Superintendent, Moncton, N.B., while W. A. Fitch is acting as Superintendent.

S. C. COATES, who resigned as City Ticket Agent, Toronto, June 30, has entered C.P.R. service as a sleeping car conductor.

GEO. COLLINS, Special Representative, who has also been acting as Division Freight Agent at Ottawa for some time, now has his office at Trenton, Ont., the position of Division Freight Agent at Ottawa having been abolished.

W. A. FITCH, Assistant Superintendent, is acting as Superintendent, Moncton, N.B., during the absence of W. R. Devenish, on holidays.

H. S. HEAD has been appointed Foreign Freight Agent, New York, U.Y. Office, Woolworth, Bldg.

C. K. HOWARD, heretofore General Agent, Traffic Department, Boston, Mass., has been appointed General Tourist Agent, Office, Toronto.

S. E. LEGER, heretofore City Freight Agent, Montreal, has been assigned to special duties there.

M. McCARRON, heretofore chief dispatcher, Newcastle, N.B., has been appointed chief dispatcher, Moncton, N.B., vice B. S. Ward, deceased.

T. S. TOZER, heretofore dispatcher, has been appointed chief dispatcher, Newcastle, N.B., vice M. McCarron, transferred.

**Canadian National-Grand Trunk Rys.** J. O. ADAMS, General Eastern Freight Agent, G.T.R., New York, N.Y., will also act in the same capacity for C.N.R., vice F. A. Young, General Agent, C.N.R., transferred.

W. J. BURR, General Agent, Passenger Department, G.T.R., Pittsburg, Pa., will also act in the same capacity for C.N.R., vice F. G. Wood, General Agent, C.N.R., transferred.

H. A. CARSON, City Freight Agent, G.T.R., Montreal, will also act in the same capacity for C.N.R., vice S. E. Leger, promoted.

A. B. CHOWN, General Agent, Passenger Department, G.T.R., New York, N.Y., will also act in the same capacity for C.N.R., vice F. A. Young, General Freight Agent, C.N.R., transferred.

D. M. CRAWFORD, heretofore Commercial Agent, G.T.R., Pittsburg, Pa., has been appointed General Agent, C.N.R. and G.T.R., Cleveland, Ohio.

W. R. EASTMAN, heretofore General Agent, Passenger Department, G.T.R., Boston, Mass., will act in the same capacity for C.N.R., vice C. K. Howard, General Agent, C.N.R., promoted.

W. K. EVANS, Commercial Agent, G.T.R., Cincinnati, Ohio, will also act in the same capacity for C.N.R.

I. W. GANTT, Assistant General Freight Agent, G.T.R., Buffalo, N.Y., will also act in the same capacity for C.

N.R., with supervision of traffic through the Niagara frontier and also of traffic under the jurisdiction of the freight offices at New York, N.Y., Philadelphia, Pa., Buffalo, N.Y., Pittsburg, Pa., Toledo, Cleveland and Cincinnati, Ohio.

A. H. GOW, heretofore in Division Freight Agent's office, G.T.R., Ottawa, Ont., has been appointed City Freight Agent, C.N.R. and G.T.R. there.

C. J. HAIGH, Commercial Agent, G.T.R., Philadelphia, Pa., will also act in the same capacity for C.N.R.

E. J. HILLIARD, Division Freight Agent, G.T.R., Ottawa, Ont., will also act in the same capacity for C.N.R. with territory east of North Bay to Hawkesbury, Ont., also Kingston-Harrowsmith, Ont., and east. The position of acting Division Freight Agent at Ottawa, held by Geo. Collins, is abolished.

E. LABREQUE, City Freight Agent, C.N.R., Quebec, Que., will also act in the same capacity for the G.T.R.

G. A. MCGUIRE, Commercial Agent, G.T.R., Buffalo, N.Y., will also act in the same capacity for C.N.R.

F. P. NELSON, heretofore in Division Freight Agent's office, G.T.R., Hamilton, Ont., has been appointed City Freight Agent, C.N.R. and G.T.R. there.

C. J. PIERCE, General Agent, G.T.R., Boston, Mass., will also act in the same capacity for C.N.R. in New England territory, vice C. K. Howard, General Agent, C.N.R., transferred.

L. J. ROULEAU, heretofore Commercial Agent, G.T.R., Quebec, Que., has been appointed Commercial Agent, C.N.R. and G.T.R., Sherbrooke, Que.

G. M. THOMAS, heretofore Division Freight Agent, C.N.R., Hamilton, Ont., has been appointed Commercial Agent, C.N.R. and G.T.R., Windsor, Ont.

S. G. WAGSTAFF, Commercial Agent, G.T.R., Toledo, Ohio, will also act in the same capacity for C.N.R.

R. J. S. WEATHERSTON, Division Freight Agent, G.T.R., Hamilton, Ont., will also act in the same capacity for C.N.R., vice G. M. Thomas, District Freight Agent, G.T.R., transferred.

F. G. WOOD, heretofore General Agent, C.N.R., Pittsburg, Pa., has been appointed General Agent, Freight Department, C.N.R. and G.T.R., there.

**Canadian Pacific Ocean Services Ltd.**—Major D. DRUMMOND, heretofore secretary to General Manager, Atlantic Lines, London, Eng., has been appointed General Freight Agent, Liverpool, Eng., vice A. H. Allan, Freight Traffic Manager, resigned to enter another company's service.

**Canadian Pacific Ry.**—J. S. ALLEN, heretofore Master Mechanic, Sudbury Division, Algoma District, Sudbury, Ont., has been appointed Master Mechanic, Schreiber Division, Algoma District, vice E. Freeman, transferred. Office, Schreiber, Ont.

G. M. BAILLIE, heretofore Agent, Fairville, N.B., has been appointed Assistant Superintendent, London Division, Ontario District, Windsor, Ont. This is a new position.

C. FRANCIS, heretofore Roadmaster, Newport and Orford Subdivisions, Quebec District, Farnham, Que., has been appointed Roadmaster, Chapeau, Ont., vice L. Hebert, transferred.

E. FREEMAN, heretofore Master Mechanic, Schreiber Division, Algoma District, Schreiber, Ont., has been appointed Locomotive Foreman, Cartier, Ont.

L. HEBERT, heretofore Roadmaster, Chapeau, Ont., has been appointed Roadmaster, Newport and Orford Subdivisions, Quebec District, vice C. Francis, transferred. Office, Farnham, Que.

J. L. JAMIESON, heretofore Superintendent, Vancouver Division, British Columbia District, Vancouver, has been appointed Superintendent Edmonton Division, Alberta District, with office at Edmonton, vice J. A. Macgregor, appointed Manager, Edmonton, Dunvegan & British Columbia Ry.

F. S. ROSSETER, Assistant Superintendent, Toronto Terminals Division, Ontario District, Toronto, was, on July 1, appointed acting Superintendent, Sudbury Division, Algoma District, Sudbury, Ont., T. A. Wilson, Superintendent, having been granted leave of absence for one month. Effective Aug. 1, he was appointed acting Superintendent, Chapeau Division, Algoma District, Chapeau, Ont., during the absence of W. R. Boucher, Superintendent, on holidays.

LEONARD H. SOLLY, Land Agent, Esquimalt & Nanaimo Ry., has been appointed to fill the vacancy in the C.P.R. Natural Resources Department's subcommittee in Vancouver, caused by the death of R. Marpole, who was chairman of that subcommittee.

C. A. WHEELER, heretofore Master Mechanic, Smiths Falls Division, Quebec District, Smiths Falls, Ont., has been appointed Master Mechanic, Sudbury Division, Algoma District, vice J. S. Allen, transferred. Office, Sudbury, Ont.

**Edmonton, Dunvegan & British Columbia Ry.**—J. A. MACGREGOR, heretofore Superintendent, Edmonton Division, Alberta District, C.P.R., is reported to have been appointed Manager, Edmonton, Dunvegan & British Columbia Ry. on its transfer to the C.P.R. for operation, with office at Edmonton, Alta.

**Grand Trunk Pacific Ry.**—A. D. CAREY, heretofore Assistant Superintendent, Smithers, B.C., has been appointed Superintendent, Edson, Alta., vice R. M. Halpenny, resigned.

F. W. HOPPER has been appointed General Agent, Passenger Department, G.T.P.R. and Grand Trunk Pacific Coast Steamship Co., San Francisco, Cal.

J. P. KIRKPATRICK has been appointed Assistant Superintendent, Smithers, B.C., vice A. D. Carey, promoted.

**Grand Trunk Ry.**—W. BIBBY, heretofore Supervisor of Track, Montreal, has been appointed Supervisor of Track, Cornwall, Ont.

A. A. SNYDER has been appointed Supervisor of Track, Montreal, vice W. Bibby, transferred.

H. C. SWARTS, bridge master, St. Thomas, Ont., is reported to have been appointed Superintendent of Bridges and Buildings, Eastern Lines, with office at Montreal.

**Railways and Canals Department.**—G. W. YATES, heretofore private secretary to the Prime Minister, and formerly private secretary to the Minister of Railways and Canals, has been appointed Assistant Deputy Minister of Railways and Canals, Ottawa.

Canadian National Rys. has put on a new local service between Stellarton and Mulgrave, N.S., leaving Stellarton, 4.30 p.m.; arriving Mulgrave, 8.10 p.m.; leaving Mulgrave, 7.30 a.m.; arriving Stellarton, 11.10 a.m.

## The Reid Newfoundland Railway's Condition to be Improved.

The Newfoundland Legislature passed, on July 11, an act providing for raising \$1,000,000 for the Reid Newfoundland Ry., for the improvement of the railway, the provision of additional terminal accommodation and the purchase of additional rolling stock. The resolutions on which the act was based were to have been introduced July 8, but were not presented by the Premier until the following day. In the course of his speech he said it was the last thing in the world he ever expected to have to do, to introduce resolutions that favored the Reid Newfoundland Co. by granting it, by way of loan or by favoring it in any other way. It was impossible for the company to procure the necessary rolling stock; impossible for it to erect freight terminals at Port aux Basques and at St. John's, and impossible for it to carry on the railway because it did not have the money necessary for these purposes. The company filed a memorandum with the government on June 30, giving reasons why money should be granted to put the road in repair, and showing the losses sustained by the company since the railway had been operated. The statements contained in the memorandum were not guaranteed by the government. The time had arrived to consider whether the railway was to be operated or not. In his opinion, and in that of his party it should be operated and \$1,000,000 must be borrowed to enable the railway to be run efficiently. This money would be expended as follows:—\$300,000 for purchase of new fish plates to connect the rails; \$250,000 for terminals at St. John's and Port aux Basques, and \$450,000 to be paid over to the company to buy 6 locomotives, 50 box cars and 50 flat cars. The fish plates would be bought by the Government, and the company would put them in position on the railway. The money to be spent on terminals at St. John's would provide, among other things, a large freight shed above the Long Bridge; and general betterments would be carried out at Port aux Basques. The cost of the fish plates would be provided by the government, the Attorney General having advised that it was responsible for the same. The remainder of the sum voted would be a charge against the company, repayable with interest, out of any claim which the company might have against the government in 1957. Negotiations would be entered into with the company to have joint control of the railway by a commission from July 1, of this year, to June 30, 1921, the company to appoint three members, and the government three and a chairman. The government appointees would include an outside railway engineer, and an auditor. The resolutions were considered in committee July 10, and passed. The bill based on them was introduced and put through all its stages at the same sitting, the final reading being given to it at 1.20 a.m. (new time) Sunday, July 11.

The company's memorandum referred to in the Premier's speech points out that the railway was built according to the government specifications to meet the then (1890) requirements of the colony, the only change being that 50 lb. rails were used instead of 35 lb., and 65 lb. at the lower end of the Placentia line. No provision was made in the contracts for improvements over and above the speci-

fications of 1890. The company since the signing of the 1901 contract (under which the title to the railway passed from the Reids to the government at cost, and the Reids received a contract for the operation of the railway for 50 years from Aug. 1, 1901, on certain terms) have improved the rolling stock and equipment to meet the increasing traffic on the line. The company has been unable to increase the rolling stock in sufficient quantities since 1915 to meet the extra demands, caused by the sale and loss of local shipping during the war. The loss in operation during the six years preceding the war was \$363,057.12, while the loss in the years 1914 to 1919, inclusive, was \$1,544,429.13, the loss in 1919 alone being \$645,549.02. The total loss for 20 years operation up to the end of 1919 was \$3,263,116.34, all of which had fallen directly on the shareholders. The company states that the reason for the roadbed being in an unsatisfactory condition is that the standard laid down in the original specifications was not sufficiently high for a main line, and that, with the government's consent, heavier rolling stock was used than the standard of the road warranted, in order to endeavor to meet the traffic necessities. The total increased revenue for 1919 over 1914 was \$645,051.86, while the increase in operating expenses was \$1,159,813.75.

### Application for Increase in Freight Rates.

The Railway Association of Canada sent the following application to the Board of Railway Commissioners on July 9, over the signatures of its President, H. G. Kelley, President, G.T.R. and G.T.P.R., and its Secretary, C. P. Riddell:—

"The Railway Association of Canada, on behalf of the railway companies, members thereof, and of all other railway companies within the Board's jurisdiction, hereby applies to the Board under sec. 325 of the Railway Act, and such other sections thereof as may be applicable, for authority to make a general advance of 30% in the tolls at present charged for the carriage of freight by the said companies. In support of such application the applicant respectfully states:—

"1. During the period since the outbreak of the war, the scale of expenditure of the said railway companies on capital, maintenance and operating accounts has increased to an extent unprecedented, which has greatly exceeded aggregate increases in freight and passenger revenues granted during such period.

"2. As a concrete example of the great burdens under which the railway companies are laboring, reference may be made to the result of the wage increase granted in 1918. The so called 25% advance in freight rates, granted under order in council 1863, effective Aug. 12, 1918, was intended to reimburse the railway companies for increased wage expense to which it was then estimated they would be put through the application of the rates of wages and working conditions which had then recently been fixed for the railways of the United States under the so called McAdoo award and supplements thereto, and which has been made applicable to Canada by order

in council 1768, effective Aug. 1, 1918. Contrary to all expectations, such increase in revenue proved far from satisfactory to accomplish the purpose for which it was intended. During 1919 the increase in wages, granted as above mentioned, amounted on Canadian railways to more than \$80,000,000, while the increase in revenue derived from the advance intended as aforesaid to provide therefor, amounted to only approximately \$43,000,000, a shortage of at least \$37,000,000. Apart from the increase in wages, the prices of the principal supplies and materials in use on the railways, have increased more than 100% since the beginning of the war period.

"3. In order that the railway companies may maintain their systems in such a state of efficiency as to enable them to serve the interests of the public in a proper manner, it is essential that they be accorded an advance in tolls of at least the extent applied for herein.

"4. The increase in rates sought by this application is based entirely on present costs, and does not take into consideration any increase in wages or costs which may occur hereafter."

As the application is a request for a straight percentage increase based upon the costs of wages and material, which are of general application, the Board has decided that the case can best be heard at one sitting rather than at different places throughout the country, and the hearing will open at Ottawa Aug. 10.

### Windsor-Detroit Railway and General Traffic Bridge.

At a meeting of the Detroit, Mich., Board of Commerce, July 15, at which a number of Windsor, Ont., people were present, steps were taken, according to a press report, for the construction of a press report, for the construction of a railway end general traffic bridge between Windsor and Detroit. This matter has been under discussion for some time; engineers have been making surveys, and tests of the river bed and of both the Canadian and the United States shores, and plans have been prepared for a bridge of the suspension type.

The report states that the approach to the bridge on the Detroit side would be located just above 24th St., and that the Canadian end would be near the easterly limit of Sandwich. The plans contemplate a suspension bridge of 1,770 ft. span, carrying two 28 ft. roadways, two 7 ft. sidewalks, two electric car tracks and four steam railway tracks. The estimated cost of the bridge suggested is \$28,000,000, including railway approaches of about a mile, on a gradient of about 1.5%. The bridge would have a height above water of 100 ft. at the harbor lines and 110 ft. at the center, in order to permit the free passage of ships. C. E. Fowler and G. Lindenthal are the engineers, under whose charge the surveys were made and the plans prepared.

**C.P.R. Employees' Passes.**—A Winnipeg report says:—"More than 5,000 annual long service passes have been distributed to employees of the Canadian Pacific Railway Western Lines. The pass is a permanent annual one, which includes the wife of a married man, and is for employees in the service for 10 years or more, covering the district in which they are employed. For employees in the service 20 years or over the pass extends over the whole Western Lines."

## Traffic Orders by Board of Railway Commissioners.

### Contract for Live Stock Transportation.

General order 300. June 30.—Re consideration of special form of contract for transportation of live stock, to be used by railway companies, and general order 298, June 2, 1920, approving forms of Live Stock Contract and Special Contract with Attendants in charge of stock, marked schedules A and B respectively: It is ordered that the date upon which the said forms of Live Stock Contract and the Special Contract with Attendants in Charge of Stock, marked schedules A and B respectively, on file with the board, shall become effective, be postponed from July 1, 1920, as provided in general order 298, dated June 2, 1920, to July 15, 1920.

### Cumberland Railway & Coal Co.'s Tariffs.

29,813. June 28.—Re application of Cumberland Ry. & Coal Co., under sec. 334 of the Railway Act, 1919, for approval of its Standard Passenger Tariff, C.R.C. 5: Upon the report and recommendation of the board's Chief Traffic Officer it is ordered that the said tariff be approved; the said tariff, with reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

29,814. June 28.—Re application of Cumberland Railway & Coal Co., under sec. 331 of the Railway Act, 1919, for approval of its Standard Freight Mileage Tariff C.R.C. 10: Upon the report and recommendation of the board's Chief Traffic Officer, it is ordered that the said tariff be approved; the said tariff, with reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

### Classification of Snow Melters.

On the application for a ruling of the board in the matter of proper classification of snow melters, in connection with claims of Freeland Steel Tank Co., Winnipeg, against the C.P.R. for freight overcharges, Assistant Chief Commissioner McLean gave the following judgment June 30:—This matter has been conducted by correspondence. After some preliminary correspondence, the applicant was advised that the matter would be set down for hearing at Winnipeg. He, however, informed the board that he did not see the need to have it set down for hearing; and he further stated that if his complaint could not be settled by correspondence, he wished the board to withdraw the complaint as he had no further data to submit. Thereafter the matter was taken off the list. On consideration of the material before the board, it appears that what the applicant is interested in is the classification, not for the future, but as to past transactions. His contention is, in substance, that the articles should, by analogy, have been classed with a second-class rating, and that claims arising in 1918 should have been settled on the basis of second-class. The railway, in dealing with the matter from the standpoint of commodities which it regards as analogous, assessed freight charges on the basis of 1½ times first-class. The submissions made have been carefully considered by the board's traffic department, which reports that it considers the rating proposed by the railways on these articles, which hitherto have not been specifically classified, viz., 1½ times 1st class, L.C.L., is reasonable, having regard to the classification of other articles

most nearly analogous as to bulk, weight and structure. Since the date of the application, the railways have proposed a specific rating of 1½ times 1st class for the commodities in question, which it is proposed to incorporate in a supplement to the classification. No further action in the matter is necessary."

### Hamilton Students' Passenger Fares.

Commissioner Boyce gave the following judgment July 3 on the complaint of the Canada, Park and Central Business Colleges, Hamilton, Ont., against proposed increases by the Hamilton Radial Electric and the Brantford & Hamilton Electric Railways in fares for students attending business colleges in Hamilton:—"The complain was originally from the Canada Business College, of Hamilton, latterly supported by the Park and Central Business Colleges of Hamilton, that as regards students, or scholars, commutation tickets on the Hamilton Radial Electric Railway, and the Brantford & Hamilton Railway (subject to this board's jurisdiction), the railways were improperly restricting the use of such tickets to students attending the public and high schools in Hamilton, and, as a consequence, were discriminating against such students, resident in the suburbs or places on the railways outside of Hamilton, as were habitually attending business colleges and other institutions of learning, training or instruction in Hamilton. In other words, that the railways interpreted the term 'student' in the issue of these tickets, only to those students of the class mentioned, excluding from their benefit, students generally. The board is asked to exercise its jurisdiction to relieve against the alleged discrimination. The railways concerned contend that they are not bound to extend the privileges of these tickets to any except students attending public and high schools; that the business colleges, being purely business enterprises and operated for private gain, do not come within the railways interpretation of 'schools' and their students are not, therefore, entitled to the benefit of the rates referred to. The Hamilton Radial, on Sept. 26, 1919, filed Supplement 1 to O.R.C. 7 (effective Sept. 29, 1919), showing special reduced rates for public and high school students, as follows, in either direction, tickets being limited to one month.

"From.	To.	Miles.	No. trips.	Price.
Hamilton	Kenilworth	3.95	46	\$1.85
"	Ghents	5.10	46	1.85
"	Canal	8.49	46	1.85
"	Burlington	10.65	46	1.85
"	Pine Cove	12.51	46	2.25
"	Bronte	16.73	46	3.00
"	Oakville	21.22	46	3.00
Oakville	Bronte	4.49	46	1.85
"	Burlington	10.57	46	1.85"

"Note.—School tickets are issued only on presentation of certificate from principal, stating that student is attending school, and are good only on cars arriving at school district at 9 a.m. and returning on 4 p.m. and 5 p.m. cars. Not good on Saturdays, Sundays, or public holidays."

"Prior to this tariff being filed, the railways extended their students rates to students generally, including students attending business colleges. The new tariff imposes a very substantial increase of rate over former rate enjoyed by students attending business colleges, and all students except those classed in the tariff; the difference to the students unfavorably classed varying from 11 to 360% increase as shown by the state-

ment filed by Mr. Kerr on behalf of complainants at the hearing. I am unable to find in anything urged at the hearing, by the railways, any justification for the distinction between 'students' sought to be imposed by the tariff. Students are to be regarded as a class, and, as a class, they ought to be dealt with as regards rail fares. For the railway to say that privileges shall be extended to certain members of that class and denied to all others falling within the definition is, in my opinion, unfair treatment, amounting to unjust discrimination. Any commutation students rates ought to be made applicable to all students. There ought to be no more difficulty for the railways concerned to interpret the meaning of the word 'student' so as to apply the rates in a comprehensive manner than for the other railways who issue commutation rates to students. I do not think that the supplement filed ought to be permitted to remain in force. It is unsatisfactory and discriminatory in its application and works injustice. The complaints against it are, I think, well founded.

"By sec. 345, ss. 2 of the Railway Act the board is empowered to require the railways subject to its jurisdiction, whenever it sees fit, to grant and issue commutation tickets at such rates and on such terms as the board may order. This is not a case where the board is asked to create a new commutation area. Were it so, different considerations would govern the exercise of the statutory discretion vested in the board by the section cited. The railways have established the system and area; they applied it first generally to all students, the students attending the business colleges of complainants participating in the privilege as members of that class. The railways then, by the supplement complained of, sought to restrict that class, and continue the privilege of cheap rates to one section of it, and deny it to the others, and it is to remedy and equalize that condition of things that the board's jurisdiction is appealed to.

"By the board's order 29,512 of April 1, 1920, in the Commutation Rate Case, the tariff there settled by the board for scholars (or students) commutation passenger traffic was as follows:—

"(b) 40 trip tickets (scholars' tickets) good for 30 days on the basis of ¼ mills per mile of travel, subject of a minimum charge per ride of 7½c."

"The commutation tariffs filed, pursuant to this order, restrict the age of the scholar to 18 years and under. I think it would be a satisfactory adjustment of this complaint to direct the railways to substitute for the tariff now in force, a tariff of students (or scholars) commutation rates on the basis of the board's order above quoted, and applicable, as in the case of the tariffs filed by railways pursuant to the board's order, within the age limit, to all persons falling within the designation of students or scholars. These rates should be made effective Sept. 1, 1920, next. Order will go accordingly.

**Railway from Victoriaville to Arthabasca.**—The Minister of Railways gave a negative answer in the House of Commons recently, to the question, "Is it the intention of the government to build a branch line on the Grand Trunk Ry. from Victoriaville to Arthabasca, Que., 3 miles, so that the railway will reach the chief town of the Arthabasca district?"

## Canadian National Railways Construction, Betterments, Etc.

**Halifax Ocean Terminals.**—A press report states that the train shed adjoining the passenger station at the new south terminals, for which the Shearer Co. had the contract, has been completed. This is part of the work of the new freight and passenger terminals which have been under construction for some years.

**Coaling Plants for Eastern Lines.**—Tenders were received to July 24 for the erection of a 250 ton capacity coaling plant at Truro, N.S., and for 100 ton coaling plants at Pirate Harbour, N.S.; Point Tupper, N.S., and Newcastle, N.B.

**St. John Station.**—A. P. Barnhill, K.C., of St. John, N.B., who is a C.N.R. director, is reported to have stated that the erection of the new station there will be proceeded with this year. Preliminary plans for the overhead crossing on Mill St. are said to have been submitted to the C.P.R., and similar plans will also be submitted to the city for approval.

Work on the demolition of the passenger train shed the roof of which collapsed recently, is reported to be progressing. Material for the erection of butterfly roofs is reported to be in course of delivery, and it is said that the erection will be gone on with at once.

**St. John Improvements.**—Following a conference with C.N.R. officials, the St. John, N.B., city council has authorized the laying of three additional tracks on Water St., the work to be done to the city engineer's satisfaction, and the placing and moving of cars thereon to be under the harbor master's supervision. It is expected that this work will be done at once in preparation for the winter traffic.

In connection with this work, it was stated in the course of the negotiations that the C.N.R. intends to build a bulkhead parallel with Charlotte St. extension and on a line with Sydney Market to provide a reclamation area for new trackage; and to straighten out the trestle leading from Reid's Point to the ballast wharf, but it is said that nothing will be done on this work this year.

**McGivney Jct.-Fredericton Revision.**—We are officially advised that a contract has been let to R. B. Stewart, Perth, N.B., for grading for changes in alignment mile 89.94 to 92.30, near Taymouth, and mile 95.32 to 96.51 near Durham on the Fredericton Subdivision. These revisions will make a very great reduction in curvature and gradients, but the difference in distance will be negligible. The new track will conform with National Transcontinental Ry. standards regarding grade and alignment. The two sections referred to are part of the old Canada Eastern Ry., between McGivney Jct. and Fredericton, which will connect the National Transcontinental Ry. at McGivney Jct., with the St. John Valley & Quebec Ry. in Fredericton, and so form part of the through route put in operation recently between St. John, N.B., and the National Transcontinental line.

**Meductic, N.B., to Bancroft, Me.**—A press report states that the Dominion Government is being urged to authorize the construction of a 22 mile line from Meductic, N.B., to Bancroft, Me., to connect the St. John & Quebec Ry. with the Maine Central Rd.

**St. Charles River Bridge, Quebec.**—The further supplementary estimates for

the year ending Mar. 31, 1921, passed at the Dominion Parliament's recent session, contain an item of \$80,365.48, to pay the Railways and Canals Department, towards the construction of the substructure of the C.N.R. bridge over the St. Charles River, Quebec harbor.

**Harrowsmith to G.T.R.**—A press report of July 14 stated that surveys were being made for a line from about a mile east of Harrowsmith, Ont., along the valley of Mud Creek, to a connection with the G.T.R. main line a short distance west of Collins Bay.

**Western Lines Betterments.**—Tenders were received recently for the construction of the following works:—

**Ellis, Ont.**—One triple 7 x 12 ft. reinforced concrete box culvert, 238 ft. long overall, at mileage 36.4, Lake Superior Subdivision.

**Glenwater, Ont.**—One 14 ft. slab top open box culvert, at mileage 44, Port Arthur Subdivision.

**Fort Frances, Ont.**—A 5-stall locomotive shed and boiler room, and foundation work for a turntable.

**Emerson and Gladstone Subdivision, Man.**—Fencing. Victoria Beach Branch, Man.—Fencing on 29 miles.

**Eaton, Sask.**—A 5-stall locomotive shed and boiler house; foundation for a water tank.

**Neepawa, Man., Signalling.**—The C.N.R. has ordered a 16-lever Saxby & Farmer interlocking machine, with 13 working levers and 3 spare spaces, and other attendant mechanical materials, for Neepawa, Man., to be installed by the company's own forces.

**Prince Albert Northeasterly.**—We were officially advised in Nov., 1919, that surveys had been completed in Sept., 1919, for a line from Prince Albert, Sask., northeasterly for about 40 miles, to serve the Paddock Wood district, but that construction would not then be gone on with. Early in June tenders were called for construction on this line, and we are now officially advised that a contract had been let to Hebb & Sibbald for grading and culverts on the first 22 miles of the line out from Prince Albert.

**Acadia Valley Branch.**—We are officially advised that the contract for grading and culverts, on the extension of this branch, from mile 25 to 43, has been let to John Timothy, Winnipeg.

**Turtleford Extension.**—As stated in Canadian Railway and Marine World for July, a contract for grading on this extension was let recently to the Western Construction Co., North Battleford, Sask. We have since been advised that the contract is for 23 miles, commencing at Turtleford, Sask., and running south-easterly.

**Kamloops - Vernon - Lumby - Kelowna Line.**—At a recent meeting of the Kelowna, B.C., Board of Trade, letters were read from Hon. Martin Burrell and Senator Bostock relative to construction on this line, which stated that it had been thought possible to get the line completed by August, but that, although construction had been pushed forward with all possible dispatch, there was still much heavy work to be done, and D. B. Hanna, President, advised that he could not give a definite date as to when the line would be ready for traffic. (July, pg. 387.)

## Grand Trunk Railway Construction, Betterments, Etc.

**Toronto to Hamilton.**—A press report states that the company's officials are figuring on a four track line between Toronto and Hamilton, Ont. When the work of track elevation from near Dufferin St., Toronto, to Mimico was done some years ago, that section was made into a four track one.

**London Track Elevation.**—A press report states that City Engineer's report on the G.T.R. track elevation problem in London, Ont., is ready for presentation to the city council. A report is also, it is said, being prepared by G.T.R. engineers. The City Engineer's report will, it is stated, deal with subways, at Rectory and Waterloo streets, and an overhead bridge at Egerton St., to take care of the eastern section of the city; a subway at Rideout St., to give uninterrupted communication between north and south London; while questions connected with the crossings at Richmond, Clarence and Wellington Streets are held over, pending further development of plans for a union station. (July, pg. 388.)

## Information Badly Mixed Up.

Some of our United States contemporaries, and even a few Canadian ones, get hopelessly astray very often in respect to Canadian railway matters. The following, which appeared in the Engineering News-Record, New York, recently, under "Railways, Proposed Work," is a sample:—

**"British Columbia.**—Until July 2, by Dept. Railways and Canals, Western Bk., Ottawa, building 50 mi. line north from Prince Albert and 60 mi. line from that point east along Saskatchewan River, for Canadian Natl. Ry., 34 Sparks St., Ottawa. C. B. Brown, Moncton, N.B., ch. engr."

The work referred to is not in British Columbia, but Alberta. Tenders were not asked for by the Railways and Canals Department, but by the Canadian National Rys., the headquarters of which are not at 34 Sparks St., Ottawa, which is merely a ticket office, but at Toronto. C. B. Brown, Moncton, N.B., is Chief Engineer of the old Canadian Government Rys. and some additional mileage, now forming part of the Canadian National Rys., but has nothing to do with the Western Lines, of which H. A. Dixon is Chief Engineer.

**Official Trip Over Canadian National Rys. Western Lines.**—D. B. Hanna, President, C.N.R., left Toronto early in July for a trip over the lines to the Pacific Coast, accompanied by A. J. Mitichell, Vice President. S. J. Hungerford, Assistant Vice President, went as far as Winnipeg with him, and A. E. Warren, General Manager, Western Lines, met him at Port Arthur. On July 14 he visited Grand Beach on Lake Winnipeg, and on the return trip to Winnipeg four cars of the train he was on were derailed at Gonor, through a defect in, or tampering with a switch, but no one was hurt. On July 16 Mr. Hanna was joined at Winnipeg by Hon. J. D. Reid, Minister of Railways, and a few days later, accompanied by a number of C.N.R. officials, they proceeded via Prince Rupert to Vancouver and Victoria, and are expected to return to the east early in August.

**Montreal Incline Ry.**—The Montreal City Council has ordered the immediate removal of the debris of the dismantled incline railway up the mountain.

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TORONTO, CANADA, AUGUST, 1920.

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## The Canadian Pacific Railway's War Veterans.

Up to June 30 the C.P.R. has given employment to 18,330 returned soldiers. When any C.P.R. man sailed for voluntary service overseas, he carried with him not only credit for six months pay, but also the promise of a position awaiting his return, of equal value to the one he left. That promise was more than kept, for the C.P.R. scale of pay was raised during the war to correspond with the increased cost of living, and re-employment in the same position in most cases meant re-employment at higher pay. Not only was the door thrown wide open to C.P.R. returned men, but for all new openings preference has been given to returned men in general, so that whereas the company's moral obligation covered only the 7,000 who applied for reinstatement, its actual record has been the employment of over 18,000 ex-service men—or more than 20% of the total payroll. The actual figures up to June 30 are as follows:—

Total reported as joining the army.....	11,602
Dead .....	1,100
Wounded .....	2,088
Re-employed in the service .....	7,008
Other soldiers given employment .....	11,322
Total soldiers given employment .....	18,330

Army service naturally upset the old order of life, and a percentage of those who might have come back to railway service in Canada drifted elsewhere. Of the various types of railway employe the trainmen and locomotive men appear to have remained most true to their old love, as the following figures show:—

	Enlisted.	Killed or died on active service.	Re-employed.
Train and locomotive men	1,880	201	1,338
Shop men .....	2,787	270	1,813
Clerical .....	3,077	280	1,820
Miscellaneous .....	2,860	313	1,789
Maintenance of way employes .....	508	32	248
Total .....	11,062	1,100	7,008

Of the C.P.R. men re-employed, 370, or over 5%, won special distinction, including two V.C.'s; 2 C.M.G.'s; 17 D.S.O.'s; 3 with bar to D.S.O.'s; 3 D.S.C.'s; 54 M.C.'s; 47 D.C.M.'s; 180 M.M.'s; 13 with bar to M.M.; 17 M.S.M.'s; 13 Croix de Guerre, and one Legion of Honour. Particulars of some of these follow:—

**Victoria Cross.**—Robertson, John Peter, locomotive man, Medicine Hat; Stuart, R. N., officer, Atlantic Service.

**Companion of Order of St. Michael and St. George.**—Hesketh, J. A., D.S.O., D.C.M., Asst. Engineer, Winnipeg; Ramsey, C. W. P., Engineer of Construction, Montreal.

**Distinguished Service Order.**—Barber, H. G., Resident Engineer, Nelson; Bliss, R. H., clerk, Smiths Falls; Cantlie, G. S., Gen. Supt., Car Service, Montreal; Carmichael, John, engineer, B. C. C. Service; Coppock, R. C., officer, Atlantic Service; Cox, H. W. D., fitter, Medicine Hat; Doughty, E. S., Land Agent, Calgary; Gascoigne, F. A., Supt. Car Service, Montreal; Hesketh, J. A., Asst. Engineer, Winnipeg; Hillman, D., Div. Engineer, Sudbury; Flint, Chas., Resident Engineer, Edmonton; Leask, Thos. McCrae, Surgeon, Moose Jaw; Maitland, Oliver Mowat, clerk, Moose Jaw; Quine, J., engineer, B. C. C. Service; Ripley, B., civil engineer, Toronto; Stuart, R. N., officer, Atlantic Service; Wilson, R. (with bar), engineer, Atlantic Service.

**Distinguished Service Cross.**—Fergu-

son, Herbert J., officer, Atlantic Service; Haines, W. P., officer, Atlantic Service; Outram, Edmund, officer, Atlantic Service.

**Legion of Honour.**—Chalus, C., chauffeur, Brooks.

**Officials Re-instated.**—The C.P.R. policy of finding a position at least as good as the position given up was carried out in the higher ranks of the service, as well as in the lower. Thus for instance:

T. S. Acheson, who was employed, before joining the army, as General Agricultural Agent, Winnipeg, was re-employed in same capacity.

G. W. Curtis, who was employed as Industrial Agent, Montreal, was re-employed in same capacity.

M. L. Duffy, who was chief clerk, Freight Department, London, Eng., was re-employed as Agent at Glasgow.

F. A. Gascoigne, who was Superintendent Car Service, Montreal, resumed duty as Secretary-Treasurer Canadian Pacific Ocean Services Ltd., Montreal.

Gerald Hiam, who was District Freight Agent at Fort William, returned to duty as District Freight Agent, at Cleveland.

W. M. Kirkpatrick, who was Assistant Freight Traffic Manager, at Montreal, resumed duty as Assistant Freight Traffic Manager at Winnipeg.

T. M. Leask, who was Chief Surgeon at Moose Jaw, resumed duty as Chief Medical Officer there.

B. H. Muckleston, who was Division Engineer, Natural Resources Department, Calgary, resumed duty as Division Engineer.

G. G. Ommanney, who was Special Assistant Engineer, Montreal, resumed duty as Assistant Engineer in Chief Engineer's Department, Montreal.

L. C. Ord, who was Assistant Works Manager, Angus shops, Montreal, resumed duty in same capacity.

C. W. P. Ramsey, who was Engineer of Construction, Montreal, and who took command of the Canadian Overseas Railway Construction Corps, resumed duty as Relieving Superintendent on Eastern Lines.

M. J. Robertson, who was Assistant to Manager, Real Estate Department, Montreal, returned to duty in his former position.

H. B. Yewdall, who was Purchasing Agent, Right of Way Department, Winnipeg, resumed his former position.

James Duff, who was General Townsite Agent at Calgary, was re-employed as Superintendent of Townsites, at Calgary.

G. E. Hall, who was Assistant General Storekeeper, Montreal, was, re-employed in same capacity.

A. H. Kendall, who was Master Mechanic at Toronto, was re-employed as Master Mechanic, Quebec District.

Robt. McKillop, who was Superintendent, Montreal, was re-employed as acting Superintendent at Chapeau, and is now Superintendent at London.

A press report states that it is expected that early in August all freight trains operated by the Canadian National Rys. into and out of Quebec will be run over the Quebec bridge, and that the present car ferry service between Levis and Quebec will be abandoned, the car ferry, however, being held for use in emergencies. It is not expected that anything will be done in the way of taking Grand Trunk passenger cars into Quebec over the bridge until the autumn.

## Railway Windbreaks for Snow and Sand.

By B. M. Winegar, Forestry Inspector, Canadian Pacific Ry.

Railways use two kinds of fences for snow, a portable one which can be shifted any distance from track, and a permanent one, which is established on the right of way line. The former fence is taken down in the spring and piled up until the autumn. The advantage of this type of fence is obvious, being built in 12-14 and 16 ft. panels, it is easily handled. The maintenance, however, is very high, and the expense necessary in moving considerable. The temporary fence, however, is unsightly. Tree fences recommend themselves on account of their original cost, the small maintenance expense involved after plantations have been established several years, and because of their appearance. Their disadvantage is their liability to fire. Extra precautions are necessary on the part of the track forces to keep fire from getting into the plantation.

There are some fine examples of tree fences in the Ontario orchard belt. Some of these fences have evidently been located at least 50 years. On the wind-swept prairies, too, settlers have found trees an excellent protection both in winter and in summer. Railway officers have been aware of the practicability of this type of fence for some time, but the price of lumber and posts, until recently, has not made tree planting very attractive. However, tree planting today, in eastern Canada, can be done for less than one half the cost of wooden fences. Live fences are effective and economical. After the third and fourth year, no maintenance is required. They are decorative and do much to make the right of way attractive.

Planting has been done very successfully by the Intercolonial Ry. in northern New Brunswick, since 1887. Here the local red spruce has been dug up from nearby fields and transplanted. This work is still being carried on. When the trees reach a height of 9 to 10 ft., the tops are trimmed. Trees from 18 to 36 in. high have been planted in two rows. From time to time any failures have been taken out and replacements made. This is perhaps the most striking example of just what can be done along this line.

The Canadian Pacific and the Minneapolis, St. Paul & Sault Ste. Marie railways have been planting for a number of years in the prairie country. Moisture conditions limit the varieties to deciduous shrubs and trees. From six to eight rows of shrubs and trees are required. Locust, carragana, willow and poplar are the species used. An attempt is being made, after the plantations have been several years located, to interplant with spruce.

The ideal snow fence appears to be the white or red spruce of this country, or the Norway spruce, planted two or three rows staggered. The trees hold their foliage well to the ground. They grow rapidly, making from 10 to 16 in. annually, after having become established. They make an excellent snow barricade, and are striking in appearance.

Balsam, though of a more rapid growth than spruce, is subject to more enemies, is considerably more brittle, and is not so satisfactory in holding its lower branches. It should do well, however, in mixture.

Cedar is used extensively, and although of slower growth than any of the other species planted, when once established,

does extremely well. It makes an even more artistic show that perhaps any of the other species. North of Lake Superior, and west to the prairies, where jack pine predominates, the use of this tree is to be recommended. It is of quick growth, but has the drawback of losing its lower branches quickly, especially when planted close. It should be used in mixture with spruce, balsam or cedar. Norway pine has the same growing characteristics, but, like the jack pine, it will probably do well in the mixture. Use of hemlock has been recommended, but it would appear the least satisfactory of all trees mentioned.

A factor which affects the cost of planting trees and on which success of the plantations depends is the distance which trees have to be hauled. If it were possible to lift trees only a short distance, say within half a mile, the loss would be greatly reduced. It is obvious, however, that where trees are transported from wagons to cars and then taken to destination, drying out of the roots occurs, and the loss is greatly increased. Proper weather conditions are necessary for this work. Trees which are handled in cool, damp weather have a much better chance than if transplanted when weather is dry and hot.

There has been much discussion as to the time when trees should be planted. Successful work has been done in the spring, and again from the middle of September till heavy frost sets in. Where the soil is very heavy and difficult to work, and where heavy boulders are found, the expense is greater and the difficulty of establishing plantations much increased. If it is necessary to use a spade to work the ground, the roots of the trees are much more likely to get insufficient space that where ploughing is done. The following methods have been suggested for establishing tree fences. Trees are planted from 2 to 2½ ft. apart in rows. These rows are from 2 to 3 ft. apart. Two to three rows are necessary.

Nursery stock being impossible to obtain at reasonable figures, we are forced to depend largely on trees dug from the wood. Greater loss is anticipated from this class of material.

The smaller the trees planted, the greater the chance for success. The cost of lifting smaller trees and planting them is much less than the expense involved in lifting bigger stock. It is not practical, however, to use large trees. The expense would be too great, and handling and loss very high. Even nurseries do not handle large conifers, except at a prohibitive rate. Nursery stock is, of course, much more easily handled than wild grown trees. It appears to be good practice when natural grown stock is used to plant trees from 18 to 36 in. high.

The ground to be planted is prepared in the spring or autumn preceding the planting. Ploughing is done and a disc is used. If trees are to be planted in the autumn, the ground should be cultivated during the summer to keep down the weeds. It appears to be good practice to plough a strip about 12 ft. wide, 3 ft. of the plantation on either side being left for fire breaks. It is necessary to keep these fire breaks maintained for several years. Cultivation should be done for at least three or four years.

Extra precaution should be taken to see that grass fires are not let run close to trees.

## Quebec Public Service Commission Legislation.

The Quebec Legislature at its last session passed an act repealing of the Revised Statutes of 1909, chap. 3, sec. 3, dealing with the organization of the Quebec Public Utilities Commission, and replacing it by a new section. The title of the commission is changed to that of the Quebec Public Service Commission, and the words "public service" are defined to mean "every corporation, other than a municipal or school corporation, firm, person or association of persons subject to the legislative authority of the province, or any lessee, trustee, liquidator or receiver thereof, that owns, operates, manages or controls any system, works, plant or equipment for the conveyance of telegraph or telephone messages, or for the conveyance of passengers or goods over a railway or tramway, or upon any lake, river or stream, or for the production, transmission, delivery or sale of heat, light, water or power." If a municipal or school corporation carries on any of these operations, outside of its own territorial limits, it is brought under the commission's control to that extent.

The commission is to consist of a President, Assistant President and one other member, to be appointed by the government for 10 years, subject to removal for cause. Two commissioners shall form a quorum, and the President's decision as to matters of law shall prevail. In unopposed matters, one commissioner may act. The government may appoint a substitute for any commissioner to act on any matter in which it appears any of the commissioners may be interested. The commissioners may engage in any other occupation not inconsistent with the performance of his duties as a commissioner, but may not hold any shares, or other security of any public service, or have any interest in any patented device which may be used for the purposes of a business of public service. There shall be a Secretary of the commission, and expert and technical assistants shall be appointed from time to time as occasion may arise. The commission shall arrange its own laws of practice. Following are the salaries fixed in the act: President, \$7,000 a year; commissioners, \$3,500 each; Secretary, \$2,400.

The commission shall have jurisdiction in all matters under the control of the Executive Committee's Railway Committee, in all questions relating to the transportation of goods on the line of any tramway company; in all matters under the control of the Minister of Public Works and Labor as set out in the civil code articles 6592 to 6596 inclusive, and in other matters dealing with public service, rendered by corporations other than transportation companies.

Other sections of the act deal with the manner in which the commission shall exercise its powers. The orders of the commission may be appealed against to the Court of King's Bench appeal side. A report upon the company's work for each year ending June 30, is to be made to the Attorney General.

The commissioners are F. W. Hibbard, K.C., President; Sir George Garneau and F. C. Labuge, C.E. The Secretary is Jos. Ahern, K.C.

# Toronto, Hamilton and Buffalo Railway Co's Annual Report.

Following are extracts from the report for the calendar year 1919. The report covers the operation of mileage as follows: main line, 79.88 miles; branches, 20.07 miles; lines operated under trackage rights, 4.36 miles; total road operated, 104.31 miles.

There was no change in the capital stock during the year, the amount authorized being \$5,500,000 and the amount outstanding remaining at \$4,512,500.

The funded debt Dec. 31, 1918, was \$5,955,000. It has been decreased by payments, Feb. 1, and Aug. 1, of 12th and 13th installments, respectively, on equipment trust notes, \$150,000. Total funded debt Dec. 31, 1919, \$5,805,000.

	1919	1918
<b>Railway operating income—</b>		
Rail operations—		
Revenues . . . . .	\$2,500,916.78	\$3,045,481.67
Expenses . . . . .	2,006,997.76	1,874,356.13
<b>Net revenue from rail operations . . . . .</b>	<b>\$ 493,919.02</b>	<b>\$1,171,125.54</b>
<b>Percentages of expenses to revenues . . . . .</b>	<b>(80.25)</b>	<b>(61.55)</b>
Railway tax accruals ..	\$72,000.00	\$61,801.23
<b>Railway operating income . . . . .</b>	<b>\$421,919.02</b>	<b>\$1,109,324.31</b>
<b>Other income—</b>		
Joint facility rent .....	\$44,677.64	\$43,604.96
Miscellaneous rent .....	25,640.49	24,239.90
Income from unfunded securities and accounts ..	2,008.86	4,973.42
Hire of equipment—credit balance .....	105,421.99	31,649.89
Income from lease of road ..	26,784.08	2,036.22
Income from funded securities ..	1,795.70	6,545.21
<b>Net other income .....</b>	<b>\$206,278.76</b>	<b>\$113,049.60</b>
<b>Gross income .....</b>	<b>\$628,197.78</b>	<b>\$1,222,373.91</b>
<b>Deductions from gross income—</b>		
Joint facility rent .....	\$10,559.81	\$10,569.18
Interest on unfunded debt . . . . .	32,041.57	29,949.73
Interest on funded debt ..	221,200.00	221,200.00
Interest on equipment trust notes . . . . .	25,875.00	32,625.00
Hire of equipment—debit balance .....	25,522.84	
<b>Total deductions from gross income .....</b>	<b>\$289,676.88</b>	<b>\$319,866.75</b>
<b>Net income .....</b>	<b>\$338,521.40</b>	<b>\$902,507.16</b>
Dividends (6% in 1919, 5% in 1918) ..	270,750.00	225,625.00
<b>Surplus transferred to credit of profit &amp; loss ..</b>	<b>\$67,771.40</b>	<b>\$676,882.16</b>
<b>Amount at credit of profit and loss Dec. 31, 1918 .....</b>	<b>\$2,458,736.94</b>	
Add—		
Surplus for 1919 ..	\$67,771.40	
Sundry adjustments ..	11,209.94	78,981.84
<b>Balance at credit of profit and loss Dec. 31, 1919 .....</b>	<b>\$2,537,718.28</b>	

During the year covered by this report the total operating revenues were \$2,500,916.78, a decrease from the previous year of \$544,564.89. Freight revenue was \$1,739,637.63, a decrease of \$568,173.34, due to a general falling off of business, largely attributable to the fact that in the previous year a considerable amount of war material was carried. Passenger revenue was \$581,430.11, an increase of \$148,903.56, due to the cessation of the war and the demobilization of the troops, permitting the resumption of regular passenger travel. Express revenue was \$28,310.00, a decrease of \$34,428.20. This decrease was caused by the fact that during the war period much heavy material was shipped by express to expedite its manufacture. Switching revenue was \$94,159.24, a decrease of \$26,602.77, which naturally follows the falling off of freight revenue.

Demurrage revenue was \$18,233.00, a decrease of \$71,400.50, due to the decrease in volume of business. Dining and buffet revenue was \$29,853.96, an increase of \$7,439.94, due to increase in passenger travel. Operating expenses were \$2,006,997.76, an increase of \$132,641.63, and equals 80.25% of operating revenues. This is 18.70% greater than the operating ratio of the previous year.

The fluctuations in operating expenses by groups were as follows:

Maintenance of way and structures, increase . . . . .	\$ 78,262.81
Maintenance of equipment, increase ..	27,572.32
Traffic expenses, increase ..	3,483.74
Transportation expenses, decrease ..	46,121.56
Miscellaneous operations, increase ..	6,215.01
General expenses, increase ..	63,229.31
<b>Net increase .....</b>	<b>\$132,641.63</b>

The increase in operating expenses, excepting the general expenses group, is due to the various increases in the rates of pay granted practically all classes of labor during 1919 and to the fact that the increases granted in 1918 in accordance with U.S. Railroad Administration general order 27 were effective only during the last four months of 1918, and to the considerable increase in the cost of material.

The increase in expenses in the general expenses group is due entirely to the adverse exchange situation that obtained in the United States against Canada during the entire year. Much of our material is purchased and considerable miscellaneous expenses are incurred in the U.S., necessitating payment in U.S. currency, while the major portion of our revenues are paid to us in Canadian currency. The conversion of Canadian funds during the year cost the company \$76,495.18, and this has been charged to general expenses—other expenses.

After providing for dividends at the rate of 6% on outstanding capital stock, a surplus of \$67,771.40 was carried to profit and loss. The charges to road and equipment to Dec. 31, 1918, were \$12,818,467.09; net additions during 1919 were \$132,641.94. Total amount carried to Dec. 31, 1919, \$12,951,109.03.

The steel car ferry steamship Maitland No. 1, owned and operated by The Toronto, Hamilton & Buffalo Navigation Co., was continued in operation during practically the entire year, the mild weather experienced during January, February and March enabling the ship to remain in operation throughout the winter, it being necessary to tie up for a few days during March for repairs. The Maitland was then continuously operated until Dec. 23, 1919, on which date, while approaching Port Maitland in a dense fog, she ran on to a reef and could not be hauled off until a considerable portion of the cargo had been thrown overboard. The ship was placed in dry dock at Buffalo, overhauled and completely restored. The total loss due to the disaster, all covered by insurance, is estimated at \$80,000. After the completion of the necessary repairs the ship will be as good as new and will be placed in regular car ferry service at the opening of the navigation season of 1920. The net income for 1919 was \$6,418.21, a decrease of \$13,301.61 from the previous year, being 1.60% on the capital stock of the navigation company, all of which is owned by the T., H. & B. Ry. Co. This, in view of the general decline in freight business that occurred, is a very satisfactory showing. The operating income of the branch line extending

to Port Maitland was \$95,519.82. After deducting interest and other fixed charges the net surplus from the handling of traffic over this branch line was \$55,025.95. The revenue accruing to this company on business originated on or in connection with the Port Maitland line over and above the earnings on traffic handed over the branch itself amounted in the year to \$188,259.85, an increase of \$6,135.92 over the previous year.

## Results of Government Control of British Railways.

A statement issued recently by the British Ministry of Transport shows that during the year ended Mar. 31, 1920, the controlled railways of the United Kingdom earned from passenger train traffic, £94,818,686; from goods train traffic, £89,485,894, and from government traffic, £18,264,182, a total of £202,568,762. This has to be reduced by £11,007,656 to cover cost of collection and delivery, £5,956 added for mileage demurrage and wagon hire, and £1,840,901 added under miscellaneous headings. Total revenue is, therefore, brought to £193,407,963, against which must be set an expenditure of £185,819,213, leaving a balance of £7,588,750. This is reduced by £447,680 by the loss on "Other businesses"—passenger road vehicles, steamboats, canals, docks, harbors and wharves, hotels, refreshment rooms and cars, etc.—to £7,141,070, to meet a total to be made up by the government guarantee of £48,490,600. This includes £47,440,000 as the standard year proportion of net receipts; while £1,050,600 has to be added to cover interest on capital works brought into use, bringing the net government liability to £41,349,530. This total does not represent the whole of the charge falling on the exchequer, since no account is taken of the liabilities which may attach to the government in respect of replacement of stock of stores and materials; abnormal wear and tear, and arrears of maintenance other than permanent way and rolling stock.—Railway Magazine, London, Eng.

## Training of Future Railway Officials.

Sir Henry W. Thornton, General Manager Great Eastern Ry. of England, in addressing the Institute of Transport recently, said:—"Training and education of future railway officers will not be confined to specialization in a single subject. Education and training of competent officers of the railway is a matter in which the Institute of Transport can, and I have no doubt will, play a large part. The high railway officer of the future can no longer be exclusively skilled in the movement of traffic, or be a brilliant engineer or a great accountant. He will have to be all of these in a degree. An analyst primarily, with the ability to appreciate the full effect of such movements as we have lately passed through, the economic side of the problem and to foresee the future. There must be a call for men of better general education, of studious and scholarly habits of mind and judicial tendencies of thought. The day of the railway officer who follows precedent, merely because it is such, and is complacent in establishing practices, or dwells within the narrow confines of the department in which he was educated, is past."

## Birthdays of Transportation Men in August.

Many happy returns of the day to,—  
V. T. Bartram, ex-Purchasing Agent, Timiskaming & Northern Ontario Ry., now railway contractor, etc., Toronto, born at Ottawa, Aug. 2, 1880.

J. C. Beckwith, ex-District Engineer, Levis, Edmundston and St. Maurice Division, Quebec District, Canadian National Rys., Quebec, Que., now engaged on G.T.R. valuation on behalf of the Dominion Government, born at Fredericton, N.B., Aug. 1, 1875.

C. B. Brown, Chief Engineer, Eastern Lines, Canadian National Rys., Moncton, N.B., born at Ithaca, N.Y., Aug. 27, 1879.

J. S. Carter, District Passenger Agent, C.P.R., Nelson, B.C., born at Aurora, Ill., Aug. 14, 1864.

Hon. F. B. Carvell, K.C., Chief Commissioner Board of Railway Commissioners, Ottawa, Ont., born at Bloomfield, N.B., Aug. 14, 1862.

A. E. H. Chesley, General Accountant, Dominion Atlantic Ry., Kentville, N.S., born near Annapolis Royal, N.S., Aug. 27, 1877.

A. B. Chown, General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, born at Belleville, Ont., Aug. 4, 1887.

C. H. N. Connell, District Engineer, Montreal and Saguenay Divisions, Quebec District, Canadian National Rys., Quebec, born at Woodstock, N.B., Aug. 26, 1876.

H. W. Crawford, ex-General Agent, Canada Steamship Lines, Ltd., now of the U.S. Shipping Board, Emergency Fleet Corporation, Cleveland, Ohio, born at Bowmanville, Ont., Aug. 24, 1887.

E. L. Desjardins, Superintendent, Division 1, Quebec District, Canadian National Rys., Levis, Que., born at St. Jean Port Joli, Que., Aug. 1, 1859.

A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont., and Honorary Secretary-Treasurer, pro tem, Canadian Electric Railway Association, born in Bosanquet Tp., Ont., Aug. 21, 1870.

J. V. Foy, General Passenger Agent, Canada Steamship Lines, Ltd., Toronto, born there Aug. 27, 1882.

Geo. H. Ham, Head Office Department, C.P.R., Montreal, born at Trenton, Ont., Aug. 23, 1847.

W. B. Harper, Resident Engineer, Laurentian Division, Quebec District, C.P.R., Montreal, born at Baie Verte, N.B., Aug. 15, 1882.

W. P. Hinton, Vice President and General Manager, Grand Trunk Pacific Ry. Co., and Grand Trunk Pacific Coast Steamship Co., and General Manager for the Receiver, Winnipeg, born at Hintonburg, Ont., Aug. 30, 1871.

F. S. Isard, Director of Finance, Canada Steamship Lines, Ltd., Montreal, born at Hamilton, Ont., Aug. 14, 1888.

F. L. Lamplough, Superintendent, Ottawa Division, G.T.R., Ottawa, born at Cambridge, Vt., Aug. 15, 1867.

J. D. McDonald, General Passenger Agent, Western Lines, Grand Trunk Ry., Chicago, Ill., born at Toronto, Aug. 27, 1855.

M. K. McQuarrie, Engineer, Dominion Atlantic Ry., Kentville, N.S., born at Sault Ste. Marie, Ont., Aug. 17, 1884.

A. H. Mahon, District Master Mechanic, Grand Trunk Pacific Ry., Edson, Alta., born near Ottawa, Ont., Aug. 27, 1874.

W. J. Meakin, Locomotive and Car Foreman, C.P.R., Wetaskiwin, Alta., born near London, Ont., Aug. 29, 1860.

C. Montgomery, Master Mechanic, Pere Marquette Rd., St. Thomas, Ont., born near London, Ont., Aug. 29, 1860.

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., Vancouver, B.C., born at Greenwich, Eng., Aug. 27, 1875.

L. Palk, Assistant to General Manager and Assistant Secretary, Winnipeg Electric Ry., and Secretary, Winnipeg, Selkirk & Lake Winnipeg Ry., Winnipeg, born there, Aug. 14, 1885.

Lt. Col. Blair Ripley, C.B.E., D.S.O., Engineer, Ontario District, C.P.R., Toronto, born at Oxford, N.S., Aug. 29, 1880.

Hon. Gideon Robertson, Minister of Labor, born at Welland, Ont., Aug. 26, 1874.

J. M. Rosevear, Comptroller, G.T.R., Montreal, born at St. Lambert, Que., Aug. 9, 1869.

W. G. Ross, President, Montreal Harbor Commissioners, born at Montreal, Aug. 6, 1873.

W. LeB. Ross, Local Treasurer, G.T. Pacific Ry., Winnipeg, born at Ottawa, Ont., Aug. 9, 1868.

F. C. Salter, European Traffic Manager, G.T.R., and Canadian Express Co., Lon-

don, Eng., born at Sarnia, Ont., Aug. 31, 1863.

W. H. Sample, General Superintendent of Motive Power and Car Departments, Grand Trunk Ry., Montreal, born at Altona, N.Y., Aug. 20, 1864.

A. O. Seymour, General Tourist Agent, C.P.R., Montreal, born at Ogdensburg, N.Y., Aug. 14, 1887.

S. A. Simpson, Superintendent, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Winnipeg, born at Toronto, Aug. 22, 1880.

J. F. Sweeting, Industrial Agent, Natural Resources Department, C.P.R., Winnipeg, born at Worthing, Eng., Aug. 20, 1872.

W. J. Sturges, acting Assistant Purchasing Agent, Grand Trunk Pacific Ry., Winnipeg, born at Fairfield, Vt., Aug. 28, 1877.

L. Tait, Secretary-Treasurer, London St. Ry., London, Ont., born at Hamilton, Ont., Aug. 9, 1882.

W. D. Waddell, Chief Accountant, Canadian Northern Ry. System, Toronto, born at Waterford, Ireland, Aug. 7, 1877.

F. E. Warren, General Car Foreman, C.P.R., Winnipeg, born at Chelsea, Que., Aug. 29, 1872.

W. B. Way, Superintendent, Division 1, Central District, Canadian National Rys., Cochrane, Ont., born at Bowmanville, Ont., Aug. 22, 1867.

H. E. Weyman, Manager, Levis County Ry., Levis, Que., born at Guildford, Eng., Aug. 27, 1883.

## Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic ports. Prepared by the Bureau of Statistics, Internal Trade Division.

Week ending July 9th, 1920:	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Fort William	27,010	11,615	25,576	.....	14,873	79,074
C.P.R.	54,292	4,772	46,022	16,283	5,169	126,538
Empire Elevator Co.	63,414	6,288	19,810	70,431	1,980	161,923
Consolidated Elevator Co.	341,036	25,654	12,079	.....	4,264	383,033
Ogilvie Flour Mills Co.	20,645	2,182	105,127	25,658	1,046	154,658
Western Terminal Elevator Co.	48,048	45,487	23,473	35,254	3,192	202,727
G. T. Pacific	100,257	49,815	45,741	.....	6,914	154,454
Grain Growers' Grain Co.	21,838	30,710	4,169	18,975	6,253	81,945
Fort William Elevator Co.	144,015	30,424	24,323	43	2,136	200,941
Northwestern Elevator Co.	.....	.....	.....	.....	.....	.....
Port Arthur—	.....	.....	.....	.....	.....	.....
Port Arthur Elevator Co.	168,812	40,019	24,787	1,047	16,451	251,116
Sask. Co-op. Elevator Co.	190,534	69,940	58,527	115,622	4,387	439,010
Canadian Government Elevator	194,734	44,682	39,279	91,082	6,503	376,280
Thunder Bay	142,083	68,812	15,350	19,414	1,910	247,569
Davidson and Smith	31,852	6,145	7,693	.....	222	45,912
Eastern-Richardson	59,848	20,332	36,071	17,541	798	134,590
Total Public Terminal Elevators	1,608,418	456,877	488,027	411,350	76,098	3,040,770
Total Private Terminal Elevators	401,061	94,437	32,203	82	.....	527,783
Saskatoon Can. Gov't. Elevator	1,409,428	24,808	325	19,241	.....	1,453,802
Moose Jaw Can. Gov't. Elevator	1,246,758	14,996	1,503	13,358	.....	1,276,615
Calgary Can. Gov't. Elevator	914,695	267,783	18,412	68	7,006	1,207,964
Vancouver, B.C.	7,590	.....	.....	.....	.....	7,590
*Total Interior Terminal Elevators	3,578,471	307,587	20,240	32,667	7,006	3,945,971
Midland—	.....	.....	.....	.....	.....	.....
Aberdeen Elevator Co.	22,500	.....	50,674	.....	.....	73,174
Midland Elevator Co.	798,239	4,416	.....	.....	.....	802,655
Tiffin, G.T.P.	153,440	40,198	.....	.....	.....	193,638
Port McNicoll	289,490	3,232	123,535	.....	.....	416,257
Goderich—	.....	.....	.....	.....	.....	.....
Elevator and Transit Co.	701,781	94,228	33,667	.....	.....	829,676
West Can. Flour Mills Co., Ltd.	189,798	.....	.....	.....	.....	189,798
Toronto Campbell Flour Mills Co.	54,392	5,495	4,265	.....	.....	64,152
Kingston—	.....	.....	.....	.....	.....	.....
*Maple Leaf Milling Co., Ltd.	888,683	.....	.....	.....	.....	888,683
Montreal—	.....	.....	.....	.....	.....	.....
Harbor Commissioners No. 1 and 2	1,776,016	433,743	651,110	.....	16,889	2,877,758
Montreal Warehousing Co.	745,224	5,727	45,759	.....	.....	796,710
Ogilvie Flour Mills Co.	25,488	.....	.....	.....	.....	25,488
Quebec Harbor Commissioners	.....	13,382	.....	.....	.....	13,382
Total Public Elevators	5,640,051	600,421	909,010	.....	16,889	7,166,371
*Total Country Elevators	3,255,415	2,055,339	1,040,468	381,291	.....	6,732,513
U.S. Atlantic Seaboard ports—	.....	.....	.....	.....	.....	.....
*Portland, Me.	10,330	573,446	34,657	.....	36,286	654,719
Baltimore, Md.	.....	.....	.....	.....	3,488	3,488
Total U.S. Atlantic Seaboard Ports	10,330	573,446	34,657	.....	37,774	658,207
Total Quantity in Store	14,493,746	4,088,107	2,524,605	825,390	139,767	22,071,615

\*Quantity for each individual interior terminal elevator not received.



polys to be governed by signals from watchmen before crossing; wages to be paid half each by city and railway company.

29,861, 29,862. July 14.—Authorizing Canadian National Rys. to close its stations at Napanee and Grafton, Ont.

29,863. July 15.—Relieving C.P.R. from providing further protection at the crossing of the highway 2.5 miles west of Strathmore, Alta.

29,864. July 17.—Approving Toronto Suburban Ry. Standard Passenger Tariff C.R.C. 1, same to be published in two consecutive weekly issues of Canada Gazette.

29,865. July 10.—Ordering Hamilton Radial Electric Ry. and Brantford & Hamilton Electric Ry. to substitute for their tariffs of students' or scholars' commutation rates a tariff to apply to scholars 18 years old or under on the following basis, 40-trip tickets, good for 30 days, on basis of 4¼ mills a mile of travel, subject to a minimum of 7½c.; effective Sept. 1.

29,866. July 19.—Authorizing Canadian National Rys. to open for traffic the diversion of line from mile 139.7, Muskoka Subdivision, for 6,799.6 ft., in Foley Tp., Ont.

29,867. July 19.—Authorizing C.P.R. to operate signals at crossing of Canadian Northern Ontario Ry. at Bonarlaw, Ont.

29,868. July 17.—Dismissing application of town of Laval, Que., for order requiring Canadian National Rys. to change location of station so that the two stations, one each end of the town, be brought to one point.

29,869. July 17.—Authorizing C.P.R. to build three tracks at grade, across Mackenzie Ave., Edmonton, Alta.

29,870. July 17.—Authorizing C.P.R. to rebuild bridge 32.49, over Mississippi River, on Chalk River Subdivision, Quebec District.

29,871. July 17.—Authorizing C.P.R. to divert road allowance on south boundary of Sec. 30, Tp. 23, Range 15, west 3rd meridian; to build, at grade, its tracks across same at mile 46.5, Rose-town Southeasterly Branch, and to close, within its right of way, the diverted portion of said road allowance.

29,872. July 17.—Ordering Canadian National Rys. to erect one-pen stock yard at Meanock, Alta.; to be completed by Sept. 15.

29,873. July 19.—Authorizing C.P.R. to build spur for Manitoba Rolling Mill Co. at mile 20, Winnipeg Beach Subdivision, Man.

## The Railway Situation in the Gaspé Peninsula.

In connection with the railway situation in the Gaspé Peninsula of Quebec, to which considerable attention has been attracted recently by questions in Parliament, and by an investigation of the condition of the Atlantic, Quebec & Western Ry., and the Quebec Oriental Ry., and the services given by them, conducted by the Board of Railway Commissioners, a petition has been forwarded to the Dominion Government asking that these lines be taken over and consolidated as a branch of the Canadian National Rys. The petition is reported to have been largely signed in all the parishes lying between Matapedia and Gaspé, along the route of the two lines, a distance of 202 miles. C. Marcil, M.P. for Bonaventure County, has written D. B. Hanna, President, Canadian National Rys., calling attention to what has been done, and claiming advantages that would accrue to the C.N.R. through the development of the country through which the lines pass, were they efficiently operated. He also points out that by the construction of a railway bridge across the Restigouche River between Cross Point, Que., and Campbellton, N.B., connection would be afforded with the Intercolonial Ry. and the International Ry. of New Brunswick. The construction of the bridge referred to was a work in which the late Thos. Malcolm, who built the International Ry. of N.B., was greatly interested, and endeavored to carry through, but without success.

A cablegram states that at a meeting of Atlantic, Quebec & Western Ry. shareholders in London, Eng., the chairman referred to correspondence and interviews with members of the Dominion Government regarding the sale of the line, but that no decision had then been reached in regard to it.

## Among the Express Companies.

G. Allen has been appointed agent, Dominion Ex. Co., Kingston, Ont., vice F. W. Carr, transferred.

J. D. McLaren, heretofore agent, Dominion Ex. Co., Macleod, Alta., has been appointed agent, Banff, Alta.

W. Kelly, heretofore cashier, Dominion Ex. Co., Swift Current, Sask., has been appointed cashier, Moose Jaw, Sask.

D. F. Martin, heretofore route agent, Dominion Ex. Co., North Bay, Ont., has been appointed route agent, Toronto.

C. R. Fitzsimmons, heretofore agent, Dominion Ex. Co., McAdam, N.B., has been appointed agent, Woodstock, N.B.

J. H. Whitehouse has been appointed agent, Dominion Ex. Co., Kamloops, B.C., vice H. L. Maltby, transferred to Macleod, Alta.

R. Murray has been appointed acting route agent, Dominion Ex. Co., North Bay, Ont., vice D. F. Martin, transferred to Toronto.

C. H. Badendick has been appointed cashier, Dominion Ex. Co., Swift Current, Sask., vice W. Kelly, transferred to Moose Jaw, Sask.

The Canadian National Ex. Co. has opened offices at Perthuis, Que., and Cameron Falls, Ont., and has closed its office at Cronyn, Ont.

A. T. Grimmer, St. Stephen, N.B., has been appointed agent, Dominion Ex. Co., McAdam, N.B., vice C. R. Fitzsimmons, transferred to Woodstock, N.B.

H. L. Maltby, heretofore agent, Dominion Ex. Co., Kamloops, B.C., has been appointed agent, Macleod, Alta., vice J. D. McLaren, transferred to Banff, Alta.

W. J. Malcolm, heretofore chief bill clerk, Dominion Ex. Co., Toronto, has been appointed agent, Galt, Ont., vice E. Anderson, transferred to Windsor, Ont.

J. I. M. Grant, heretofore cashier, Canadian Ex. Co., St. Catharines, Ont., has been appointed agent, Bradford, Ont., vice G. A. Oliver, resigned from the service.

E. Anderson, heretofore agent, Dominion Ex. Co., Galt, Ont., has been appointed acting agent, Windsor, Ont., vice W. Aitchison, agent, resigned from the service.

W. J. Gasper, heretofore messenger, Dominion Ex. Co., Halifax to Sydney, N.S., has been appointed agent, Dartmouth, N.S., vice T. B. Spencer, resigned from the service.

The Board of Railway Commissioners has approved location and details of express buildings to be built for Canadian Ex. Co. at G.T.R. stations at Bracebridge and Huntsville, Ont.

The agreement arrived at between the Canadian National Ex. Co. and its employes, at the end of June, provides for wage increases averaging approximately 25%. It is stated that the annual increase to the company's wage bill will be about \$200,000, the increases covering about 600 employes at various points between the Atlantic and Pacific Oceans.

The Association of Railway Executives decided at New York, July 16, according to a press report, to recommend to all railways that U.S. express business continue to be handled under Federal control, as it was during the war, by one agency, the American Railway Ex. Co. The reason for this recommendation is stated to be, that the four original express companies have practical-

ly ceased to exist. A standard form of contract between the individual railway companies and the American Railway Ex. Co. is to be prepared and submitted to the Interstate Commerce Commission for approval.

Justice Masten, of the Ontario Supreme Court, gave judgment recently that express companies must accept consignments of intoxicating liquor made to them by dealers in Ontario, despite the action of the Ontario License Board in forbidding them to accept liquor consignments from the firms concerned. This judgment was given on an application of a firm of liquor dealers at Kenora, Ont., for a mandamus to compel the Dominion Ex. Co. to accept shipments of liquor for export out of Ontario to foreign countries. A similar judgment was given in Calgary, Alta., July 6, where a test case against the Dominion Ex. Co. was tried, the judgment declaring that the company is bound to receive and carry any liquor tendered to it by dealers.

## The Dominion Express Co.'s London-Paris Air Service.

A distinctly novel attraction was provided recently in the Canadian Pacific Ry. office windows at Charing Cross, London, Eng., viz., an excellent model aerodrome of the Aircraft Transport & Travel, Ltd., at Hendon, together with scientifically accurate models of various types of aeroplanes and airships. Such a display in a railway and shipping office is a sign of the times, also marking much enterprise on the part of the Dominion Express Co., Ltd. Realizing the importance of maintaining a really "express" service, if its name is still to be justified, the Dominion Express Co. made arrangements to act as passenger and parcels agents for the Aircraft Transport & Travel, Ltd., on its London-Paris daily air service. It is thus possible for either passengers or parcels to be booked for conveyance by aeroplane to or from London and Paris through any of the Dominion Express Co.'s offices in Europe, and these, in addition to London, are to be found in important cities such as Liverpool, Glasgow, Manchester, Birmingham, Bristol and Paris. The Dominion Express Co., holding, as it does, the exclusive right of shipping express parcels over the entire C.P.R. system, as agents for the aeroplane service can ensure that an express package scheduled to go on a certain ship actually reaches its destination in Canada in the shortest possible space of time. The timetable shows that only 2¼ hours is occupied on the journey to or from London and Paris—urgent letters are carried at 2s. 6d. an ounce over the ordinary letter rates. Parcels for delivery in Paris on the same day have to be handed in at 62 Charing Cross, London, S.W.1, before 10.30 a.m. The parcels rates range from 1s. 6d. to 2s. 6d. a pound, according to quantity, while special rates are quoted for large and regular consignments. The single fare for passengers is 15 guineas, which includes a car to convey the passenger to Hounslow, the starting point.—Railway Magazine, London, Eng.

Canadian National Rys. Rolling Stock. There has been deposited with the Secretary of State at Ottawa, duplicate and original of a lease and agreement dated May 1, made by the Canadian National Rolling Stock Ltd. to the Canadian Northern Ry. Co., covering certain rolling stock, attached to which is an assignment to the Girard Trust Co.

# Electric Railway Department

## The Hydro Electric Railway Situation in Ontario.

Sir Adam Beck, Chairman of the Hydro Electric Power Commission of Ontario, issued the following statement on June 29:—

"Subsequent to the Dominion Government acquiring the Canadian Northern Ry. and the various electric lines, viz., the Toronto Eastern, the Toronto Suburban and the Niagara, St. Catharines & Toronto Railways, the Chairman of the Hydro Electric Power Commission approached the Minister of Railways and Canals to determine what arrangement might be made to acquire these electric railway lines from the Dominion Government, thus avoiding the duplication and paralleling of electric railways in the districts in which the municipalities had already voted in favor of radial railways, as well as in those districts in which the municipalities contemplated constructing electric railways. The Minister of Railways and Canals was in full accord with such a policy, and gave an option to the Commission for the sale of the Toronto Eastern Railway, partly constructed, in the district between Toronto and Bowmanville, upon which the municipalities subsequently voted and carried by large majorities.

"When the vote was taken from Port Credit to St. Catharines as a part of the line between Toronto and Niagara Falls, the submission of the bylaws for the construction of the section from St. Catharines to Niagara Falls was delayed, the Commission contemplating the acquiring of the Niagara, St. Catharines & Toronto Ry. as a part of this system, thus saving duplication and paralleling of existing lines in the Niagara district.

"At a subsequent conference with the Minister of Railways and Canals, and a sub-committee of the Privy Council appointed for this purpose, an agreement was reached which the Chairman of the Hydro Electric Power Commission was prepared to recommend to the Commission, that the municipalities submit bylaws and agreements for the acquiring and operation of the Toronto Eastern, Toronto Suburban, and Niagara, St. Catharines & Toronto Rys., which recommendation and agreement was subsequently approved by the Dominion Cabinet. The offer agreed upon and the recommendation of the Chairman are as follows, contained in a memorandum to Hon. J. D. Reid, Minister of Railways, dated June 22, 1920:—

### Offer for Electric Lines.

"I have discussed with the members of the Ontario Government the question of purchasing the three electric railways in Ontario owned by the Canadian National Rys., viz., the Toronto Eastern Ry., the Toronto Suburban Ry., and the Niagara, St. Catharines & Toronto Ry. I informed them of the discussion with the sub-committee of the Dominion Cabinet when last in Ottawa, and advised them that I was prepared to recommend the taking over of the said electric railways on the following terms:—

"Toronto Eastern Ry.—Price, \$706,000, payable by Hydro Power Commission 4½% 50-year bonds, guaranteed by Province of Ontario.

"Toronto Suburban Ry.—On this railway there are \$2,628,000 of outstanding 4½% bonds due 1961. This is to be

taken over by the Hydro Power Commission, the Commission to assume the bonds.

"Niagara, St. Catharines & Toronto Ry.—Price for this railway to be \$3,544,374.10. On this road there are \$1,098,000 5% bonds due 1929. The Hydro Power Commission will assume these bonds, and give Hydro Power Commission bonds guaranteed by the Province of Ontario, 4½% 50-year bonds for the difference between \$1,098,000 and \$3,544,374.10.

"It was understood in the discussion with the sub-committee of the Dominion Cabinet that the Toronto Suburban Ry. and the Niagara, St. Catharines & Toronto Ry. must be taken together.

"I understand a meeting of the Ontario Government will be held tomorrow,

### Canadian Electric Railway Association.

Honorary President, Lieut.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co.

Honorary Vice President, Acton Burrows, Proprietor and Editor, Canadian Railway and Marine World.

President, A. Gaboury, Superintendent, Montreal Tramways Co.

Vice President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Honorary Secretary-Treasurer, pro tem, A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.

Executive Committee, The President, Vice President, and F. D. Burpee, Manager, Ottawa Electric Railway Co.; C. C. Curtis, Manager, Cape Breton Electric Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.; Geo. Kidd, General Manager, British Columbia Electric Railway Co.; M. W. Kirkwood, General Manager, Grand River Railway Co. and Lake Erie & Northern Railway Co.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Railway Co.; R. M. Reade, Superintendent, Quebec Railway Light & Power Co.; Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Railway Co.; C. L. Wilson, Assistant Manager, Toronto & York Radial Railway Co.

Official Organ—Canadian Railway and Marine World, Toronto.

and may I ask that you authorize me to say the Dominion Government are prepared to accept this offer?

"It is understood if the Hydro Power Commission take over these radials railways on behalf of the municipalities it is one of the conditions, in view of the above agreement as to price, that an exclusive traffic agreement will be made for all traffic between the above electric railways and the Canadian National Government-owned railways."

Following is the balance of Sir Adam Beck's statement to the public in this connection:—

"In the case of the Toronto Eastern Ry., the municipalities voted in favor of acquiring and extending the railway in the fall of 1919, and have executed their agreements for the acquiring and extension of this property. It covers the district between Toronto and Bowmanville, 45 miles in length.

"The Toronto Suburban Ry. is constructed and operated in the district between Toronto and Georgetown, Guelph, Toronto, Weston and Woodbridge, and within the limits of the city of Toronto,

and is 64 miles in length. The municipality of Brampton, in this district, has expressed its desire for a connection with the Toronto Suburban and Toronto. The acquiring of the Toronto Suburban will eliminate the necessity of constructing the line between Port Credit and Guelph, as a part of the Toronto-to-London line, as the Toronto Suburban will provide the service to Guelph and will connect with the Toronto and Hamilton line at or near the Humber.

"The Niagara, St. Catharines & Toronto Ry. operate approximately 81 miles of railway in the Niagara Peninsula, between St. Catharines and Niagara Falls; St. Catharines, Thorold, Welland and Port Colborne; St. Catharines and Niagara-on-the-Lake, and St. Catharines and Port Dalhousie.

"Under the proposed agreement and recommendation for the acquiring of the above electric railways from the Dominion Government the arrangement for financing is similar to that adopted by the Commission in the acquiring of the Sandwich, Windsor & Amherstburg Ry. from the Detroit United Rys. and the Guelph Radial Ry. from the city of Guelph.

"The only money required by the Commission for the equipment, construction and operation of electric railways under contemplation for 1920 will be approximately \$1,000,000, and for 1921, \$2,500,000, as the Commission does not intend to make any unnecessary expenditure on account of radial railway construction until the cost of labor and material will warrant.

"The Hydro Electric Power Commission at its meeting today approved the recommendations and offer of the Dominion Government, and issued instructions that application be made to the Ontario Government for an order in council authorizing the submission of agreements and bylaws by the municipalities interested in the districts covered by the above mentioned lines.

"The municipalities interested are as follows:—

"Toronto Suburban Ry.—Townships of Etobicoke, Vaughan, Toronto, Chinguacousy, Esquesing, Nassagaweya, Eramosa, Puslinch, Guelph; villages of Woodbridge, Georgetown, Acton; towns of Weston, Brampton; cities of Toronto, Guelph.

"Niagara, St. Catharines & Toronto Ry.—Townships of Niagara, Grantham, Stamford, Louth, Thorold, Pelham, Crowland, Humberstone; villages of Port Dalhousie, Humberstone; towns of Niagara, Merriton, Thorold, Port Colborne; cities of St. Catharines, Niagara Falls, Welland."

### The Ontario Government Refuses the Commission's Request.

Hon. E. C. Drury, Premier of Ontario, wrote Sir Adam Beck on July 6 as follows:—"In reply to the communication from the Hydro Electric Commission regarding the Toronto Suburban Ry. and the acquiring of the Niagara, St. Catharines & Toronto Ry., I beg to say, that the Government has given this matter its very full and careful consideration, and has decided, for the reasons set forth in the accompanying memorandum, to defer action in regard to the acquisition of these roads until such time as we have

satisfied ourselves by means of a thorough enquiry, as to the advisability of going on with this project. Meanwhile, we would request that pending the result of such enquiries further expenditure on these roads be not gone on with. This action is taken, I beg to assure you, not because of any feeling of lack of confidence in either hydro electric projects in general or in the Hydro Electric Commission, but because the Government, being responsible to the people of Ontario, feels that it should employ every means to fully inform itself of the feasibility and advisability of these great projects. The enquiry will be pushed with all possible speed so as to avoid every unnecessary delay should the Government finally decide to proceed with the project."

The following memorandum accompanied Mr. Drury's letter to Sir Adam Beck:—"While the Government realizes the importance of rapid and economic transportation and is much impressed by the case presented by Sir Adam Beck and the municipalities, it cannot disregard the many and serious problems involved in the proposals now presented for the purchase and construction of hydro radial railways under government guarantees, and having now reached a conclusion as to the action it ought to take in the matter, it conceives it to be its duty to give reasons for the course it proposes to follow.

"Under the provisions of the Hydro Electric Railway Act, 1914, and amendments thereto, the Commission is authorized to enter upon the construction (or purchase) and operation of electric railway lines when the municipalities interested shall, in respect of any proposed line, have signed agreements containing terms and conditions laid down by the act, and deposited with the Commission debentures as to the amount of their respective shares of the costs of construction and equipment of the line. The Commission then issues its own bonds, guaranteed by the Lieutenant-Governor in council. The bonds thus issued and sold are to all intents and purposes the bonds of the province.

**Lines Under Commission's Operation.**  
"The only railways now being operated under this legislation are the Sandwich, Windsor & Amherstburg Ry. and the Windsor & Tecumseh Ry. These railways run from Tecumseh to Amherstburg, through Ford City, Walkerville, Windsor, Ojibway and Sandwich, about 25 miles. They were acquired early this year by the Hydro Electric Power Commission for \$2,039,000, which was paid by the issue of 40-year bonds of the Commission guaranteed by the province. The report of the Commission for 1919, referring to these lines, states that 'the estimates indicate that some \$250,000 will have to be spent to bring them into fair operating shape.'

"The Hydro Electric Power Commission is also operating the Peterborough St. Ry., which was purchased by the province in 1916 along with the Seymour Power System. In the report of the Hydro Electric Power Commission for 1919 there is this statement: 'It was found that the service given was much better than supplied any other city of corresponding size, and that the revenue was really not sufficient to cover all legitimate charges.' In his report of last March respecting the Hydro Electric Power Commission, Mr. Clarkson states that this road showed losses in 1918 and 1919. These are the only street railways at present operated by the Commission.

The London & Port Stanley line is owned by the City of London and operated by a local commission.

**Lines Proposed To Be Bought.**—"The scheme now submitted for the approval of the Government covers the following lines to be built or acquired from the Dominion Government:—

"1. Toronto, Port Credit, St. Catharines line—Estimated cost of construction as revised by W. S. Murray, consulting engineer, New York, and brought down to date, \$22,298,635.

"2. Toronto Eastern Ry., Toronto to Pickering, Whitby, Oshawa and Bowmanville—Estimated cost of construction, including right of way and partial grading to be acquired from Dominion Government at a cost of \$706,000 (estimates made in Sept., 1919), \$8,360,794.

"3. Hamilton, Galt, Guelph, Elmira Line—Estimated cost of construction, estimates made Nov., 1919, \$6,530,659.

"4. Port Credit to London line—Estimated cost of construction, estimates made in 1916, \$8,499,769.

"5. Toronto Suburban line, Toronto to Woodbridge and Toronto to Guelph.

"6. Niagara and St. Catharines line, Niagara Falls, St. Catharines and Port Colborne.

"These two systems to be acquired from the Dominion Government at a cost of \$6,170,374.

"This makes a total of \$51,780,231.

"It is suggested that the Toronto to Guelph link of the Toronto Suburban system may be substituted for the Port Credit to Guelph link of the Port Credit to London line, and that this would mean a saving of about \$2,000,000 for construction expense, so that approximately the estimated cost of the proposed lines to be built or purchased is, in round figures, \$50,000,000.

"Sir Adam Beck has furnished to the Government the following memorandum with reference to the proposals now under consideration:—

**"Toronto-Port Credit-St. Catharines Ry.**—Reports and estimates were submitted in 1915 to the municipalities between Toronto and Port Credit re the construction and operation of this section as a part of the Toronto to London line; bylaws were submitted in Jan., 1916, and for the section between Port Credit and St. Catharines, in 1917 and 1919, and were passed by large majorities. Fifteen municipalities have executed agreements with the Commission, authorizing the procedure with this work, and assuming the responsibility for the railway and its operation between Port Credit and St. Catharines, and have deposited with the Commission debentures for the full amount; the Commission has issued bonds to the extent of \$11,360,363, all of which have been guaranteed by the province. A great part of the engineering work has been completed in the final survey of these sections of the Toronto-Port Credit-St. Catharines Ry. and right of way purchased between Toronto and St. Catharines to the value of \$800,000.

**"Toronto Eastern Railway.**—In May, 1919, some 10 municipalities in this district passed resolutions, requesting the Commission to negotiate on their behalf for the acquiring of the properties owned by the Toronto Eastern Ry., and to prepare reports on the completion of its construction and its extension to Toronto. An option on the property was obtained by the Commission; bylaws were submitted to 10 municipalities from Oct. 1919, to Jan. 1, 1920, under the Hydro Electric Railway Act, all passing with large majorities, for the acquiring and

completion of construction of this section of the hydro electric railways. The municipalities have all executed agreements, authorizing the Commission to proceed with this work. A number of municipalities have passed the necessary bylaws for the issue of debentures to be deposited with the Commission.

**"Hamilton-Galt-Elmira - Guelph Electric Ry.**—On Jan. 1, 1920, bylaws under the Hydro Electric Railway Act were submitted to 14 out of 17 municipalities in this district, and, of those, 13 municipalities carried with large majorities, while 3 have still to be submitted to the electors. The Commission has been able to obtain a credit of \$1,000,000 in the bank by placing some of its bonds of the Toronto-Port Credit-St. Catharines line as collateral, and this amount it is believed will be sufficient for the present year in the purchasing of right of way, the engineering and the preparation of the right of way, for commencement of operations when conditions warrant.

"The contemplated work for 1921, provided conditions remain as at present, will require an expenditure of approximately \$2,500,000. It is the intention of the Commission to proceed with the work of constructing electric railways only to such extent and as rapidly as conditions as to revenues and the cost of materials and labor will warrant.

"With reference to the negotiations of the Commission with the Dominion Government, the Commission has an option on the Toronto Eastern Ry. for \$706,000, for which amount the Government is prepared to accept the bonds of the Commission, for 50 years, at 4½%.

"The Commission has also received an offer from the Minister of Railways and Canals for the sale of the Toronto Suburban Ry., at present operating between Toronto and Guelph, and the Niagara, St. Catharines & Toronto Ry., operating in the district between St. Catharines to Niagara Falls, St. Catharines to Welland and Port Colborne, Port Dalhousie and Niagara-on-the-Lake, for which the Minister of Railways and Canals is prepared to recommend to the Dominion Government the acceptance, in payment therefor, of the Commission's bonds for 50 years at 4%.

"Sir Adam has also furnished the following memorandum (condensed), which gives further useful information with respect to the lines which it is proposed to acquire from the Dominion Government:—

**"The Toronto Eastern Ry.** was designed to give a passenger and express service between Toronto and towns east thereof as far as Bowmanville, together with a freight service, working in conjunction with the Canadian Northern (now Canadian National) service. Owing to the physical characteristics of the district, the G.T.R. runs about two miles south of Whitby, Oshawa, and Bowmanville, while the Canadian Northern is, generally speaking, about the same distance north. These three towns are developing industries of importance; especially is this true of Oshawa, which is now the largest shipping point between Montreal and Toronto. With an hourly passenger service on a line of this nature, the traffic would naturally go to the electric line, on account of the frequency of service, just in the same manner as the Metropolitan Division of the Toronto & York Radial Ry. eliminated the passenger service on the G.T.R. between Toronto and towns as far north as Newmarket. There would be considerable intertown traffic due to the indus-

trial growth of Oshawa. The growth of the city eastward would be facilitated and encouraged by such a service. Unquestionably there would be a suburban business develop eastward that does not now exist, and steam lines would be largely relieved of local traffic within this zone.

"The eastern terminus of this line is the eastern boundary of the town of Bowmanville. It runs through the town along Wellington St., a short block north of the main business street (Kingston Road). The line from Bowmanville to Oshawa, nine miles, is almost a straight line, keeping close to the Kingston Road, as this is the principal highway along which traffic passes in the district. The line passes through Oshawa along Bond St., again a short block north of the Kingston Road. From Oshawa to Whitby, 4½ miles, the line keeps as close as possible to the Kingston Road, and passes through Whitby along Mary St., a block north of the Kingston Road. From Whitby to Pickering, six miles, the line is still adjacent to the Kingston Road. From this point to the Scarboro Golf Club, eight miles, the line goes south of the Kingston Road and, at some points, is adjacent to the G.T.R. From this point a location was proposed westward to a junction with the Canadian Northern tracks near the Kennedy Road, and from there down the East Don to a terminal at Queen St.

"The work completed consists of a portion from the eastern limit of the town of Bowmanville, through Bowmanville, Oshawa and Whitby. The portion on the streets through these towns is laid with 80 lb. steel, and between towns 60 lb., with continuous angle bars. This track is all ballasted and was left in first class shape. From the western limit of Whitby to Pickering the line was graded, but no track was done. From Pickering to the Scarboro Golf Club the major portion of the right of way was acquired, but nothing further was done between these points.

"The Niagara, St. Catharines & Toronto Ry. consists of the following lines: Main line, Port Dalhousie to Niagara Falls, 16.74 miles; Welland Division, Thorold to Port Colborne, 18.53 miles; Lake Shore Division, St. Catharines to Niagara-on-the-Lake, 12.18 miles; St. Catharines local lines, 9.59 miles; Niagara Falls local lines, 4.63 miles. Total, 61.67 miles. The line operates both a freight and passenger business, the latter consisting of a regular interurban service, together with a local street railway service in the cities of St. Catharines and Niagara Falls. The district served is a very important one industrially, as it has many large pulp and paper plants. Steel, electrical and chemical plants of magnitude are also located there. The Niagara, St. Catharines & Toronto Ry. serves almost all the industries of the district—a very large proportion exclusively. Following are operating statistics:—

Year.	Gross revenue.	Expenses.	Net revenue.
1918	\$ 940,407.21	\$699,380.87	\$241,026.34
1919	1,030,756.32	796,349.83	234,306.49

"The Toronto Suburban Ry. consists of the following:—Main line, local city line, 10.45 miles; Weston to Woodbridge, 7.50 miles; Lambton to Guelph, 46.325 miles. Following are the operating statistics:—

	Fiscal 1918.	Calendar 1918.	Calendar 1919.	Calendar Est. 1920.
Revenue—	\$277,413	\$314,167	\$394,514	\$545,000
Expenses—	224,213	276,107	352,472	392,000
Net earnings—	53,200	36,050	42,042	153,000

"The estimates for 1920 conditions are based on increasing (1) service on Guelph Division from three to eight round trips a day; (2) passenger rates, from 2 to 2½c. a mile; (3) wage schedule, to pay from 46 to 50c. per hour; (4) increase equipment for local and through service and to prepare for freight which is not being handled at present."

**The Government's Pronouncement.** — The Government's memorandum contains:—"The broad question of policy is now up for determination. Shall this Government adopt the principle of publicly-owned and operated radial railway systems for the province as a whole, and proceed energetically through the Hydro Electric Power Commission, as conditions may warrant, with the construction (or acquisition) and operation of such a system? The answer involves many considerations. In 1908, before hydro development started, the direct debt of the province was \$17,250,000, with an indirect liability on guaranteed bonds to the amount of approximately \$8,250,000, making a total debt, direct and indirect, of between \$25,000,000 and \$26,000,000. Today the direct debt of the province amounts to \$104,000,000, while its indirect debts amount to about \$21,000,000. The credit of the province, therefore, stands pledged at present for the repayment of \$125,000,000.

"To date the province has advanced approximately \$56,750,000 to the Hydro Electric Commission, and in connection with the Central Ontario system, owned by the province. In addition to such advances, it has guaranteed bonds for \$8,326,000 in connection with the purchase by the Commission of the Ontario power system and certain minor systems. This means that of the obligations of the province now outstanding approximately \$65,000,000, or 52% of its present debt, is represented by assistance to the Hydro Electric Commission. The obligations of the province are not, however, limited to the moneys and guarantees which it has already given, but, so far as can be estimated, it will in the near future have to supply between \$32,000,000 and \$33,000,000 more in cash to complete the Chippawa, Nipigon and other electrical power work in process of construction; \$3,000,000 to \$4,000,000 may also have to be advanced for the proposed auxiliary steam plant authorized at the last session of the Legislature. In 1921 bonds of the Ontario Power Co. (owned by the Commission) to the amount of about \$2,500,000 will fall due, and the province will undoubtedly have to render assistance by way of cash or guarantees to meet them. In this way the province is practically committed to advance between \$37,000,000 and \$40,000,000 more to the Commission in connection with its power projects within the next year or two, and if the cost of completing the Chippawa works should exceed the present estimate of \$45,000,000 the amount will have to be still further increased.

"From the above it will be seen that with the completion of the Chippawa works and the construction of the proposed auxiliary steam plant the advances already made by the province, those which will have to be made in the near future, and the guarantees given and to be given, will amount to between \$103,000,000 and \$104,000,000, all in connection with the power development, transmission and distribution systems controlled and operated by the Commission. These amounts the province and the municipalities are bound to repay. The outcome of the Chippawa projects is awaited with deep interest and much expecta-

tion by the people of Ontario, for the scheme has become so extensive and costly that the Province, providing as it is doing, all the moneys for its construction, is most vitally interested in its successful completion and operation. The exact effect of the Chippawa development, in so far as the cost of power developed by it and the burden to be assumed by the municipalities in connection with it are concerned, cannot be definitely determined until the works are completed, but the Government rests confident in the belief that the municipalities will continue to be able to pay, with advantage and without embarrassment to them, such prices for hydro as will permit repayment of the \$104,000,000 before mentioned to be made over the sinking fund period. The necessity of raising \$38,000,000 to complete the works and for other purposes of the Commission, is so far as the province is concerned, however, a very heavy burden, particularly when the province has to raise other large amounts of money in connection with its highway development and other requirements.

"Hydro radial projects, while they may to some degree facilitate the distribution of power as incidental to the operation of the railways, are entirely new and separate from the main object and scheme of the Commission and with the enormous amounts involved in their construction must be considered on their merits and to a large extent independently and separately from the hydro electric power project. Radial railway projects with high power and high speed lines are, so far as Canada is concerned, practically a new field of enterprise. It is true that there are certain radial lines in the province, but it would hardly be fair to judge the merits of the projected new scheme on the basis of the experience of the lines now in operation. If that were done, the outlook would not be encouraging. On the other hand, there are many high speed lines in operation in the United States, constructed at much less cost than is possible at present, and if current report is to be accepted, many of them are now meeting difficulties in continuing their operation, by reason of greatly increased costs. The experience of these lines, if fully investigated, would undoubtedly furnish some basis for measuring the probable revenue and costs of operation of the projected hydro radials.

"There has been a considerable amount of general discussion on the subject of radials, and municipalities, which the suggested lines are proposed to serve, have considered the matter and signified their wishes in respect thereto. There has, however, been practically no publicity given to the exact details of construction costs, operating expenses and expected revenue, or as to the fares or rates to be charged in the light of increased costs and other changes since the termination of war. Since estimates were presented for the consideration of the municipalities, the Dominion has taken over the Grand Trunk Ry. and the Canadian Northern Ry., and these railways, being now owned by the Dominion Government, their cost of operation has to be paid by the public. The effect of this situation was not before the municipalities at the time when several of the radial projects were voted upon. Neither had the present system of public highways for the province been adopted at the time when the municipalities voted on the bylaws and the effect of these highways when constructed when the expected revenues of the radials has not been publicly investigated or discussed.

"So far as the Government is concerned no information has been put before it which is at all sufficient to permit it to form any reasonable opinion as to the correctness of the estimates put before the municipalities or the probability that the projected railways will have earnings sufficient to make them self supporting. Some of the estimates, moreover, were not made very recently and it is beyond question that they would have to be increased if construction were proceeded with at once. This view is borne out by the report of W. S. Murray, consulting engineer, New York, who was employed by the Hydro Electric Commission to report on the present proposals, in which he gives the revised up to date estimated costs of the Toronto-St. Catharines Ry.—with added equipment and possibly some extensions—as \$22,298,635, as compared with (so far as can be figured) \$16,594,749, reported to the municipalities, an increase of about 33 1/3%.

**Ontario's Obligations.**— "With the debt of the province now \$104,000,000 and the Government under obligation to raise \$37,000,000 to \$40,000,000 more to complete the power development works now under construction, it is estimated by Government auditors that with its other obligations and commitments the debt of the province will within two years amount to \$160,000,000 or more. If the radial scheme is gone on with, and kept strictly limited (which would be practically impossible) to the lines above mentioned the obligations of the province will approximate \$210,000,000. Should the radial scheme be extended, say from London to Sarnia and Windsor and from Bowmanville to Kingston, and otherwise as municipalities from time to time request, and as is to be expected—once the scheme is fairly started, the debt would, it is estimated, be still further increased by at least \$50,000,000, or to a sum more than ten times the whole debt of the province in 1908. The Government is further advised that there is no certainty that the province could raise the moneys necessary to finance such a scheme. But assuming that the money could be borrowed, it is pointed out that the annual interest charges would be almost equal to the total direct debt of the province in 1908, and that the finances of the province would be seriously crippled, and great confusion and hardship created for the municipalities if the scheme were not to meet the expectations of its promoters.

"The province must not, of course, come into competition with the Canadian National Ry. System. That system showed a deficit last year of \$47,000,000, and it is estimated that for some years to come deficits on railway operation by the Dominion will run from \$30,000,000 to \$50,000,000. These deficits must be provided by taxation, of which the Province of Ontario will pay somewhere between one-third and one-half. Moreover, there is the general question of the national debt of Canada, and of the taxes which must be raised for Dominion purposes. The debt of Canada is now \$2,000,000,000, or six times what it was in 1914. The annual expenditure of Canada before the war was between \$170,000,000 and \$175,000,000. The main estimates for this year total \$500,000,000, not including any allowance for demobilization, and independent of supplementary estimates, which will increase the amount. In other words, Canada's expenditure this year will be more than one-third more than the entire national debt of 1914. This Government is satis-

fied that the Dominion has resources abundantly ample to take care of every obligation, but the magnitude of the debt, and the vast amount that must be annually raised in Ontario to take care of its proportion of Dominion taxation, are elements in the situation that cannot be overlooked when the province is asked to take on further burdens. The province must be assured that the new scheme will be at least self supporting.

"It is contended by representatives of certain of the municipalities to be served by the projected roads, that the covenant of the municipality relieves the Government of responsibility. If the municipalities were required to furnish the moneys for the construction of the roads this might to a large degree be true, but the fact is that the municipalities look to the province to supply all the money required. This being the case, it will be realized that the Government has a responsibility not only to the municipalities to be served, but to the people of the province at large whose credit must be pledged for every dollar that is advanced to the Commission.

"Under the above circumstances and in view of the serious results to the province, no less than to the municipalities, which would follow if the radial scheme after adoption and the assumption of a liability of many millions of dollars were to fail to be self supporting, the Government is clearly of the opinion that it would be doing less than its duty to the people if it were to sanction the scheme until such time as it has been fully and completely investigated in a thorough and public manner and careful consideration given to all the facts of the case.

**Objections to Hydro Radials.**—"Besides the points already discussed the following objections to the policy involved in the proposals appear to be worthy of careful consideration:—

"1. In the districts served by hydro electric power there is now a considerable shortage of power for industrial purposes. This is an especially serious matter for the province. The completion of the Chippawa development, and the installation of an auxiliary steam plant, will no doubt relieve this situation, but the date of the completion of the Chippawa works is uncertain and the surplus of power that will then be available above industrial needs is a matter of conjecture.

"2. The present radials in Canada were practically all constructed when the cost of construction was very much lower than it is at present. It would appear from the statistics that many of these radials have failed to pay. It would seem probable that it will be much more difficult to make the proposed hydro radials pay with their much higher cost of construction.

"3. It is said that the experience in electric railways in the United States has been for several years financially unsatisfactory and that the municipalities would find it difficult, if not impossible to float bonds for the projected roads, unless with the guarantee of the Government.

"4. For all medium and short distances it is alleged that a system of good roads, upon which motor trucks could carry freight, will serve the public better than electric railways, because the truck is not limited to a fixed immovable track and definite stations for receiving and delivery but can go wherever the business requires. The province is already committed to a good roads policy involving a large expenditure.

"5. It is probable that every few years new bond issues would have to be made to pay for additional rolling stock, new sidings, double tracks and many other betterments. This would mean in the case of the present proposals additional financing on a considerable scale from time to time in the early future. The roads, which it is proposed to acquire from the Dominion Government are said to be in great need of betterments at the present moment.

"6. It is fairly open to question whether to the great responsibilities now carried by the Hydro Electric Power Commission in connection with the production and distribution of electric power (including the Chippawa scheme) there ought to be added the responsibilities and the great burden of detail of a province-wide system of radial railways.

"The attention of the Government is also directed to certain details of the specific proposals as follows:—

"1. As regard the proposed purchase from the Dominion Government of the Toronto Suburban Ry., and the Niagara, St. Catharines & Toronto Ry., it is to be noted that the various municipalities along the route of these railways have not yet passed bylaws to guarantee their respective shares of the necessary debentures.

"2. The estimates for the projected radials in each case show a small surplus on a year's operation. The attention of the Government is, however, called to the fact that interest on the necessary debentures is calculated at 5%. It is clear that such debentures will have to bear an interest rate of at least 6%. This increase in the interest rate alone turns every estimated surplus, except one, into a deficit. In the one exception the estimated surplus is reduced to \$11,038.

"3. It is proposed to issue the debentures for the cost of construction for 50 years. There is no allowance in the estimates for depreciation, renewals or sinking fund, except in the case of the Toronto, Port Credit & London Ry., where \$137,342 is allowed for sinking fund. The rolling stock, electric equipment and tracks would have to be renewed at least once within the 50 years, and some parts perhaps twice. Making the proper allowance for sinking fund and depreciation will also turn the small estimated surpluses into large deficits. In any event it is not good financing to make no allowance for sinking fund renewals or depreciation.

"4. It is said that the estimated operating expenses are calculated on a low basis. The percentage of the operating expenses to earnings per mile of all the other radials in Ontario, including the London & Port Stanley Ry., is, however, considerably greater than the estimated operating expenses of the proposed lines.

"5. The estimated earnings of two of the proposed radials, taken on a mileage basis, are also greatly in excess of those of any existing radial in Ontario, including the London & Port Stanley Ry.

"6. The estimates given for all the proposed radials are in bulk, that is to say, a lump sum is given in each case as the cost of construction, a lump sum as the annual cost of operation, and a lump sum as the annual earnings. It would be most desirable to have all these estimates in detail. Many questions arise which cannot be determined when the estimates are given in bulk. For instance, how many employes is it estimated will be required, and what is the rate of wage in each classification proposed to be paid them? Also, what rates for passengers

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and freight are proposed to be charged? Under the Ontario Railway Act 2c. a mile is the maximum passenger rate, but it would appear that the estimated earnings for the proposed radials are based on a higher rate than this.

"7. With reference to the railways which it is proposed to purchase from the Government, it would not appear to be wise to complete such purchase without first having had a thorough examination and valuation by some independent person or body.

**Commission to be Appointed.**—"Some of the foregoing arguments may not be valid and none of them may be conclusive against the ultimate adoption of the proposals. They are, however, as it appears to the Government, conclusive against their adoption at the present time and until the whole subject has been fully and exhaustively examined, because, if and when the Government goes ahead, the province will be committed not only to the present proposals but to a province-wide, publicly owned radial electric scheme operated by the Hydro Electric Power Commission, involving an ultimate mortgage of the province and of the municipalities interested of scores of millions of dollars. The matter is of far too great importance to be dealt with hastily or lightly. The Government has therefore decided to appoint a commission to go into the whole problem from every point of view and present a report for its information and guidance. The commission will be requested to proceed immediately with its task, to hold public enquiries and to report without unnecessary delay. In the meantime all action in the direction of further outlays or the assumption of further responsibilities in radial matters by the Hydro Electric Commission will be stayed."

#### Sir Adam Beck's Rejoinder.

In making public the Premier's letter and memorandum, which he said would be of interest to the municipalities concerned, Sir Adam Beck added:—"It is necessary, to a proper understanding of the present situation, and of the need for the speedy decision promised by the Prime Minister, to remember that important commitments have already been made on behalf of the Government and the municipalities, whose debentures are on deposit with the Hydro Power Commission, to the extent of almost \$13,500,000. These debentures are a guarantee against bonds issued by the Commission for municipal radial railway purposes. Work inaugurated includes extensive acquisition of right of way costing over a million dollars. The commitments made by the present Government embrace the following:—

"1. The Government validated and made legal and binding on the Commission the agreements for the construction and operation of electric railways and guaranteed the bonds on the Sandwich, Amherstburg and Essex district railway to the amount of \$2,100,000.

"2. Validated agreements and made them legal and binding on the Commission and municipalities for the construction and operation of the Toronto Eastern Ry. to the amount of \$8,360,736.

"3. Endorsed the bonds of the Port Credit to St. Catharines section to the extent of \$11,360,000.

"4. Enacted legislation legalizing the construction of the Toronto and Port Credit section to the extent of \$7,536,000.

"In all, it has dealt with expenditures on account of hydro electric railways to the extent of \$29,446,736. The Hydro Electric Power Commission has made

application for the following additional commitments on behalf of the municipalities interested:—

"1. Order in council for authority for municipalities in the Niagara, St. Catharines & Toronto Ry. district to submit bylaws and guarantee bonds for \$2,862,000."

"2. Order in council for authority for municipalities in Toronto Suburban Ry. district to submit bylaws and guarantee of bonds for \$197,000.

"3. Guarantee of bonds to be handed the Dominion Government for acquiring the Toronto Eastern Ry. properties for \$706,000.

"This makes a total of \$3,915,000. The Commission has committed itself to expend not more than \$1,000,000 in 1920, and \$2,500,000 in 1921 on improvements and equipment and the purchase of additional right of way.

"The Sandwich, Windsor & Amherstburg Ry., comprising 48 miles, is already under successful operation by officers of the Commission on behalf of the municipalities interested. The right of way for the Toronto-St. Catharines line has been acquired to the extent of 80% of its total length."

#### Appointment of Investigating Commission.

On July 15 it was announced that the government had appointed a commission, its duties being defined as follows:

1. To enquire into and report upon the whole question of hydro electric railways and all matters which in the opinion of the commissioners are relevant thereto, with particular reference to the matters that are raised by and discussed in the government's statement issued on July 9.

2. To make such suggestions and recommendations in connection with or arising out of any of the subjects thus indicated as in the opinion of the said commission may be desirable.

That for such purposes the said commissioners be authorized and instructed to take such steps for the acquirement of information as may be in their opinion necessary.

The commission as appointed originally consisted of Hon. Justice R. Y. Sutherland of the Ontario Supreme Court's High Court Division; W. A. Amos, Vice President United Farmers of Ontario, Palmerston; Fred. Bancroft, who is a member of the Pattern Makers Union, and a reporter on the Toronto Star; A. F. Macallum, B.A.Sc., C.E., City Commissioner of Works, Ottawa, and T. A. Russell, President Russell Motor Car Co., Toronto. A few days later Mr. Russell declined to act, owing to his position as a motor manufacturer having been criticized, and Brig. General C. H. Mitchell, C.M.G., D.S.O., Dean of Toronto University's Applied Science Faculty, was appointed in his place. At a preliminary meeting of the commissioners June 19, at which only three were present, it was stated that the Attorney General had authorized the Hydro Electric Power Commission and the Hydro Electric Railway Association to engage counsel at the government's expense.

The Montreal Tramways Co. has not, according to a press report, paid anything to the city on account of the \$500,000 a year which it was to pay out of its gross revenues under the contract of Jan. 1918. The amount now owing is \$1,250,000, on which the company pays interest. It is reported that the Montreal Administrative Commission is not insisting on payment, fearing that if it did a further increase in fares might result.

#### Toronto Railway Asks Postponement of Payment of City Percentage.

The Toronto Railway's General Manager wrote the Mayor of Toronto July 13, as follows:—"Under the street railway agreement the company pays the city a graded scale of percentage on its gross earnings, which is paid in monthly instalments on the first of each month, and which have been regularly paid by the company during the term of its franchise. Owing to the excessive increases in wages and material, the company now finds that under the present rates of fare it cannot meet its obligations promptly and pay the percentages monthly as in the past, and respectfully requests the indulgence of the city to allow the payments, or such part of them as the company may require, to be deferred until the end of the franchise, so as to enable the company to meet the pay rolls, ordinary expenses of the company and other obligations, on the understanding that the accumulated percentages owing to the city will be a first charge on the company's assets, to be deducted out of the award of the arbitrators when the company is being taken over by the city on Sept. 1, 1921. Perhaps it would simplify the proposition were the company to meet its monthly obligations by giving notes, payable at such dates as would be agreeable to the city. In this connection, whatever will meet the approval of the City Solicitor would be satisfactory to the company. This request would not be made were it not for the fact that the company's pay rolls, commencing July 1, will be about \$2,000,000 a year more than the pay rolls of 13 months ago, this being the increase in wages during that time. I sincerely hope the council will see its way clear to comply with the company's wish in the above request, and by doing so the city will not be running the slightest risk of losing one cent, while it will be helping the company over a very trying period."

The letter was referred to the City Solicitor for advice.

#### New England Street Railway Club Visits Montreal.

A party of about 80 members of the New England Street Railway Club left Boston, Mass., June 28, for a trip to Montreal. En route the party was increased by members of the New York Electric Railway Association, who were returning from a convention at Bluff Point, N.Y., and by electric railway men joining at the points between Boston and Montreal. On June 29 the party was taken on a sightseeing trip round the city by the Montreal Tramways Co., visits being paid to the company's stations and shops. A luncheon was served at the Pointe aux Trembles substation, A. Gaboury, Superintendent, acting as host for the company. In the evening the party was entertained by the company at dinner, at which speeches were made by E. A. Robert, President, Lt. Col. J. E. Hutcheson, General Manager, and a number of the visitors. The Montreal Harbor Commissioners provided a tug for the party for a trip round the harbor on July 30, and they left Montreal on the return trip the same evening.

The Hamilton St. Ry. started on July 11 an extra Sunday service between 8.30 and 10 a.m., to suit the steamboat traffic.

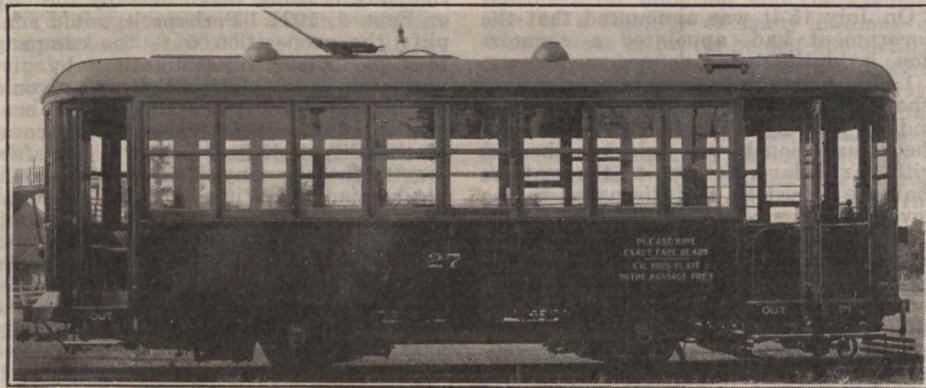
## Three Rivers Traction Co's One-Man Cars.

The Three Rivers Traction Co., Three Rivers, Que., has added to its equipment recently 4 one-man cars, an illustration of one of which is given here-with. The general dimensions are as follows:—

Length of body .....	21 ft.
Length of front vestibule .....	6 ft. 2 in.
Length of rear vestibule .....	4 ft.
Length over bumpers .....	32 ft. 2 in.
Width of car bumper .....	8 ft. 6 in.
Seating capacity .....	36 persons

The car bodies are of semi-convertible type, wood construction, built specially for one-man nearside operation and single end control. The sides are straight, and sheeted vertically with narrow t. and g. poplar sheeting. There are 8 double sash windows on each side of the body, the top sash being made stationary and the bottom sash made to raise to open.

The roof is of arch type, with exhaust ventilators and adjustable grids on the interior on each side, also one in front vestibule. The underframe is of composite construction, having wood sills, reinforced with steel plates, which are rivetted to cross sills, to form a complete steel frame. The flooring is  $\frac{3}{8}$  in.



Three Rivers Traction Co's One-Man Car.

thick t. and g. hard yellow pine, covered with hardwood floor matting laid lengthwise in the aisle.

The interior trimming is red cherry, with no bulkheads at either end. The front vestibule is made extra long, and step opening extra wide, so that entrance and exit can be made by it. Each opening has an individual folding door and step operated by the National Pneumatic Co.'s air engine, so arranged that the motorman can operate them singly. The vestibule is equipped with brass p.a.y.e. rail dividing entrance and exit, also motorman. A fare box is attached to the entrance rail, with a light arranged to illuminate the box without a glare in the motorman's eyes. The rear vestibule is circular, with an emergency exit door, controlled by the motorman from his position in the front vestibule. There is a circular seat, which accommodates five passengers, running around the rear vestibule. The seats are the builder's standard stationary type, covered with twill weave rattan and brass grab handle on back. The curtains are pantasote, mounted on metal rollers. Sanitary hand straps are provided at the longitudinal seats, 9 in all.

There is a buzzer equipment with button, and current procured from trolley. There are 10 cross seat heaters per car, with one in the front vestibule, which are connected to a thermostatic control, a most important development of recent years. The thermostat never al-

lows more current to be used by the heaters than is necessary to bring the car up to the required temperature. When that temperature has been reached, the current is automatically cut off. The thermostat takes the control of the heating equipment out of the motorman's hands.

The lighting system is arranged with 5 lights in the body of the car, using the compensating series lamp fixture with reflectors. Lights over doors, sign and farebox are arranged with 6 lights on a circuit controlled by a lintern switch, which solves the problem of the dead circuit of lights. When one light burns out, the sixth lamp takes the place of the burnout by the simple turning of a knob until the lamp lights. The selector switch "feels" for the break in the circuit and automatically remedies it. The correction is almost instantaneous.

The cars are mounted on radiax trucks, 12 ft. wheel base with 33 in. Davis cast steel wheels and  $4\frac{1}{2}$  in. hot rolled axles.

Each car is equipped with 2 Westinghouse 101-B-2 motors, with K-10 controller, and Westinghouse schedule S-M-1

straight air brake equipment, H.B. life guards, an Ideal trolley catcher, and snow scrapers.

### Change of Rule of Road in British Columbia.

An act passed by the British Columbia Legislature at its last session, to amend the Highway Act, Revised Statutes, 1911, provides for the repeal of secs. 17, 18 and 19, which deal with the rule of the road. Three new sections, similarly numbered, are enacted, which reverse the rule of the road hitherto in operation in the province, and make the new rule conform to that generally in force elsewhere in Canada. The act divides the province into two areas, viz.: Traffic District 1, including Vancouver Island, the other islands and the mainland lying west and south of the following boundary: commencing on the International Boundary at the southeast corner of Tp. 1, Range 27, west of the 6th meridian; thence along the eastern boundary of the railway belt to the southeast corner of Tp. 2, Range 26, west of the 6th Meridian; thence north along the boundaries of Tps. 2, 3, 4 and 5, Range 26, west of the 6th Meridian; thence west along the north boundary of Tp. 5, Range 26, to the west bank of the Fraser River, along the river bank to the north boundary of Tp. 14, Range 27, west of the 6th Meridian; thence west along the north

boundaries of Tps. 14, Ranges 27, 28 and 29, to the southeast corner of the Lillooet provincial electoral district; thence westerly along the southern boundaries of the Lillooet and Prince Rupert provincial electoral districts to the Pacific Ocean. Traffic District 2, comprising all the portions of the province, including islands and mainland, not comprised in Traffic District 1.

The new rule of the road is not to take effect in traffic district 1 until Dec. 31, 1921, unless by proclamation covering either the whole or any part of the district. The act became operative in District 2 July 15. District 1 includes the territory within which the British Columbia Electric Ry. operates, and was excluded in order that time may be given to that company to make the necessary changes in tournouts, cars, etc. The question of the cost of these changes is under consideration, and it has been reported that the government may undertake to meet part of the cost, which is estimated at about \$750,000.

### Operation of One-Man Cars in St. John, N.B.

The New Brunswick Power Co.'s proposal to operate one-man cars in St. John, N.B., was met with considerable opposition from the employes, who took the ground, generally, that such cars are not safe to operate, and that the safety of the passengers would be imperilled. The matter was brought to an issue July 10, when T. H. McCauley, General Manager, refused to sign the wages agreement unless a clause was inserted binding conductors and motormen to operate one-man cars similar to those operated elsewhere by international union men. The men expressed their willingness to operate cars of a certain type at an increased wage, and with certain other concessions, and decided to go out on strike July 12 if their terms were not agreed to. As a result of negotiations the following agreement was reached: "It is hereby agreed by the New Brunswick Power Co. and Messrs. Campbell and Moore, representatives of Division 663 of Amalgamated Association of Street and Electric Railway Employes of America, that the agreement as already drawn up as to wages and working conditions be signed by the company and the men's authorized representatives, and that a further agreement be drawn up to the effect that the company may go on and finish one or two cars as already started, that same be given a demonstration by the company and that, in the event of such cars proving satisfactory to the city commissioners and citizens of St. John, the employes and company agree to further negotiate as to the safety and reasonableness, wages, and working conditions of operating the same. In the event of no settlement being reached, both sides agree to submit the whole matter to arbitration or conciliation under the Lemieux Act."

A trial trip of the type of one-man cars proposed to be operated was made July 16. A local press report says:—"The car is the old two-man type, with the rear door closed up, two doors, in and out, provided at the left side of the forward end of the car. Brake and controller are the same as on the present type, but are augmented by the rear brake, brought forward to the motorman's place, to be used in emergency. Under the new system the motorman opens and closes doors, collects fares, issues transfers and operates the car."

## Increases in Electric Railway Passenger Fares.

**Brandon Municipal Ry.**—A press report states that the Brandon, Man., City Council's street railway department will put in operation a 10c. cash fare during the exhibition, but will continue the sale of tickets at 6 for 35c. The regular cash fare is 7c., but the report states that it was decided to put on the increased cash fare during the exhibition in order not to delay traffic while making change.

**Brantford Municipal Ry.**—We are officially advised that in order to provide for the increase of wages referred to on another page, the Brantford, Ont., Municipal Ry. Commission has abolished the old rate of 6 tickets for 25c. and established a straight 5c. fare. For the convenience of passengers 5 tickets are sold for 25c. It is said that since the increased rate went into effect there has been no reduction in the number of passengers carried, and that about one-third of the fares collected are tickets.

**British Columbia Electric Ry.**—A press report states that the company applied to the Victoria City Council for an agreement under which the cash fare to be charged on the electric lines in the city will be increased from 5c. to 7c.

**Calgary Municipal Ry.**—The Calgary, Alta., City Council on June 24 adopted a new fare schedule, which is compared with the old one as follows:—

	New.	Old.
Cash . . . . .	10c.	5c.
Two tickets for . . . . .	15c.	.....
Tickets for 25c. . . . .	4	5
Tickets for \$1 . . . . .	20	23
Children's tickets for 25c. . . . .	8	8

A press report states that during the first week of the operation of the new fares, the cash receipts only dropped off about 50%, while the sale of tickets practically doubled.

**Dominion Power & Transmission Co.** The Board of Railway Commissioners passed order 29,865, July 10, as follows: Re complaint of the Canada, Park, and Central Business Colleges, Hamilton, Ont., against the proposed increase by the Hamilton Radial Electric and the Brantford & Hamilton Electric Railways in fares for students attending business colleges in Hamilton: Upon hearing the complaint at the sittings of the Board held in Hamilton, Oct. 29, 1919, the complainants and the railway companies being represented at the hearing, and what was alleged, it is ordered that the Hamilton Radial Electric and the Brantford & Hamilton Electric Railways substitute for their tariffs of students' or scholars' commutation rates now in force, a tariff or tariffs of such rates, to apply to scholars of 18 years of age and under, on the following basis, viz.: 40-trip tickets (scholars' tickets), good for 30 days, on the basis of 4¼ mills a mile of travel, subject to a minimum charge per ride of 7½c., the said tariff or tariffs to become effective not later than Sept. 1, 1920.

**The Brantford & Hamilton Electric Ry.** put in operation June 25, Special Passenger Tariff C.R.C. 5, replacing Standard Passenger Tariff C.R.C. 1, which had been in operation since Aug. 18, 1908. In the old tariff while in many cases the rates charged were fixed on the maximum mileage rate authorized by the Board of Railway Commissioners, there were a number of fares which were not up to that standard. In the new tariff the rates charged are in all cases based on the maximum mileage rates authorized. The following table giving the different stations between

Hamilton and Brantford, with the mileage, and the old and new rates, single and return, shows the nature of the change made:—

	Miles.	Old rate.		New rate.	
		S.	R.	S.	R.
Station 3 . . . . .	4.07	10c.	15c.	15c.	25c.
Station 5 . . . . .	4.90	15c.	25c.	15c.	25c.
Station 7 . . . . .	5.90	15c.	30c.	20c.	35c.
Ancaster . . . . .	6.70	20c.	35c.	20c.	35c.
Station 11 . . . . .	7.20	20c.	35c.	25c.	45c.
Station 13 . . . . .	8.80	25c.	40c.	25c.	45c.
Trinity . . . . .	10.59	30c.	50c.	35c.	65c.
Alberton . . . . .	12.16	30c.	50c.	40c.	85c.
Station 19 . . . . .	14.43	30c.	50c.	45c.	85c.
Station 21 . . . . .	15.43	35c.	60c.	50c.	95c.
Langford . . . . .	16.25	35c.	60c.	50c.	95c.
Station 23 . . . . .	17.00	40c.	70c.	55c.	1.05
Station 25 . . . . .	18.56	40c.	70c.	55c.	1.05
Station 27 . . . . .	18.86	40c.	70c.	60c.	1.20
Cainsville . . . . .	19.35	45c.	90c.	60c.	1.20
Echo . . . . .	20.53	50c.	90c.	70c.	1.35
Brantford . . . . .	22.91	55c.	1.00	70c.	1.35

The Hamilton, Grimsby & Beamsville Electric Ry. put Special Passenger Tariff O.R.B. 5 in operation June 28, cancelling O.R.B. 3, dated Mar. 26, 1913, and supplements. The following table shows the stations from Hamilton with the mileage and the old and new rates, single and return:—

	Miles.	Old rate.		New rate.	
		S.	R.	S.	R.
Reservoir . . . . .	3.00	5c.	10c.	5c.	10c.
Bartonville . . . . .	4.23	10c.	15c.	10c.	15c.
Red Hill . . . . .	5.90	10c.	20c.	10c.	20c.
Stoney Creek . . . . .	7.50	15c.	25c.	15c.	25c.
Fruitland . . . . .	10.73	18c.	30c.	20c.	35c.
Smiths . . . . .	11.10	20c.	35c.	25c.	40c.
Winona . . . . .	12.31	25c.	40c.	25c.	40c.
Clines . . . . .	14.30	25c.	45c.	30c.	55c.
Grimsby . . . . .	18.27	30c.	50c.	35c.	65c.
Thirty . . . . .	21.00	40c.	65c.	40c.	75c.
Beamsville . . . . .	22.60	40c.	70c.	45c.	85c.

The increases are more in the nature of adjustments, and bring the rates between the different stations up to the maximum authorized.

A press report states that books of 400 mile tickets have been increased from \$5 to \$6, and that conductors have been instructed to collect the full number of mileage tickets, for example, 18 tickets are collected for the Hamilton-Grimsby trip, and 22 for the Hamilton-Beamsville trip, instead of 17 and 21 respectively as formerly.

**The Lake Erie & Northern Ry.** put into effect, on June 15, a special passenger tariff of local and excursion passenger fares, C.R.C. 41, the single fares being on the basis of 2¼c. a mile, and the return fares 90% of double the one way fares.

**Levis County Ry.**—At a special meeting of the Lauzon, Que., municipal council, July 6, the question of the electric railway service was under discussion, but no decision was reached. The refusal of the council to concur in the Levis County Ry.'s recent application for an increase of fares, in order that employes wages might be increased, led to a strike. The other municipalities have granted the increased fares, as stated in Canadian Railway and Marine World for July, but the Lauzon council is still standing out. The company is now giving a service only in the municipalities which have granted the increased fares.

**London St. Ry.**—The fare on the Springbank line is reported to have been increased to 4 tickets for 25c., children's tickets remaining as before, 2 for 5c. The special Sunday rate of 15c. return from the center of the city to Springbank has been abolished. These changes were authorized by the Ontario Railway and Municipal Board, which is in charge of the line.

**Toronto & York Radial Ry.**—We are officially advised that changes have been made in this company's fares as follows:

**Metropolitan Division:**—On the line from Farnham Ave. to stop 26, strips of 5 tickets are sold for 25c., the former strips of 6 tickets for 25c. and 25 for \$1 have been cancelled. The strips of 10 tickets issued at Toronto, Aurora and Newmarket for Keswick and other points on the Sutton line are cancelled; and the 50 trip tickets heretofore issued at various stations on the line to Toronto, Newmarket, Aurora and Richmond Hill have been cancelled. Passengers formerly using such tickets are now charged the regular fares.

**Scarboro Division:**—On the line from Woodbine to stop 20, strips of 5 tickets are sold for 25c., in place of 6 for 25c. heretofore.

**Mimico Division:**—On the line from Sunnyside to New Toronto (stop 25), strips of 5 tickets for 25c. are being sold instead of 6 for 25c. as formerly, and for the Sunnyside-Long Branch (stop 20) trip, the regular rate with a return fare of 15c. is charged, the old rate of 4 tickets for 25c. being cancelled.

**The Toronto Suburban Ry.'s Standard Passenger Tariff C.R.C. 1** has been approved by the Board of Railway Commissioners.

**Winnipeg Electric Ry.**—The hearing of the company's application for authority to charge a higher fare on its lines in Winnipeg, which has been pending before the Manitoba Public Utilities Commissioner since Dec. 1918, was closed July 6.

The Commissioner then took up the applications of the Winnipeg, Selkirk & Lake Winnipeg Ry. and of the Suburban Rapid Transit Co., subsidiaries of the W. E. Ry. Co., for authority to increase fares on their lines. The companies in their applications asked for a 15% increase, but at the opening of the hearing the companies' counsel intimated that this would be withdrawn, and the entire question of the rates of fares left to the Commissioner. E. Anderson, K.C., for the Rapid Transit Co., submitted the following to the Commission:—It is proposed to discontinue entirely giving return tickets from the City of Winnipeg to any point on the Suburban Rapid Transit line. It is proposed to ask for a cash fare of 10c. in each of the following zones: Between Deer Lodge and Kirkfield park; between Kirkfield park and the new rifle range; between the new rifle range approach and Headingly. It is suggested that there should be a class of tickets issued, 2 for 15c., one of which will be good for use in any of the zones in question. It is further suggested that rates for school children will be one half the regular fare. Mr. Anderson added it was proposed that the above increases should also apply to the Charleswood line south of the Assiniboine River. The propositions were discussed with representatives of the municipalities present, and the Commissioner, in reserving decision, stated that further discussion with all the parties interested would likely be necessary.

One of the incidents arising out of the Winnipeg Electric Ry.'s application to the Manitoba Public Utilities Commission for power to charge increased rates was the initiation of proceedings by the Winnipeg City Council in the Manitoba Court of King's Bench to secure an injunction to prevent the company charging an increase of fare authorized by an interim order of the Public Utilities Commissioner. Judgment was given by Jus-

Justice Curran, July 25, dismissing the action. In the course of the hearing the powers of the Public Utilities Commission, and of its constitutionality, were questioned. In regard to the first, Justice Curran said:—"I have no doubt whatever that this court has no jurisdiction on the facts of this case to interfere with the Commissioner's orders, however satisfied I may be that they are invalid for want of jurisdiction. No appeal from that order lies to this court, so that the injunction asked for restraining the defendant from carrying into effect the Commissioner's order must be refused."

On the second point, Justice Curran pointed out that the Public Utilities Commissioner is not a party to the action at all. Although not a party to the action, the validity of his office was directly called into question and if the court had decided that the act was unconstitutional, the Public Utilities Commissioner would have been deprived of his office without being afforded an opportunity of putting in a defence. There is no doubt that it was open to the city to proceed directly against the Public Utilities Commissioner and to have raised the question of the validity of the act in this manner. Another alternative method of settling the question, which would also be sound in law, is provided by the stipulations in the law by which the Lieutenant Governor in council may refer to the Court of King's Bench any matter upon which there seems to be doubt as to what court has the jurisdiction to handle it.

In his judgment commenting on the appointment and powers of the Commission, Mr. Justice Curran said:—"I have no doubt at all that the Public Utilities Act is constitutional and wholly within the legislative powers of the Provincial Legislature to enact, and that the Public Utilities Commissioner was and is legally appointed and can function in all of the powers delegated to him by that act. Further, that in no case where he acts within his jurisdiction can his orders or acts be called or questioned in this court. What the legislature could lawfully do by enactment, it could lawfully delegate to a tribunal created and set up by it for that purpose. Beyond that authority expressly or by plain inference or intentment conferred such tribunal cannot legally act."

At the resumed hearing on July 20, counsel for the company is reported to have stated that the suggested 7c. fare would give a return of 5.4% to the shareholders, but an 8c. fare would be necessary to give them a fair return on the capital invested. The shareholders have not received any return on their investment for the past five years.

**Moncton Will Not Take Over Electric Railway.**—Moncton, N.B., ratepayers on July 3, by a vote of 530 to 475, defeated a bylaw to approve an agreement between the city and the Moncton Tramways, Electricity & Gas Co. for the sale of the company's street railway and electric lighting and power plant to the city. The agreement, which the city was authorized to enter into with the company by an act passed at the New Brunswick Legislature's last session, provided for the purchase of the company's electric light plant and electric railway in the city, also certain lands, from May 31, 1920, for \$165,000, to be paid before May 31, 1921, with interest, and subject to certain adjustments to be settled by the city auditor.

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

**Brantford Municipal Ry.**—We are officially advised that the Brantford, Ont., Railway Commission has decided to establish a bus service in West Brantford, which is at present not served by the B. M. Ry. It is expected that the bus service will be started early in August. The type of bus to be used will be of light construction, and will have a seating capacity of 18.

The tracks for an electric line to serve the West Brantford district are laid to the Lorne bridge, on account of the doubtful safety of which the line will not be extended until a new bridge is built. A bylaw for the erection of a new bridge has been approved, and it is expected that construction on it will be started next spring. (May, pg. 257.)

**Hull Electric Co.**—We are officially advised that the Hull, Que., City Council proposes to repave Main St. and City Hall St., with asphalt. (April, pg. 202.)

**Hamilton St. Ry.**—The Hamilton, Ont., City Council has under consideration a bylaw authorizing the construction of a line from Margaret St. to Paradise Row and thence westerly to within 800 ft. of the Hamilton & Dundas Ry. It is reported that the company is ready to proceed with construction as soon as the necessary authorization is given by the city. (Mar., pg. 145.)

**Montreal Tramways Co.**—A press report states that the Montreal Tramways Commission has authorized the repairing of the company's tracks on St. Catherine St. east, from the C.P.R. bridge to Maisonneuve, the work to be done at once.

With regard to the construction of the projected extension of line to Kelley St., the Montreal Administrative Commission is reported to have advised the Tramways Commission that the M. T. Co. will be supplied with lines and levels at once so that the laying the new tracks can be started. The construction of this line was arranged for in the contract of 1918, the time of starting the work being dependent upon the city securing the necessary right of way for the extension of Kelley St.

The Montreal Tramways Commission and the Montreal Administrative Commission are reported to have reached an agreement as to the route of the proposed line of 12,000 ft. from Mount Royal Ave. to Shakespeare Road, to within 60 ft. of the mountain top. The cost of the construction is estimated at \$250,000. It is expected that the line will be completed and ready for operation by next spring. (May, pg. 257.)

**New Brunswick Power Co.**—Work is reported to have been started on the construction of a loop at Glen Falls, and on a turn on Charlotte St., opposite the market, St. John, N.B.

It is proposed to build a large shelter at King Square, and smaller ones at five other points on the lines. (July, pg. 392.)

**Nipissing Central Ry.**—A press report states that the Liskeard, Ont., Board of Trade and other bodies in the district are urging on the Ontario Government the necessity of extending the Nipissing Central Ry. from Liskeard to North Timiskaming, Que., 18 miles. The N. C. R. charter was granted originally by the Dominion Government to a private company, and gave authority to build electric railways in Ontario and Quebec, and

to develop and distribute electric power. The charter rights were acquired subsequently by the Ontario Government, and the line is managed by the Timiskaming & Northern Ontario Ry. Commission. (April, pg. 202.)

**Quebec Ry., Light & Power Co.**—We are officially advised that the company is building about half a mile of new track, from the corner of Paquet's factory on Dorchester St., over Lavigner bridge, to connect with the track in Stadacona Village.

A press report states that application has been made to the Board of Railway Commissioners for authority to extend the company's lines in Belvedere Ward, Quebec, to St. Malo. (July, pg. 392.)

**Regina Municipal Ry.**—A press report states that a Y is being built on Hill Ave., in Lakeview, for the white line cars, in lieu of that formerly used near the legislative buildings ground, which is being removed so that the site may be used for the erection of the Saskatchewan war memorial. (June, pg. 316.)

**St. Thomas Municipal Ry.**—A press report states that an arrangement has been made with the London & Port Stanley Ry., the Michigan Central Rd., and the Pere Marquette Rd., and approved by the Board of Railway Commissioners, under which one-man cars will be operated on the St. Thomas Municipal Ry. for three months, when the question of the permanent protection at the railway crossings will be dealt with by the Board. It was hoped that the new cars would have been put in operation July 15, but as the Board of Railway Commissioners permission had not been received, in writing, the starting of the cars was put off for a week.

**Winnipeg Electric Ry.**—Street railway traffic over the Maryland bridge is reported to have been suspended July 1, by the City Engineers instructions. Pending reconstruction of the bridge cars on the Croydon Ave., the Sherbrooke St. and the Academy Road lines have been re-routed.

**Toronto Civic Ry.**—We are officially advised that work has been started on widening of Bloor St., Toronto, from 66 to 86 ft., between Quebec Ave. and Runnymede Road, and that when this has been completed a second track will be laid on this section of the city's line. It is expected to have the work completed by the autumn. (June, pg. 316.)

**Sudbury-Copper Cliff Suburban Electric Ry. Proposed Sale.**—In connection with the company's offer to sell its undertaking to the town of Sudbury, Ont., for \$222,921, payment to be made in municipal debentures, referred to in Canadian Railway and Marine World for July, a press report of July 20 states that the town council's finance committee had advised that the town's financial condition does not permit of the purchase being made at present.

**London & Lake Erie Ry. & Transportation Co.'s Property.**—A press report states that the Ontario Highways Department proposes to take over the section of the right of way of the old London & Lake Erie Ry. & Transportation Co.'s electric railway between Talbotville and St. Thomas, Ont., and incorporate it in one of the projected provincial highways.

August, 1920.

# Electric Railway Employes' Wages, Working Conditions, Etc.

**Brantford Municipal Ry.**—We are officially advised that the new schedule of wages agreed upon between the Brantford, Ont., Municipal Ry. Commission and motormen and conductors, dates from June 1. Following is a comparison of the new and old rates per hour.

	New.	Old.
First year .....	46c.	39c.
Second year .....	48c.	41c.
Third year .....	50c.	43c.

The agreement provides that 9 hours work, to be completed in 12 consecutive hours, shall constitute a day; time and a half to be paid for overtime. Two year men pay half the cost of uniforms, afterwards uniforms are supplied free.

**Calgary Municipal Ry.**—We are officially advised that the wages for conductors and motormen and for motor-conductors on one-man cars for this year, as compared with the rates paid in 1919, are as follows per hour:—

	1920.	1919.
Conductors and Motormen—		
First six months .....	57½c.	45c.
Second six months .....	62½c.	50c.
Third six months .....	67½c.	55c.
Fourth six months .....	.....	60c.
Motor-Conductors—		
First six months .....	62½c.	50c.
Second six months .....	67½c.	55c.
Third six months .....	72½c.	60c.
Fourth six months .....	.....	65c.

**Hull Electric Co.**—A board of conciliation has been appointed to deal with the matter of the wages of the motormen and conductors. Under the agreement between the company and its employes, which expired July 1, the men were paid from 34c. to 41c. an hour, according to length of service. They have asked for an all round increase to 65c.

**Hydro Electric Ry., Essex Division,** formerly Sandwich, Windsor & Amherstburg Ry.—The agreement between the S., W. & A. Ry. Co. and its employes as to wages expired July 1. The employes asked the Hydro Electric Power Commission of Ontario, which took over the line on Mar. 31, for a minimum rate of 50c. and a maximum rate of 60c. an hour. An offer of 40c. an hour for the first three months 45c. an hour, for the next six months, and 55c. an hour after nine months was reported to have been rejected by the employes June 28. It was reported later that the men had agreed to accept an increase of 5c. an hour, half of what they asked, with the understanding that the matter will be again discussed at the expiration of three months.

**New Brunswick Power Co.**—A press report states that as the result of a conference held July 6 between representatives of the company and of the employes' union an increase of wages of about \$1 a day has been granted.

**Sarnia St. Ry.**—A press report states that a small increase of wages has been granted, which the men have stated they are willing to accept until the Sarnia City Council gives the company authority to charge increased fares.

**Hull Electric Co.**—The wage agreement between the Hull Electric Co. and its conductors and motormen expired July 1. The men, some time ago demanded a flat increase to 65c. an hour, the existing rate being from 34c. to 41c. an hour, according to length of service. As the matter could not be adjusted, a board of conciliation was appointed, the company nominating G. Kelley, of Ottawa, as its representative, and the men, J. Gibbons, of Toronto. These two having failed to agree on a chairman, the

Minister of Labor appointed Capt. W. P. Grant, Manager, Daly Co., Ottawa.

**Winnipeg Electric Ry.**—The award of the board of conciliation appointed to deal with the employes demands for increased wages presented to the company April 8, was given out July 12. In addition to specifying altered working conditions, the draft agreement submitted by the men named the wages, the table below showing the old rates per hour and those asked:—

	Old		Proposed	
	Week-days	Sundays	Week-days	Sundays
First 6 months	46c.	51c.	80c.	90c.
Second 6 months	49c.	54c.	85c.	95c.
After 1 year	52c.	57c.	90c.	\$1
After 2nd year	55c.	60c.	.....	.....

The board, which consisted of Judge R. H. Myers, Winnipeg, chairman; C. E. Dafeo, Winnipeg, representing the company, and R. S. Ward, representing the men, awarded the men a 10% increase instead of the much larger one asked for. A press report of July 13 stated that the company would accept the award but it was rejected by the men by a vote of 481 to 473 July 18, a large number not voting.

A. W. McLimont, Vice President and General Manager, is reported to have said in an interview on July 20 that the increased wages awarded meant an increased operating expenditure of about \$300,000 a year, of which \$65,000 would have to be found immediately to provide for back pay to May 1, when the old agreement expired.

## Electric Railway Notes.

The Regina, Sask., Municipal Ry. is equipping the six old cars bought in England with Westinghouse motors.

The Toronto Civic Ry. has ordered 25 double end Birney safety cars from J. G. Brill Co., Philadelphia, Pa. Delivery was expected at the end of July.

The Hydro Electric Power Commission of Ontario is reported to have decided to buy two additional mogul steam shovels, 56 contractors cars, and 3 locomotives, for the Chippawa power development work.

The Mayor of Toronto on July 12 instructed the City Solicitor to enter proceedings against the Toronto Ry. to compel it to operate all its cars during the rush hours at noon and in the early evening.

Calgary, Alta., city commissioners have, according to a press report, advised the city council to buy 12 additional electric heaters for cars on Calgary Municipal Ry. at a total cost of \$2,160.

The St. Thomas, Ont., City Council is reported to have under consideration the question of submitting a bylaw to the ratepayers providing for the operation of cars on Sundays on St. Thomas Municipal Ry.

The board of conciliation appointed to deal with the wage question on the Toronto Suburban Ry. consists of Judge Barron, Stratford, Ont., chairman; G. D. Kelley, Ottawa, representing the company, and L. Braithwaite, Toronto, on behalf of the men.

The Hamilton & Dundas St. Ry. has refused to put on a late Sunday night car from Hamilton to Dundas, Ont. It

is said that the Dundas Town Council will take up the matter with the company when the summer car schedule for 1921 is being arranged.

The Nova Scotia Tramways & Power Co. put in operation the new railway terminals-Armadale service in Halifax, N.S., July 7. The company took representatives of the city council and other of the city's business interests over the new route the day before.

The Ontario Railway and Municipal Board, which is operating the London St. Ry., is reported to have decided to speed up the service by eliminating a number of stops in the center of the city, and to add to the convenience of passengers by posting up time schedules at various points.

The Winnipeg Electric Ry. intends to subdivide River Park and place it on the market for building lots. The park was acquired by the company when it took over the old horse car system in 1893, and has been used as an amusement park. It is reported that the city may buy and acquire it.

The Montreal Tramways Co. was sued recently by N. Sauve in the Quebec Superior Court for damage for injuries received in Sept., 1918, while boarding one of its cars. The evidence showed that Sauve attempted to board the car while it was in motion, and the court held that the accident was caused entirely through his fault, imprudence and want of care, and dismissed the action.

The Saskatoon, Sask., City Council is reported to have decided on July 6 to cut down the car service on the Saskatoon Municipal Ry. from a 12 minute one to a 15 minute one, the alteration taking effect July 19. It is reported that the loss on the operation of the line this year to May 31 was \$11,381, exclusive of a claim paid of \$11,700; and that the estimated loss for Jan. was \$6,500. The estimated saving through the operation of the new time schedule is said to be \$100 a day.

The Windsor, Essex & Lake Shore Rapid Ry. has bought two interurban passenger cars, and one combination car, used formerly by the Richmond-Ashland Ry. Co., Richmond, Va. The following are the principal dimensions,—length over all, 58 ft.; length of passenger compartment, 34 ft.; length of smoking compartment, 10 ft. The cars have been used very little and are in excellent condition. The combination one has a passenger compartment 10 ft. long, with side doors on each side, 6 ft. 3 in. x 5 ft. wide. They are fitted with G.E. straight and automatic air brakes.

The Toronto Suburban Ry. has received 2 freight express cars from Preston Car & Coach Co. for its Toronto-Guelph line. They are equipped with four 240A Canadian General Electric motors 650-1500 volts, and have the following dimensions,—length over buffers, 51 ft. 8 in.; length over vestibule, 50 ft.; projection of buffers, 10 in.; radius of buffers, 5 ft. 8 in.; width over sheathing 9 ft 1½ in.; width over sills 9 ft.; width over all, 9 ft. 4½ in.; height, rail to under side of sill, 3 ft. 8 in.; height, floor to roof, 7 ft. 10½ in.; height, rail to top of running board, 12 ft. 6 in.; height, rail to center of drawbar, 2 ft. 10½ in.

The Detroit United Rys., in an amendment to its bill in the traction fare case pending in the Circuit Court, gave notice July 1 that it will establish 8c. cash fares or 7 tickets for 50c. on all non-franchise lines, Aug. 1.

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

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

	May 1920	May 1919	11 mos. to May 31, 1920	11 mos. to May 31, 1919
Gross	\$720,004	\$628,847	\$8,026,922	\$6,650,954
Expenses	547,506	473,908	5,693,925	4,922,911
Net	172,498	154,939	2,332,997	1,728,043

**Calgary Municipal Ry.—**A statement showing the results of operation for the six months ended June 30 is reported to have been laid before the Calgary, Alta., City Commissioners, July 15. Following are the principal figures given, compared with those for the same period of 1919.

	1920.	1919.
Revenues . . . . .	\$450,454.39	\$359,145.14
Expenditures . . . . .	465,639.19	368,696.39
Deficit . . . . .	\$15,184.80	\$9,551.25
Mileage . . . . .	1,583,395	1,404,351
Passengers carried . . . . .	9,160,925	7,335,520
Revenue per car mile . . . . .	27.8c.	24.5c.
Operating expenses per car mile . . . . .	22.6c.	18.7c.

**Cape Breton Electric Co:—**

	May 1920	May 1919	5 mos. to May 31, 1920	5 mos. to May 31, 1919
Gross	\$50,607	\$46,351	\$236,665	\$230,905
Expenses	42,194	38,450	211,010	175,182
Net	8,413	7,901	25,655	55,723

**Montreal Tramways Co.—**The directors have authorized the payment of a dividend of \$2.50 a share on the common stock for the quarter ended June 30. This is the third regular dividend on common stock since the company resumed paying dividends at the beginning of this year. In addition to this the company has paid three deferred dividends amounting to 7½%, and it is expected that further payments on account of deferred dividends will be made shortly.

**Toronto Civic Railway.—**

	Passengers.	Receipts.
Jan. . . . .	2,493,296	\$41,989
Feb. . . . .	2,334,431	39,331
Mar. . . . .	2,700,264	45,434
Apr. . . . .	2,622,993	43,814
May . . . . .	2,678,059	45,378
June . . . . .	2,524,803	42,221
	15,353,846	\$258,167

During the same period in 1919, the number of passengers carried was 12,004,954, and total receipts \$202,260.

**Toronto Railway.—**

	1920		1919	
	City	percentage	City	percentage
Jan. \$	652,350	\$110,950	\$ 588,923	\$ 88,339
Feb.	595,861	119,172	545,771	96,563
Mar.	745,706	149,141	615,526	123,105
Apr.	653,340	130,668	600,231	120,046
May	644,458	132,892	620,068	124,014
June	544,833	108,966	431,082	86,217
	\$3,856,548	\$751,789	\$3,401,601	\$638,284

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

	May 1920	May 1919	5 mos. to May 31, 1920	5 mos. to May 31, 1919
Gross	\$1,206,930	\$1,082,717	\$5,918,509	\$5,290,599
Expenses	794,450	624,113	3,893,182	3,100,256
Net	412,480	408,604	2,025,327	2,190,343

**Winnipeg Electric Ry. and allied companies:—**

	May 1920	May 1919	5 mos. to May 31, 1920	5 mos. to May 31, 1919
Gross	\$404,742	\$248,191	\$2,237,052	\$1,762,025
Expenses	293,671	198,092	1,679,105	1,310,682
Net	111,071	50,099	557,947	451,343

**Winnipeg Electric Ry. Co.—**A special general meeting of shareholders was called to be held in Winnipeg July 27 to ratify a bylaw amending a bylaw authorizing the issue of \$3,000,000 of 7% cumulative preference stock, which was approved by the shareholders May 20. The new bylaw provides for the payment of the dividend of 7% in quarterly instalments instead of half yearly. The shareholders were also to be asked to sanction a bylaw repealing the bylaw au-

thorizing the issue of paid up common stock as a bonus in connection with the sale of the preference stock; and also to pass a resolution authorizing the directors to dispose of the preference stock for such price and on such terms as they may think advisable.

**Mainly About Electric Railway People.**

**Sir Adam Beck,** Chairman, Hydro Electric Power Commission of Ontario, was nominated by the Toronto Board of Control, on July 7, as arbitrator, to represent the city, in connection with the taking over of the Toronto Ry. in 1921.

**W. H. Breithaupt,** President, Wellington-Waterloo Ry., Kitchener, Ont., has been re-elected Chairman of the Kitchener City Planning Commission for a third year.

**H. L. Kromstrom** has been appointed Accountant, Levis County Ry., succeeding H. S. C. Moffatt, resigned to take a position in Sherbrooke, Que.

**W. G. Murrin,** Assistant General Manager, British Columbia Electric Ry., was expected to sail from England on July 7, and to reach Vancouver before the end of July.

**C. U. Peeling,** who resigned his position as Manager, Cornwall Street Ry., Light & Power Co., Cornwall, Ont., a few months ago, to enter the Illinois Traction Co.'s engineering department's service at Peoria, Illinois, has been appointed Superintendent, Palmetto Power & Light Co., at Florence, South Carolina.

**Hon. J. L. Perron, K.C.,** one of the Montreal Tramways Co.'s counsel, and who is a member of the Quebec Legislative Council, has been appointed a member of the Quebec Government, without portfolio.

**Lt. Col. G. C. Royce,** General Manager, Toronto Suburban Ry., and family, are spending some time in Muskoka.

**London Street Railway Fares and Wages Situation.**

A report of the London St. Ry.'s operation for June has been submitted to the London City Council's street railway committee by C. B. King, the company's manager, who is managing the line under the Ontario Railway and Municipal Board. A press report states that the receipts were not up to expectations, and that there is no probability that the men will be paid any advance on the 48c. an hour rate, on which they consented to operate the line for two months. It is also stated that it is doubtful whether that rate can be maintained with the existing fare and service of cars.

The situation as to service, fares and the future of the railway is being discussed generally, but with no definite conclusion in sight. It is stated that the Ontario Railway and Municipal Board in its management of the line is disregarding the bylaw in regard to cars, etc. The men want 52c. an hour, and it is stated that there will be no improvements made in the service until the men are paid at that rate. The city council will not meet again until September and it is added that arrangements may be made to have a vote taken in October on the fare question, but at any rate there will be questions submitted to the rate-payers at the municipal elections on Jan. 1, 1921, on the fare situation, as well as the purchase of the line.

**Telegraph, Telephone and Cable Matters.**

**D. B. Hanna,** President, Canadian National Rys., has been elected a director of the Dominion Telegraph Co., succeeding Dr. C. O'Reilly, deceased.

The estimates passed at the Dominion Parliament's recent session provide under "Public works, chargeable to income," \$17,500 for purchase of submarine cable.

The Western Union Telegraph Co. is laying 150 miles of cable between Placentia, Nfld., and St. Pierre, Miquelon, with the cable steamship Lord Kelvin. This will give an additional cable connection between these two points.

The board of conciliation appointed to deal with the dispute between the C.P.R. and its telegraph operators consists of County Judge R. D. Gunn, Ottawa, chairman; F. H. Phippen, K.C., Toronto, representing the company, and J. T. Gunn, Toronto, on behalf of the men. The operators demand an increase of 25% in wages.

The Telephone Pioneers of America will hold their annual convention at Montreal, Sept. 10 and 11, this being the seventh meeting of the association since its formation. A party will leave New York Sept. 8, and travel by way of Albany, Clayton, Thousand Island, St. Lawrence River and Lachine Rapids, and will make the return trip through Lake George.

The Old Time Telegraphers' and Historical Association entertainment committee has arranged the following tentative programme for the annual reunion, which will be held at Toronto, Aug. 31, Sept. 1 and 2:—Aug. 31, business meeting, luncheon, automobile drive round the city, visit to Canadian National Exhibition, including performance before grand stand, with the pageant The Empire Triumphant; Sept. 1, boat trip to Queenston, thence by Gorge Route to Niagara Falls; Sept. 2, visit to Canadian National Exhibition, dinner at King Edward Hotel.

**Telegraph and Telephone Line Estimates.**

The further supplementary estimates for the year ending Mar. 31, 1921, passed at the Dominion Parliament's recent session, contain the following items:—

Telegraph and telephones lines, generally, repairs, repoling, shifting and completion of lines under construction . . . . .	\$50,000
Land and cable telegraph lines, Lower St. Lawrence and Maritime Provinces, including working expenses of vessels required for cable service, further amount required . . . . .	13,900
Alberta, further amount required . . . . .	12,600
British Columbia, Vancouver Island District, further amount required . . . . .	8,000
British Columbia, mainland, further amount required . . . . .	7,000
Saskatchewan, further amount required . . . . .	7,500
Yukon system, further amount required . . . . .	12,000

**Toronto Transportation Commission.—**

The Toronto City Board of Control on July 21 nominated, for consideration by the City Council, the following to be members of the commission to take over the Toronto Ry. in 1921 and manage it: P. W. Ellis, wholesale jeweller, President Toronto Hydro Electric Commission and Chairman Queen Victoria, Niagara Falls Park Commission; Fred. Miller, of Roper Miller & Sons, harbor contractor, Toronto; and Geo. Wright, hotel proprietor, who is a member of the Toronto Hydro Electric Commission.

August, 1920.

# Marine Department

## Canadian Government Merchant Marine, Ltd., Shipbuilding, Operation, Etc.

**Steel Plates for Shipbuilding.**—The estimates passed at the Dominion Parliament's recent session contain \$500,000, amount required in connection with contract made by the Marine Department with the Dominion Iron & Steel Co. for delivery of steel plates.

**Launching of Steamships.**—Since Canadian Railway and Marine World for July was issued, we have been advised of the following launchings of steel cargo steamships for Canadian Government Merchant Marine:—

June 26, s.s. Canadian Carrier; Marine Department contract 33; builder's yard no. 44; approximately 4,350 d.w. tons; Port Arthur Shipbuilding Co., Port Arthur, Ont.

June 29, s.s. Canadian Winner; Marine Department contract 29; builder's yard no. 1; approximately 8,390 d.w. tons; Harbour Marine Co., Victoria, B.C.

July 27, s.s. Canadian Conqueror; Marine Department contract 51; builder's yard no. 78; approximately 8,390 d.w. tons, Canadian Vickers Ltd., Montreal.

The aft section of s.s. Canadian Squatter, Marine Department contract 45; builder's yard no. 5; approximately 4,575 d.w. tons, was launched, July 20, by British American Shipbuilding Co., Welland, Ont., and we were advised that the forward section would be launched about a week later. The two sections will be towed to Montreal, and joined together at Canadian Vickers Ltd. plant.

**Deliveries of Steamships.**—In addition to the steamships mentioned in Canadian Railway and Marine World previously, the following deliveries have been made to Canadian Government Merchant Marine:—

June 24, s.s. Canadian Trapper; Marine Department contract 17; builder's yard no. 459; approximately 5,100 d.w. tons, Davie Shipbuilding & Repairing Co., Lauzon, Que. This ship loaded a general cargo at Montreal and sailed from there June 30 for London, Eng.

July 11, s.s. Canadian Rancher; Marine Department contract 14; builder's yard no. 6; approximately 5,100 d.w. tons, Tidewater Shipbuilders Ltd., Three Rivers, Que. This ship was tentatively taken over by the Marine Department Dec. 27, 1919, but not fully accepted, as there were a number of things to be completed. She was transferred to Canadian Government Merchant Marine on July 11, loaded general cargo at Montreal and sailed for the United Kingdom on July 16.

**Appointments of Officials.**—B. C. Kelly has been appointed General Agent, Canadian Government Merchant Marine Ltd., and is in charge of its office at Vancouver, B.C. W. B. Finglass has been appointed Assistant Marine Superintendent, and Thos. Loudon has been appointed Assistant Superintendent Engineer. They all have their offices in suite 110, Canadian National Rys. station, Vancouver.

**Officers of Steamships.**—The following masters have been appointed to steamships by Canadian Government Merchant Marine Ltd. since those mentioned in our last issue:—Canadian Gunner, Capt. C. Wallace, vice Capt. R. G. Hunter; Canadian Miner, Capt. A. Blouin, vice Capt. M. Fraser, resigned; Canadian Trap-

per, Capt. J. E. Faulkner; Canadian Rancher, Capt. H. T. M. Leonard, vice Capt. M. Robertson; Canadian Voyageur, Capt. A. E. Sprosen, vice Capt. J. D. Mackenzie, resigned. Engineers have also been appointed as follows:—Canadian Exporter, H. J. Robinson; Canadian Prospector, T. A. Porter; Canadian Sailor, B. Miller; Canadian Otter, W. Tough; Canadian Ranger, W. Harrison; Canadian Victor, W. D. McGregor; Canadian Observer, J. Davies.

The s.s. Canadian Recruit, which went ashore on Vache Reef, near the mouth of the Saguenay River, Dec. 20, 1919, and which was subsequently abandoned to the underwriters, was refloated July 17, and towed to Tadousac Bay, and thence to Lauzon, where she will be docked and examined, and probably repaired by the Davie Shipbuilding & Repairing Co. The

land June 24 and June 26 respectively, in tow of the tugs Cross and Schofield, which took them through the Welland Canal. They left Port Dalhousie, June 27 and 28 respectively, being towed by the Sincennes-McNaughton Line's tugs Maccinco and Muscalonge, and arrived at Montreal July 5, where they will be joined together at Canadian Vickers Ltd. plant.

The British American Shipbuilding Co. launched the aft section of s.s. Canadian Squatter; Marine Department contract 45; builder's yard no. 5; approximately 4,575 d.w. tons, July 20, and expected to launch the forward section about a week later. The two sections will be towed to Montreal and joined together at Canadian Vickers Ltd. plant.

Canadian Vickers Ltd., Montreal, launched the s.s. Canadian Conqueror; Marine Department contract 61; builder's yard no. 78; approximately 8,390 d.w. tons, on July 27, the christening being performed by Mrs. A. R. Gilham, wife of the Managing Director.

Davie Shipbuilding & Repairing Co., Lauzon, Que., delivered the s.s. Canadian Trapper; Marine Department contract 17; builder's yard no. 459; approximately 5,100 d.w. tons; to the Marine Department, and she was transferred to Canadian Government Merchant Marine for operation, on June 24. The keel of this ship was laid Mar. 11, 1919, and she was launched Oct. 9, 1919.

The Davie Shipbuilding & Repairing Co. advised us July 16, that the s.s. Canadian Hunter; Marine Department contract 18; builder's yard no. 460; approximately 5,100 d.w. tons; had made a trip from Three Rivers to Quebec, under her own steam, and was being cleaned up, and painted, preparatory to delivery to the Marine Department.

Dominion Shipbuilding & Repair Co., Toronto, which is building two steel cargo steamships for Canadian Government Merchant Marine, viz., Canadian Pathfinder and Canadian Engineer, each approximately 3,500 d.w. tons, advised us recently that it expected to launch them in August and September respectively.

Harbour Marine Co., Victoria, B.C., launched the s.s. Canadian Winner, Marine Department contract, 29; builder's yard no. 1; approximately 8,390 d.w. tons, for Canadian Government Merchant Marine Ltd., on June 29, the christening being performed by Mrs. S. F. Tolmie, wife of the Dominion Minister of Agriculture. This is the first steel freight steamship of this tonnage to be built at Victoria, and is one of two under contract with this company for Canadian Government Merchant Marine. The contract was signed Jan. 24, and the keel laid July 14, 1919. The second ship, to be named Canadian Traveller, is under way, the keel having been laid Aug. 9, 1919. The general dimensions are,—length over all, 413 ft. 1 in.; length b.p., 400 ft.; breadth moulded, 52 ft.; depth moulded, 31 ft.; draft when loaded, 25 ft. 1 in. They are of the two deck type, with poop, bridge and forecastle and are equipped with triple expansion engines having cylinders 27, 44 and 73 in. diam. by 48 in. stroke, 3,000 i.h.p., supplied with steam by 3 single ended boilers, each 15½ x 11½

### Dominion Marine Association.

President, A. E. Mathews, Managing Director, Mathews Steamship Co., Toronto.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines, Montreal.

Second Vice President, A. A. Larocque, President, Sincennes-McNaughton Line, Montreal.

Executive Committee, E. H. Beazley, Union Steamship Co. of British Columbia, Vancouver; W. E. Burke, Canada Steamship Lines, Montreal; T. R. Enderby, Montreal Transportation Co., Montreal; L. Henderson, Montreal Transportation Co., Montreal; W. J. McCormack, Algoma Central Steamship Line, Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Sowards Coal Co., Kingston, Ont.; J. F. Stewart, Point Anne Quarries Ltd., Toronto; Jno. Waller, Keystone Transportation Co., Montreal; Lorne C. Webster, Webster Steamship Co., Montreal; J. Wilkie, Imperial Oil Ltd., Toronto; A. A. Wright, honorary member, Toronto.

General Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

salving of the ship was undertaken by the General Wrecking Co. and the Quebec Wrecking & Salvage Co., and it was accomplished by the use of compressed air. The damage is stated to be considerable. The Canadian Recruit, which is erable. The Canadian Recruit, which is of 3,964 d.w. tons, was built by Collingwood Shipbuilding Co., Collingwood, Ont., in 1919. She sailed from Montreal, Dec. 8, with a general cargo for Kingston, Jamaica, and Havana, Cuba, and experienced serious trouble with ice, after passing Crane Island, on Dec. 16, and lost her rudder, and eventually drifted with the ice and went on the Vache Reef, Dec. 20.

**British American Shipbuilding Co., Welland, Ont.**—As stated previously in Canadian Railway and Marine World, the s.s. Canadian Otter; Marine Department contract 44; builder's yard no. 4; approximately 4,575 d.w. tons, was launched in two sections, the aft section on Mar. 25, and the forward section April 13. The two sections left Wel-

ft., at 180 lb., fitted with 9 furnaces with a grate area of 198 sq. ft., and a heating surface of 7,743 sq. ft. The ships are built under Lloyd's classification, for a speed, under full load, of 11 knots an hour.

Harbour Marine Co., which is also building the s.s. Canadian Traveller; Marine Department contract 30; builder's yard no. 2; approximately 8,390 d.w. tons, for Canadian Government Merchant Marine Ltd., advised us recently that construction was progressing very favorably.

Nova Scotia Steel & Coal Co., New Glasgow, N.S.—In the list of orders for steel cargo steamships given by the Dominion Government, which appears on another page of this issue, this company

Welland and St. Lawrence canals, in sections, and rejoined at Montreal or Quebec, the company's contract being to deliver her at one of those ports. Her dimensions are,—length overall, 335 ft.; beam, 44 ft.; depth, 25 ft. She is built with 'tween decks, with poop, bridge and forecastle and her propelling machinery consists of a triple expansion, surface condensing engine, with cylinders 23, 36 and 63 in. diam. by 42 in. stroke, designed to develop from 1,750 to 2,000 h.p. for a speed of 11 knots an hour. Steam is supplied by 2 Scotch boilers, each 15 x 11 ft., under Howden's forced draft, at a working pressure of 180 lb.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C., which is building two steel cargo steamships of ap-

### Canadian Pacific Ocean Service's s.s. Montcalm Launched at Glasgow.

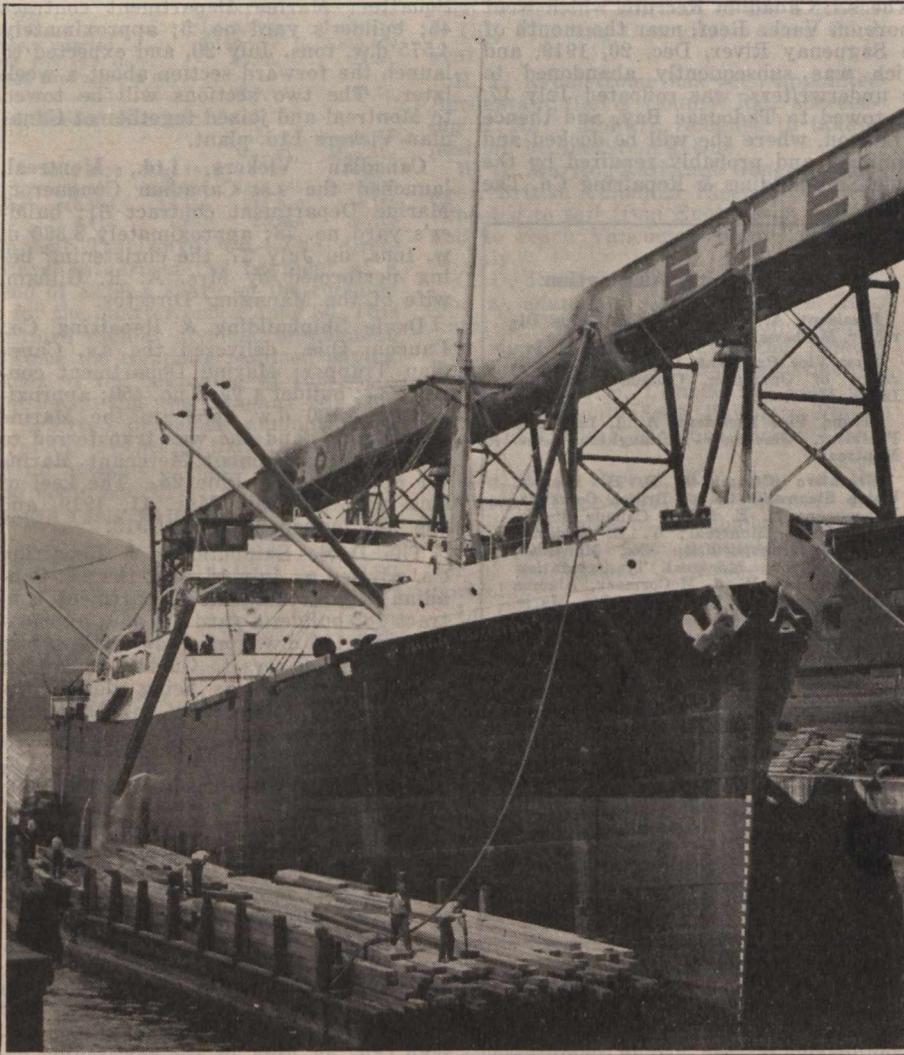
The s.s. Montcalm, one of three steamships under construction at Glasgow, Scotland, for Canadian Pacific Ocean Services' Atlantic service, was launched there July 3. When completed, which is expected to be during Feb., 1921, she will be operated between Liverpool, England and Montreal. She is being built by John Brown & Co., Clydebank, Scotland, who also have under construction a sister ship to be named Metapedia, and there is another ship of the same type, to be named Montmorency, under construction by the Fairfield Shipbuilding & Engineering Co., Govan, Scotland. The dimensions of these ships are,—length b.p. 566 ft., breadth 70 ft., depth 51½ ft., tonnage 16,000 gross. They are being equipped to burn oil fuel, and for a speed of 17 knots an hour.

The ships are of the two class type with accommodation for 520 cabin and 1,550 third class passengers. They are being built to the requirements of the highest class of Lloyd's Registry under special survey, classed A 100 A1, with a modified cruiser stern specially adapted to the lines of the ship, adding strength to the after end, protection to the propellers and steering gear, increasing the passenger deck accommodation, and reducing vibration to a minimum. There will be two funnels and two pole masts rigged as a fore and aft schooner. There will also be the most modern systems of ventilating and heating, electrically equipped mechanical appliances, electric steering control, wireless telegraph, Sperry gyro compass, and an emergency 30 ft. motor boat in addition to the maximum requirements for life boats.

The cabin dining room is arranged on the upper deck to ensure the least possible sense of motion, and will have seating accommodation for over 300 persons. The lounge, writing room and card room are located on the promenade deck, as also are the drawing room, smoke room and children's room. A gymnasium is arranged on the bridge deck, where there is a dark room for the convenience of photographers. The third class passenger accommodation includes lounges and smoke rooms, forward and aft on the bridge and shelter decks, and a large dining room of three compartments on the upper deck aft, with ample dining space on the shelter deck forward. The third class cabins are to be arranged for two, four and six passengers.

**Marine Public Works Contracts.**—The following contracts have been awarded by the Dominion Public Works Department: June 2, dredging on three shoals, Goodfellow bar and Cassilis Lawlors shore, Northwest Miramichi River, N.B., to Miramichi Dredging Co., Newcastle, N.B., class B, 54¾c. a cub. yd. of wharf measure; June 26, construction of wharf and warehouse at Kagawong, Manitowlin Island, Ont., to McNamara Bros. and Thornton, Sault Ste. Marie, Ont., unit prices.

**Shipbuilding Materials Exempt from Taxation.**—The Inland Revenue Department holds that material for the construction of ships licensed to engage in Canadian coasting trade is not liable to the 1% or 2% tax imposed by the Act to amend the Special War Revenue Act, 1915, passed at the Dominion Parliament's recent session.



Steamship Canadian Prospector, Canadian Government Merchant Marine Ltd., approximately 8,390 d.w. tons, built by J. Coughlan & Son, Vancouver, B.C., loading at government wharf, for Australia.

is shown as having Marine Department contract 59, for a ship of approximately 2,800 d.w. tons. The keel for this ship was laid May 4, and it is expected to complete her in November, but we were advised July 13 that no contract had been signed up to that date.

Port Arthur Shipbuilding Co., Port Arthur, Ont., launched the s.s. Canadian Carrier; Marine Department contract 33; builder's yard no. 44; approximately 4,350 d.w. tons, for Canadian Government Merchant Marine Ltd., June 26, the christening being performed by Mrs. J. W. Wolvin, of Port Arthur. When completed the ship will take a full cargo of grain from Port Arthur to Buffalo, where she will be cut in two, taken through the

approximately 8,390 d.w. tons, for Canadian Government Merchant Marine Ltd., viz., Canadian Reaper, and Canadian Thrasher, the keels of which were laid Sept. 27, 1919, and Oct. 20, 1919, advises us that it expects to launch them about the end of September.

Tidewater Shipbuilders Ltd., Three Rivers, Que., advised us July 21 that the launching of the steel cargo steamship Canadian Fisher; Marine Department contract 16; builder's yard no. 7; approximately 5,100 d.w. tons, had been delayed, partly due to lack of steel, but principally to a proposal, by the Marine Department, to change the upper structure so as to make the ship suitable for carrying a limited number of passengers.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (\*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f.c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyager	Canadian Vickers Ltd.	66	*4,575	\$207.	\$ 948,660.75	S.d., p., b. and f.c's'le.....	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	"	67	*8,408	180.	1,519,459.99	2.d., p., b. and f.c's'le.....	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,595	205.	819,385.58	Lake, s.d., p., b. and f.c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipyards Ltd.	100	*4,495½	207.	930,620.25	S.d., p., b. and f.c's'le.....	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	"	106	*4,540	217.	985,180	S.d., p., b. and f.c's'le.....	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	"	101	5,100	210.	1,071,000	S.d., p., b. and f.c's'le.....	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	"	102	5,100	210.	1,071,000	S.d., p., b. and f.c's'le.....	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62	*3,964	205.	813,252.07	Lake, s.d., p., b. and f.c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	"	63	*3,975¼	205.	814,926.25	Lake, s.d., p., b. and f.c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	"	64	*3,978¼	205.	815,514.25	Lake, s.d., p., b. and f.c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f.c's'le.....	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	"	6	5,100	200.	1,020,000	S.d., p., b. and f.c's'le.....	"	11	Jan. 10, 1919	Nov. 1, 1919	Dec. 27, 1919
15	Jan. 24, 1919	Canadian Fisher	"	7	5,100	200.	1,020,000	S.d., p., b. and f.c's'le.....	"	11	Sept. 20, 1919		
16	Jan. 24, 1919	Canadian Forester	"	8	5,100	200.	1,020,000	S.d., p., b. and f.c's'le.....	"	11	Nov. 1, 1919		
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	5,100	200.	1,020,000	S.d., p., b. and f.c's'le.....	"	12	Mar. 11, 1919	Oct. 9, 1919	June 29, 1920
18	Sept. 4, 1918	Canadian Hunter	"	460	5,100	200.	1,020,000	S.d., p., b. and f.c's'le.....	"	12	Mar. 28, 1919	May 7, 1920	
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	686,762.88	Lake, s.d., p., b. and f.c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	"	41	*3,408	210.	715,652.49	Lake, s.d., p., b. and f.c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	"	40	*3,357	205.	690,409.84	Lake, s.d., p., b. and f.c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	"	42	*3,405	210.	715,649.13	Lake, s.d., p., b. and f.c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b. and f.c's'le.....	"	10	Feb. 24, 1919		
22	Sept. 13, 1918	Canadian Explorer	"	2	8,390	195.	1,636,050	2.d., p., b. and f.c's'le.....	"	10	Mar. 15, 1919		
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	S.d., p., b. and f.c's'le.....	"	11	Jan. 22, 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	"	68	*3,382	188.	1,575,816.00	2.d., p., b. and f.c's'le.....	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	"	69	*3,391	188.	1,587,643.15	2.d., p., b. and f.c's'le.....	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	"	70	*3,390	188.	1,577,320	2.d., p., b. and f.c's'le.....	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	"	71	*3,393	188.	1,589,700.00	2.d., p., b. and f.c's'le.....	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	"	72	*3,393.3	188.	1,579,068.40	2.d., p., b. and f.c's'le.....	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b. and f.c's'le.....	"	11	July 14, 1919	June 29, 1920	
30	Jan. 24, 1919	Canadian Traveller	"	2	8,390	198.	1,661,220	2.d., p., b. and f.c's'le.....	"	11	Aug. 9, 1919		
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	3,964½	205.	812,722.50	Lake, s.d., p., b. and f.c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f.c's'le.....	"	11	Aug. 29, 1919	May 8, 1920	
33	Mar. 1, 1919	Canadian Carrier	"	44	4,350	215.	935,250	2.d., p., b. and f.c's'le.....	"	11	Aug. 29, 1919	June 26, 1920	
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b. and f.c's'le.....	Lloyd's	11	Apr. 26, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b. and f.c's'le.....	"	11	May 3, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	8,390	198.	1,661,220	2.d., p., b. and f.c's'le.....	"	11	July 24, 1919	Jan. 24, 1920	
37	Nov. 22, 1918	Canadian Prospector	"	14	8,390	198.	1,661,220	2.d., p., b. and f.c's'le.....	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d. p., and f.c's'le.....	"	12	Oct. 2, 1919		
39	Dec. 10, 1918	Canadian Constructor	"	4	10,500	197.50	2,073,750	3.d. p., and f.c's'le.....	"	12	Oct. 6, 1919		
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776½	210.	583,065	S.d., p., b. and f.c's'le.....	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1920
41	Mar. 31, 1919	Canadian Miner	"	6	*2,778	210.	583,350	S.d., p., b. and f.c's'le.....	"	8½	Mar. 31, 1919	Apr. 3, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Reaper	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f.c's'le.....	Bri. Corp.	11	Sept. 27, 1919		
43	Feb. 21, 1919	Canadian Thrasher	"	2	8,390	198.	1,661,220	2.d., p., b. and f.c's'le.....	"	11	Oct. 20, 1919		
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f.c's'le.....	"	11	Mar. 29, 1919	Apr. 13, 1920	
45	Jan. 23, 1919	Canadian Squatter	"	5	4,575	215.	983,625	2.d., p., b. and f.c's'le.....	"	11	July 14, 1919		
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	3,990	180.	718,200	Lake, s.d., p., b., and f.c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	"	66	3,990	180.	718,200	Lake, s.d., p., b. and f.c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding Co.	10	3,500	180.	630,000	Lake, s.d., p., b. and f.c's'le	Lloyd's	11	Nov. 8, 1919		
49	Sept. 2, 1919	Canadian Engineer	"	11	3,500	180.	630,000	Lake, s.d., p., b. and f.c's'le	"	11	Nov. 8, 1919		
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f.c's'le.....	Lloyd's	11	Dec. 10, 1919	June 22, 1920	
51	Sept. 18, 1919	Canadian Conqueror	"	78	8,390	170.	1,426,300	2.d. p., b. and f.c's'le.....	"	11	Jan. 17, 1920		
52	Sept. 18, 1919	Canadian Commander	"	79	8,390	170.	1,426,300	2.d. p., b. and f.c's'le.....	"	11			
53	Sept. 18, 1919	Canadian Leader	"	80	8,390	170.	1,426,300	2.d. p., b. and f.c's'le.....	"	11			
54	Feb. 26, 1920	Canadian Racer	Midland Shipbuilding Co.	10	3,890	182.50	709,925	Lake, s.d., p., b. and f.c's'le	Bri. Corp.	11	June 9, 1920		
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipyards Ltd.	103	8,390	167.50	1,405,325	2.d. p., b. and f.c's'le.....	Lloyd's	11			
56	Mar. 18, 1920	Canadian Skirmisher	"	104	8,390	167.50	1,405,325	2.d. p., b. and f.c's'le.....	"	11			
57	Mar. 13, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,890	182.50	709,925	Lake, s.d., p., b. and f.c's'le	Bri. Corp.	11			
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	Lake, s.d., p., b. and f.c's'le	"	11	May 6, 1920		
59			Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., b. and f.c's'le.....	Lloyd's	8½	May 4, 1920		
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	3,890	167.50	1,405,325	2.d. p., b. and f.c's'le.....	"	11	May 14, 1920		
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	Lake, s.d., p., b. and f.c's'le	Bri. Corp.	11	Mar. 30, 1920		
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d. p., b. and f.c's'le.....	"	11			
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,325	2.d. p., b. and f.c's'le.....	"	11			

379,470½      \$72,984,448.53

## Canadian Pacific Ocean Services s.s. Empress of Canada.

The launching of this steamship for the C.P.O.S. trans-Pacific service, has been set for Aug. 17, at Glasgow, Scotland. Arrangements for building this ship were made with the Fairfield Shipbuilding & Engineering Co. in 1916, but there was unavoidable delay in proceeding with the work on account of the war and its after effects. The christening will be performed by Mrs. G. M. Bosworth, wife of the Chairman, C.P.O.S., Montreal, who sailed from Canada by the s.s. Victorian July 14, and Mr. Bosworth will sail early in August. On completion, the s.s. Empress of Canada will proceed from Glasgow to Liverpool, whence she will sail on a world circling trip, stopping at numerous ports, including Port Said, Suez, Bombay, Colombo, Singapore, Batavia, Manila, Yokohama, etc., and she is expected to arrive at Vancouver in June, 1921, after which she will be operated between Vancouver, Japan, China, and Philippine Islands.

The s.s. Empress of Canada will proceed from Glasgow to Liverpool, where the cruise on a world circling trip will commence about Mar. 15, 1921, visiting various ports and allowing time for sight seeing and shore excursions. Visits will be made to the following ports: Gibraltar, Monaco, Naples, Port Said, Suez, Bombay, Colombo, Singapore, Batavia, Manila Hong Kong, Shanghai, Kobe, Yokohama, and thence to Vancouver, the fares for the entire journey ranging from \$1,500 for a 4 berth outside cabin on D deck to \$12,600 for suites. Fares up to \$2,000 include \$200 accommodation on any C.P.O.S. ship across the Atlantic, over \$2,000 include \$250 accommodation, and those desiring to travel by any other Atlantic line on the return journey will be allowed \$100. The fares include railway tickets on the American continent, but not meals, or sleeping berths, or any expenses in Europe, or any shore excursions. An allowance of \$25 will be made for passengers joining the ship at Monaca instead of Liverpool, but their expenses to Monaco must be paid by themselves. Those desiring to leave the ship in China or Japan may proceed in a later C.P.O.S. steamship to Vancouver within 12 months from leaving Liverpool. The Empress of Canada is expected arrive at Vancouver about June 3, 1921, and a special train will be run across Canada for those anxious to return to Europe quickly.

She is built with cruiser stern, and with bilge keels of the most recent type, which will reduce rolling to a minimum, and she will be equipped with turbine engines capable of developing a speed of 22 knots an hour, using oil fuel.

Her dimensions are approximately,—length over all 644 ft., length b.p. 625 ft., breadth 77 ft., depth 53 ft., tonnage 21,000 gross. Her construction will embody all the latest improvements, and special attention is being given to the interior fittings. The first class entrance and stairway amidship will lead with a wide double flight from the entrance on A deck down to the dining room on D deck. The entrance on A deck will be panelled in wide and narrow alternating panels running the full height of the deck and tinted in light cream. The balustrades to the well and staircase will be of polished Honduras mahogany of Georgian design, and the staircase will lead in a wide sweeping flight to the af-

ter end of the dining saloon. The entrance will be linked up to all the principal public rooms on A deck, with a wide and well lighted gallery. The cabin dining saloon on D deck will be approached by a main stairway of similar character, the aim being to make the room as light as possible and to give it the utmost appearance of height, by means of long vertical panels. The center portion will be carried up in a well the full height of C deck and will be bounded by an arcaded clerestory. At the forward end of the room the whole of the upper portion of the bulkhead will be covered by a large specially woven piece of modern tapestry. The center raised portion of the room will be decorated to represent the inner courtyard of an old coaching inn of the 16th century, the sides of the well being supported by massive oak posts, and the whole will be lighted by projecting oak oriel windows giving on to passages on each side. The open air illusion will be increased by painting the ceiling in a sky effect, and by covering the floor in lino tile designed as stone paving. The cabin lounge will be a paint-scheme in delicate and varied colors. By discarding the use of metal casings, for large teak windows, greater light will be obtained than usual, and the room will be well lighted from the port and starboard sides, by groups of large windows proportionate in size to the area of the room. At the forward end doors will lead into the card room and writing room, the former to be panelled in French walnut with veneered and quartered panels, and the latter furnished in the William and Mary style, and panelled in African black bean, a wood at present very little known or used. The drawing room will be in Queen Anne style, panelled in mahogany framing with veneered panels. The center portions will be considerably higher than the average, with a large flat circular bay on the starboard side with two recesses for writing, etc. The smoking room will be Jacobean in character, panelled in oak with antique finish, and surmounted by a fretted cornice. The children's room will be panelled in polished birchwood, surmounted by a pictorial frieze illustrating nursery rhymes, the ceiling being specially painted to illustrate the planetary system, giving the names of the various planets, etc.

**Vancouver Drydock.**—A Vancouver, B. C., press dispatch of July 21 stated that the contract between the Dominion Government and J. Coughlan & Sons Ltd., for building a drydock on Burrard Inlet, had been signed, and that work would be started within 60 days. The order in council authorizing this contract, and giving particulars of its terms, was published in Canadian Railway and Marine World for March, pg. 156, and some additional particulars were published in April, pg. 211.

**Kingston Harbor.**—Sir Henry Drayton, Minister of Finance, who represents Kingston, Ont., in the House of Commons, is reported to have written the Kingston Board of Trade recently, that he had been informed that the Public Works Department had authorized the removal of approximately 41,533 cu. yds. of material to be dredged from Kingston harbor, and that tenders would be called for immediately.

## Imperial Shipping Committee.

A London, Eng., press dispatch states that the British Government has appointed a committee, consisting of representatives of Great Britain and the various British dominions and colonies, to be known as the Imperial Shipping Committee, and on which Canada is represented by Sir George H. Perley, High Commissioner in England, and Newfoundland by Sir Edgar R. Bowring. The duties of the commission are:—(1) To enquire into complaints from persons and bodies interested with regard to ocean freights, facilities, and conditions in the inter-imperial trade, or questions of a similar nature referred to them by any of the nominating authorities and to report their conclusions to the governments concerned. (2) To survey the facilities for maritime transportation by such routes as appear to them to be necessary for trade within the empire, and to make recommendations to the proper authority for the co-ordination and improvement of such facilities with regard to the type, size, and speed of ships, depth of water in docks and channels, construction of harbor works, and similar matters.

## Junior Hydrographer for Naval Service Department.

The Civil Service Commission invites applications for appointment as junior hydrographers, at an initial salary of \$1,680 a year, which will be increased upon recommendation for efficient service at the rate of \$120 a year until a maximum of \$2,040 has been reached. This initial salary will be supplemented for the present fiscal year by the bonus provided by law. Duties.—Under direction, to assist in making surveys of shore lines and sea, lake, and river bottoms, to supervise the work of small parties in the field; and to perform other related work as required. Qualifications.—Graduation in engineering from a school of applied science of recognized standing; two years of experience in hydrographic survey work; tact, good judgment and ability to manage men; good physical condition. Examination.—Subjects and weights, as follows: Education and experience, 3; oral interview, if necessary in the Commission's opinion, 1. The only vacancy at present in this class is at Ottawa, in the Hydrographic Branch Naval Service Department.

**Government's Canal Policy.**—The National Liberal and Conservative Party's policy, announced at Ottawa, July 1, contains the following:—"Such further development of the existing canal systems of Canada as is necessary to improve navigation and cheapen transportation; with the additional object in view of developing the production and use of electrical energy for domestic, agricultural, municipal, industrial and railway purposes, and under such prudent regulations as will thoroughly safeguard the interests of the people."

**Vancouver Harbor Commission Salaries.**—A Dominion order in council has been passed, approving a bylaw passed by Vancouver, B.C., Harbor Commissioners, fixing the following yearly salaries from Mar. 1, 1920: Secretary, \$4,500; Chief Engineer, \$4,500; Assistant Chief Engineer, \$3,000; Harbor Master, \$3,600; Port Warden, \$3,600; Chief Accountant, \$3,000; Assistant Chief Accountant, \$2,400; Wharf Superintendent, \$2,400.

## General Shipbuilding Matters Throughout Canada.

**Canadian Allis-Chalmers Ltd., Bridgeburg, Ont.**—The s.s. North American, which was launched by this company recently, is to be operated in the coast service out of New York, by the North American Line. She is of the same type of steel steamship as adopted by the Imperial Munitions Board, for 3,500 tons d.w., two of which, viz., War Magic and War Vixen, were built by this company. Another ship of this type is under construction at Bridgeburg, for coast operation, by the same owners.

**Canadian Vickers Ltd., Montreal.**—The s.s. Loch Tay, completely recently for Norwegian interests, after running her trial trips early in July, took on an oil cargo at Montreal, and sailed for Norway.

**Chester Basin Shipbuilding Co., Chester Basin, N.S.**, launched the 3 masted schooner Mary L. Oxner, 200 tons register, at the end of June, for W. Duff, M.P., Lunenburg, N.S. The company has another similar ship on the stock for the same managing owner and it was expected to be ready for launching by the end of July.

**J. Coughlan & Sons, Vancouver, B.C.**—The s.s. Margaret Coughlan, some details of which were given in our last issue, and an illustration of which is published in this issue, was built by this company for Canada Western Steamships Ltd., one of its subsidiaries, and sailed from Vancouver, June 19, provisioned and ready for sea, for Chemainus, Genoa Bay, B.C., and Bellingham, Wash. where she loaded railway ties for Grangemouth, Scotland. This is said to be the first ocean going steel freight steamship built in Vancouver, by a local firm, and operated by a Vancouver company. She is of 8,800 d.w. tons capacity, and fitted with Kincaid engines, burning oil fuel, and during her trials she attained 13.69 knots an hour, with half her propeller out of the water, her average on the run to her loading port, 60 miles, being 12.23 knots an hour.

The s.s. Indus, builder's yard no. 16, which was launched June 30, has been bought by J. A. Sturrock, on behalf of the Sweedish East Asiatic Line, Gotenberg, Sweden. She underwent her trial trip July 20, and later proceeded to a U. S. Pacific port to load flour and grain. She is of the same dimensions, tonnage, etc., as the s.s. Margaret Coughlan, details of which were given in our last issue, which is illustrated in this issue, and which was built for Western Canada Steamships Ltd., a subsidiary of the building company.

**Dominion Shipbuilding & Repair Co., Toronto**, launched the s.s. Floraba for the Gulf Navigation Co., New Orleans, La., July 7, the christening being performed by Mrs. G. Abaunza, wife of that company's President. The Floraba is a sister ship of the s.s. Gonzaba, the launching of which was mentioned in our last issue.

**William Lyall Shipbuilding Co., which operated a wooden shipbuilding yard at Vancouver, B.C.**, while building vessels for the British Government and others, during the war, has obtained judgment there for \$1,343,015, against R. Van Hemelrick, agent for the Belgian Government, in connection with an order for 6 five masted schooners, the purchase of which was cancelled before delivery could be made.

**Midland Shipbuilding Co., Midland, Ont.**, is building a steel cargo steamship of the lake type, with raised quarter deck, to British Corporation's requirements for lake and ocean service, for Great Lakes Transportation Co., Midland, Ont. Her dimensions are,—length over all 259 ft., length between perpendiculars 246 ft., breadth 42½ ft., depth 21 ft. She will be equipped with triple expansion engines, with cylinders 18, 30 and 50 in. diam. by 42 in. stroke, 1,000 i.h.p., built by Great Lakes Foundry & Machine Co., Midland, and supplied with

track bulkheads will be built up from top of the floor timbers to the under side of the deck, the material used being 6½ x 12 in. 50 ft. coast fir, scarfed in the usual way; floor timbers 4 x 12 in. x 36 ft., placed 2 ft. centers. The bottom is of 3 x 14 in. x 50 ft. planking running fore and aft, and the sides are stiffened with a truss of 5 posts, supporting a top run of 1¼ in. rods, and a deck lead of 1½ in. rods between each post. The estimated tonnage is 450 gross. The dimensions are,—length of deck, 184 ft.; length over all, 185 ft. 4½ in.; beam at side plank-



Steel Cargo Steamship, Margaret Coughlan, approximately 8,800 d.w. tons, built for Western Canada Steamships Ltd., by J. Coughlan & Sons, Vancouver, B.C.

steam by a Scotch boiler 13 ft. diam. by 11 ft. long, at 180 lbs., built by John Inglis Co., Toronto. She will have a speed of about 10 knots an hour, when loaded. The keel was laid Mar. 1, and when she is launched, which is expected to be about Sept. 1, she will be named Glenclova.

**Nixon Construction Co., Vancouver, B.C.**—The C.P.R. has ordered a car barge and steam tug from this company for service on Okanagan Lake. The barge will have two tracks, with rail capacity for 8 cars, and there will be a steam winch at the after end between the tracks for loading and unloading at landings where there is no engine crew to do the work. There will be a watertight transverse bulkhead about 24 ft. from the bow and the stern respectively. The

ing 36½ ft.; beam at side nosing, 37 ft.; depth over all at side, 6 ft. 11½ in.; crown of deck 6 ft.

The tug boat will be of coast fir throughout, except the heads, and it will be sheathed with cedar. The hull will be planked with 2½ in. and the ceiling with 2 in. coast fir. The hull will be salted and will also be protected with galvanized sheets, 16 gauge, to enable the boat to operate in 10 in. of ice, should it be necessary. The propelling machinery will consist of a single set of compound vertical condensing type engines, built by Polson Iron Works, Toronto, of 27.3 n.h.p., with cylinders 12 x 3 x 6 in. stroke, driving a single screw about 80 in. diam. Steam will be supplied by a marine cylindrical type boiler, with two furnaces, at a working pressure of 160

lb. The condenser will be of the jet type 10 x 18 x 12 in., and there will be 2 duplex pumps, one 6 x 3 $\frac{3}{4}$  x 7 in. and the other 5 $\frac{1}{4}$  x 3 x 6 in. The lighting plant will be a Sisson 4 k.w. 55 volt machine and the boat will be electrically lighted throughout and carry one search light mounted on top of the pilot house.

**Sorel Shipbuilding & Dry Dock Co., Ltd., Sorel, Que.**—The sale of this insolvent company's immovable properties, situated at various points in the province, took place July 15, and there were also sold 2 schooners, nos. 25 and 26, lying in the company's yard at Sorel.

**The Toronto Shipbuilding Co. Ltd., Toronto,** which was incorporated in 1918, under the Ontario Companies Act, to build wooden steamships, chiefly during the war emergency, and which carried out contracts for two such ships, viz., War Ontario and War Toronto, for the British Government, under orders from the Imperial Munitions Board, has surrendered its charter, and the company has been dissolved. J. E. Russell, contractor, Toronto, was chiefly interested.

**Victoria (B.C.) Shipowners Ltd., Victoria, B.C.**—The four masted barkentines which are being built by this company at the Cholberg yards, Victoria, under aid by the Dominion Government, will, it is stated, be built so that auxiliary power may be added later. It is said that shaft logs will be built into the hulls, suitable for twin propellers. Keels of the first three ships have been laid, and construction will proceed on the three together.

The further supplementary estimates for the year ending Mar. 31, passed at the Dominion Parliament's recent session, contain the following item:—To provide, by way of advances to Victoria (B.C.) Shipowners Limited, for the construction of four ships at an estimated cost of \$250,000 each, not less than 60% of the workmen employed in such construction to be returned soldiers; advances to be made on progress certificates under the supervision of an engineer of the Marine Department and not to exceed \$175,000 on each ship. Such advances to be secured by first mortgage on the ships and to be repayable with interest at the rate of 6% per annum, such interest to be a first charge on the aggregate net operating revenue from the ships. Also to provide salary of a Government inspector at a rate not exceeding \$250 a month, \$703,000.

The first annual meeting of shareholders was held July 8. The report, which was presented and adopted, referred chiefly to the agreement with the Cholberg Shipyard for the immediate construction of three ships, it being left to the company to decide whether three or four will be built under the agreement, much depending on the cost of construction. In the company's agreement with the Dominion Government, under which aid is granted for building ships, provision is made for the construction of four, and \$175,000 for each of the four is being advanced by the government on mortgage, bearing interest at 6% per annum. Brigadier General R. B. Clark was added to the board of directors.

A Winnipeg press dispatch of July 21 states that the Dominion Public Works Department was to start dredging the Red River about the end of the month, within the city limits, so as to make it navigable for the larger steamboats from Lake Winnipeg. No dredging has been done in the river since 1915.

## Mainly About Marine People.

**A. H. Allan,** Freight Manager, Canadian Pacific Ocean Services, Ltd., Liverpool, Eng., has resigned. It is reported that he will return to Canada shortly, and that he will probably undertake steamship work in New York.

**Hugh Allan,** formerly of the Allan Steamship Line, Mrs. Allan, and Miss Rachel Allan, who have been spending some time in Canada, left Quebec, July 14, for England.

**Hon. C. C. Ballantyne,** Minister of Marine and Fisheries, and of Naval Service, which positions were vacated by Sir Robert Borden's resignation of the Premiership, was re-appointed to the same positions in Hon. Arthur Meighen's administration, and sworn in at Ottawa, July 10, leaving immediately afterwards for a rest at St. Andrews, N.B. An Ottawa dispatch says that he will leave for the Pacific coast about Aug. 10, to look into harbor, fishery and other matters, visiting Vancouver, Victoria and Prince Rupert.

**E. H. Beazley,** Managing Director, Union Steamship Co. of British Columbia, who was killed in an aeroplane accident at Minor Park, Lulu Island, B.C., May 24, left an estate valued at \$77,550, consisting of his home at Shaughnessy Heights, Vancouver, shares in B.C. Marine Ltd., and insurance. A life interest is left to the widow, with remainder to three children. As the result of an enquiry into the accident, by the Canadian Air Board, Major A. C. Baker, who operated the machine, was held to be responsible for Mr. Beazley's death, having attempted to carry out a spin without being able to regain control, in contravention of the Air Board's rules, and the Pacific Aviation Co. was also blamed for not observing the air regulations.

**Mrs. G. M. Bosworth,** wife of the Chairman, Canadian Pacific Ocean Services, Ltd., left Montreal July 14 for Great Britain. She will christen the company's new ship Empress of Canada, which will be launched at Glasgow on Aug. 17. Mr. Bosworth will leave for Great Britain on Aug. 4.

**Charles Dennehy,** Assistant Manager, Pacific Steamship Co., Vancouver, B.C., died towards the end of June from injuries sustained at a fire in his apartment, when he made a plucky but unsuccessful leap for life. He was for some time in charge of the Returned Soldiers' and 7th Battalion Clubs, and was also a member of the Amputation Club. The funeral, which was of a military character, was attended by representatives of the various steamship and railway companies in the province.

**E. Edwards,** heretofore surveyor of shipping for the Great Lakes Register, Cleveland, Ohio, is reported to have been appointed Lloyd's representative for British Columbia at Vancouver, vice John Whitehead, who has been transferred to England.

**H. S. Folger,** formerly General Manager, St. Lawrence River Steamboat Co., and Thousand Island Steamboat Co., now owned by Canada Steamship Lines Ltd., died at Kingston, Ont., July 8, aged 53, following a stroke of paralysis. He was born in the U.S. and entered the steam-Folger Bros., of which firm his father boat business conducted at Kingston by was the head. He eventually became General Manager of the two steamboat companies named, and after the acquire-

ment of these properties by Canada Steamship Lines he carried on a general brokerage business in Kingston and acted as Deputy U.S. Consul there.

**Luke Murray Hatfield,** whose appointment as Assistant Marine Superintendent, Canadian Government Merchant Marine Ltd., Montreal, was announced in our last issue, was born at Yarmouth, N.S., Apr. 4, 1880, and entered navigation service in 1896, since when he has been, to 1898, seaman on sailing ship Lansing, trading foreign; 1898 to 1899, on Canadian coasting freight and passenger steamships, Hugh Cann & Son, Yarmouth, N.S.; 1899 to 1901, second officer, freight and passenger steamships, Yarmouth, N.S., and Boston, Mass., Yarmouth Steamship Co., Yarmouth, N.S.; 1901 to 1909, second and first officer, cargo steamships, trading foreign, William Thomson & Co., St. John, N.B.; 1909 to 1911, master, cargo steamships, trading foreign, same company; 1911 to 1912, master, freight and passenger steamships, New Orleans to Honduras, Vaccaro Bros., New Orleans, La.; 1912 to 1914, master, cargo steamships, trading foreign, William Thomson Co., St. John, N.B.; 1914 to 1915, master, cargo steamships, trading to Hudson Bay, Dominion Government; 1915 to 1916, master, Canadian coasting freight and passenger steamships, Hugh Cann & Son, Yarmouth, N.S.; 1916 to 1918, master, cargo steamships, trading foreign as transports, William Thomson & Co., St. John, N.B.; 1918 to 1920, master, cargo steamships, Canada to Mediterranean and Great Britain, Imperial Munitions Board, E. C. Downing, Manager, Cardiff, Wales.

**H. E. A. Hawken,** heretofore Chief Registrar of Shipping, Marine and Fisheries Department, Ottawa, who, since the superannuation of Cameron Stanton, Assistant Deputy Minister of Marine and Fisheries, on Mar. 31, has been acting in the latter capacity, has been appointed Assistant Deputy Minister. He was born Sept. 28, 1879, and entered the civil service Jan. 7, 1902.

**J. C. Irons,** local manager, Union Steamship Co. of New Zealand (Canadian-Australian Royal Mail Line), Vancouver, B.C., was married in Scotland July 8 to Mrs. M. S. Rearden of Vancouver, and will return to Vancouver during August.

**Alex. Johnston,** Deputy Minister of Marine and Fisheries, left Montreal, July 13, with a number of Dominion Steel Corporation's directors, for Halifax, where a special general meeting was held July 15, after which the party proceeded to New Glasgow and Sydney.

**P. J. Melvin,** at one time Export Freight Agent, Canadian Pacific Ocean Services, Montreal, and latterly with Marine Navigation Co. of Canada, Ltd., has commenced business in conjunction with J. Mauro and J. D. Willaims, of St. John, N.B., as the Atlantic and St. Lawrence Stevedoring and Contracting Co., Ltd. Office, 167 Commissioner St., Montreal.

**J. W. Norcross,** President, Canada Steamship Lines Ltd., will, it is reported, be also deputy chairman of the board of directors, and chairman of the executive committee of the British Empire Steel Corporation, to which the Canada Steamship Lines Ltd. is to be leased.

**F. Ruddock,** formerly of F. & J. Ruddock, shipbuilders, St. John, N.B., died there July 10, aged 82.

## The C. P. O. S. Steamship Empress of Britain Being Reconditioned for Regular Service.

An interesting feature of the present reconstruction period is the reinstating of the large passenger ships which by reason of their speed and radius were able to serve for cruiser patrol and convoy escort duty during the war. The C. P. O. S. Empress of Britain, commissioned in Aug., 1914, served on the South Atlantic patrol, and after close on a year of service was fitted out as a transport carrying troops to the Dardanelles, Egypt and India; also from Canada for the western front during the remainder of the period of hostilities. The nature of the service may be appreciated from the fact that she was able to accommodate 5,000 officers and men, in addition to her own complement.

The Canadian Pacific Ocean Services, Ltd., which placed her in the hands of her builders, the Fairfield Shipbuilding & Engineering Co. of Glasgow, Scotland, for reconditioning and the carrying out of extensive alterations which have as an object the provision of most luxurious and up to date conditions for passengers, have also arranged for her conversion from coal to oil fuel burning. The bunker capacity sufficient for round voyage requirements, Liverpool to Quebec, viz., 3,500 tons, has been obtained by converting the original coal bunkers for the carriage of fuel oil. The boilers, which are contained in two separate watertight compartments, are of the multi-tubular return tube (Scotch) type, there being 6 double ended and 4 single ended, with a total of 60 furnaces. All boilers are under Howden's system of forced draft and supply steam at a pressure of 200 lb. a sq. in. The indicated horse power of the twin quadruple expansion engines is 18,000. With oil fuel burning there is an increase in boiler efficiency of 7%, while the utilization of the whole of the furnace perimeter throughout the length, as effective heating surface, results in improved circulation, and diminution of the distorting strains which cannot be avoided under the conditions of coal burning.

Owing to the higher calorific value of oil, the evaporation is considerably increased and the weight of oil in complement evaporation is in the rough proportion of 2 to 3. The increase in propulsive efficiency which results from maintenance of steady head of steam, in comparison with the inevitable drop during period of cleaning coal fires, and fuel economy by elimination of disposal of ashes at sea, are important features governing the adoption of oil burning. With this vessel under conditions of coal burning it was necessary to discharge overboard 30 tons of ashes a day.

The cleanliness of machinery spaces where oil fuel is used is well known, and a definite saving is effected in handling of stokehold bilges, while the reduction in upkeep expenses due to lower deterioration of structure is appreciable. It will be seen that from the labor point of view the stokehold complement work which render them incomparably more comfortable than they were when undertaking the arduous duties associated with coal firing. The laborious work of coal trimming is replaced by pumping, and the old-time fireman becomes a boiler attendant, who, under the guidance of the engineer officer, regulates the sup-

ply of oil to the boiler furnaces and attends to the cleaning of the oil burners.

The bunkers are being arranged for the carriage of fuel oil of a minimum flash point of 150° F., and special provision is being made for the efficient carriage and handling of heavy grade Mexican fuel oil. The suction pipes are large bore, for assistance in pumping, mains being 8 in. bore, and branches to bunkers 4 in. bore. Heating coils are being fitted in the bunkers, to ensure maintenance of the necessary fluidity when in cold climates. The system of working is generally as follows: Oil transfer pumps draw from fuel bunkers and discharge to settling tanks of a capacity sufficient for 24 hours supply. Oil fuel pumps draw from settling tanks, through suction strainers, and discharge through heaters to burners which are arranged in the boiler furnace fronts. Oil filters are fitted in the line of discharge from heaters to burners and oil meters for measuring quantity used are also incorporated in the pipe lines. The system adopted is on the Wallsend-Howden principle, burners being Dahl patent.

For normal working, oil is heated to 200° F. and delivered to burners at a pressure of 100 lb. a sq. in. This combination, in conjunction with burner nozzle, which is arranged to give conical spray, ensures the degree of atomizing of the oil which is essential for the obtaining of complete combustion. This atomizing is an important factor in oil burning, as, should large globules of oil enter the furnaces, the outer skin only becomes charred, resulting in an oily mass being deposited in the smoke tubes.

Each boiler room has its own separate equipment, comprising one oil transfer pump of the Weir's vertical type, and oil fuel sets in duplicate, each consisting of Weir's pump and oil fuel heater of capacity suitable for the supply of one complete section of boilers. The feed pumps are Weir's horizontal type cast iron fitted, while heaters are capable of raising temperature of oil to 320° F., when working under steam supply, at the pressure of the exhaust, which is normally 5 lb. a sq. in. There are therefore 4 separate oil fuel sets, and each has a designed capacity of 12,500 lb. oil an hour. The oil circuits are arranged to facilitate warming up, prior to starting all or any of the boilers which may have been out of use, and the fuel may be circulated past the burners, after passing through the heaters. Valves for regulating supply of oil to burners have been grouped for convenience in handling.

The air supply requisite for combustion of the fuel is delivered to furnaces under Howden's system of forced draft by eight 72 in. double inlet fans of the centrifugal type, each driven by 30 b.h.p. protected type adjustable speed motors, shunt wound with series steadying turns, speed of revolution being 500 per minute on 100 volt circuit. For convenience in starting, after ship has been in port some days, special lighting up heaters are provided, these being Admiralty T. B.D. type. To facilitate ready checking of combustion conditions, a system of smoke observation mirrors is included, and the operating staff will therefore be able to verify adjustments for economy without leaving the boiler room.

Special attention is being given to the

lighting and ventilation of boiler rooms, while the painting of spaces, hitherto dark and dirty, as is inevitable with coal burning, will make for increased efficiency in operation.—Marine Engineer and Naval Architect, London, Eng.

The Empress of Britain will be put in the Liverpool-Quebec service, leaving Liverpool, Sept. 1, on her first voyage after being re-fitted, etc. In addition to being converted to a fuel oil burner, as stated above, she is being completely re-fitted, 4 additional suites being placed forward on the upper promenade deck, and 2 in the center, and 4 more single cabins with baths are being installed. Ten single cabins have been added on the lower promenade deck, and 24 single rooms have been added on the deck below the lower promenade deck. The third class accommodation has been thoroughly overhauled, and subdivided.

### Sir Thomas Fisher on the C.P.O.S. Ltd.

London, Eng., July 3. — Sir Thomas Fisher, K.B.E., Manager, Canadian Pacific Ocean Services, Ltd., returned from Montreal last week by the R.M.S. Empress of France. Speaking to a press representative, he said: "My visit was for the purpose of reporting to and consulting with the Chairman and directors. The establishment of a direct passenger service between Canada and Italian ports was one of the matters under consideration, also that of additional shipbuilding, the cost of which is now becoming so serious that, like other large shipowners, C.P.O.S. will exercise great caution in regard to new construction. As matters stand, no shipbuilder can conclude any definite contract, and the system of payment according to cost of material and labor, plus percentages, makes it impossible to estimate, even approximately, what the eventual actual cost of a vessel will be. Under this system we have had to pay far more than the extreme outside original calculations. Moreover, the great advance in wages has, unfortunately, not meant greater efficiency or celerity in construction."

Questioned as to vessels now under construction, Sir Thomas Fisher said:—"On Saturday (July 3) the Montcalm will be launched by John Brown & Sons, Clydebank, and will, I can only hope, be ready for service next February. She is an improvement on our Metagama and Melita type of 2-class steamships, and is 500 ft. long by 70 ft. beam, 68 ft. depth from the boat deck, with a tonnage of about 16,200. The Empress of Canada is expected to be launched from the Fairfield yards on the Clyde, and the naming ceremony will be performed by Mrs. G. M. Bosworth, wife of our Chairman. The Empress of Canada will be the finest and fastest vessel crossing the Pacific Ocean. She is intended to make her maiden voyage to Vancouver via the Mediterranean next March, and already many enquiries for the round the world passage are being made. Our Transatlantic mail steamer, Empress of Britain, which has been practically rebuilt since the war, will, I hope, be ready to leave Liverpool for Quebec on Sept. 1, and will carry three classes of passengers and be fitted as an oil burner."—"Canada."

## Canadian Notices to Mariners.

The Department of Marine has issued the following:—

**Alaska.**—Light buoy 4 has been established off Bar Point, Tongrass Narrows, showing a fixed red light at an elevation of 8 ft. on a scow float with red slatted superstructure.

**British Columbia, Haro Strait, and Boundary Pass.**—The Dominion Government will during this year have the currents in Haro Strait and Boundary Pass examined. The C. G. S. Armentieres will be anchored at different places between Discovery Island and east points. She will display the usual day and night signals for a ship unable to manoeuvre, and in foggy weather will sound one long blast of the whistle followed by two short blasts. Ship masters are requested to keep a lookout for her when in these waters and give her a safe berth in passing.

**British Columbia, Strait of Georgia, Fraser River.**—Three red conical buoys have been established to mark the south side of the new dredge channel north of Westham Islands which leads into the new main channel, north of Brush Island, of the Woodward group. Mariners proceeding by river will, after passing black can buoy 25 head 99° on the alignment of the Woodward range, leaving the three conical buoys on the starboard hand. The dredged cut marked by the above buoys is approximately 5,000 ft. long and 300 ft. wide in center, widening to 500 ft. at each end.

**British Columbia, Vancouver Island.**—The commanding officer of C.G.S. Stadacona reports the existence of a rock on the south side of Pipestem Inlet, off a small islet north of Georgina Point; the north end of Image Island in line with the south end of Refuge Island bearing 290° (s. 85° w. mag.) leads over the rocks; the westernmost peak on Black Mountain bearing 41° (n. 16° E. m) marks the position of the rock, which is 6 ft. wide and about 40 ft. long parallel with the shore, with deep water all round; it is not marked by kelp and has only 1½ ft. of water over it at low tide.

**Cape Breton Island.**—The Fourchu bell buoy, on the southeast coast of Cape Breton Island, has been moved to a new position about 1,500 ft. from Fourchu Head lighthouse.

**Lunenburg.**—The Lunenburg Marine Railway Co. is rebuilding patent slips 1 and 2, and building a new slip 3, in Lunenburg harbor.

**New Brunswick, Bay of Fundy.**—The fixed white light on Midgik Bluff, at the entrance to Magaguadavic River, Passamaquoddy Bay, has been replaced by an occulting white light, automatically occulted at short intervals. The light is unwatched.

**New Brunswick, Northumberland Strait, Richibucto Cape.**—Without further notice range lights will be established; character, fixed white light; order, 7th dioptric; elevation, 25 ft.; visibility, 5 miles from all points of approach from water; lights in line lead boats of shallow draft into shelter behind the breakwater.

**New Brunswick, St. John Harbor.**—The Partridge Island light and bell boat in St. John harbor, Bay of Fundy, will be replaced by a black steel cylindrical gas and bell buoy showing an occulting white light, in 26 ft. of water, near the east end of Partridge Island.

**Northumberland Strait.**—The front light on the channel range at Richibucto harbor entrance, in Northumberland Strait, has been moved 42 ft. north of its old position and about 665 ft. from the back light.

The north beach range lights in Richibucto harbor, Northumberland Strait, have been moved, the front light on the shore behind breakwater, 58 ft. north of its old position, and the back light about 40 ft. north of its old position, and 345 ft. from the front light.

The bar range lights in Richibucto harbor, Northumberland Strait, have been moved, the front light about 100 ft. east of the old position and the back light about 1,400 ft. east of the old position and 275 ft. from the front light.

**Newfoundland.**—A flashing red acetylene gas light, showing a flash of 0.3 sec. duration, for 3 seconds, has been established at Square Head, on the north side of Bonavista Harbor, Bonavista Bay. The light is at an elevation of 57 ft., on a white square wooden pyramidal tower.

**Nova Scotia, Cape Breton Island.**—The Fourchu whistle buoy, on the south coast of Cape Breton Island, off Fourchu Inlet, has been moved to a new position, a quarter of a mile from Pot rock.

**Nova Scotia, Annapolis.**—The fixed white electric light on the outer end of government pier, Annapolis wharf, has been discontinued.

The Bass Rock buoy, consisting of a red wooden spar, in 54 ft. depth, and the Frying Pan Bar buoy, consisting of a black wooden spar, in 48 ft. depth, have been established in the Canso harbor approach.

Eight spar buoys, 4 red and 4 black, have been established to mark the channel from the point of beach, opposite Shingle Point lighthouse, northward to Grants Island ledge, at Port Herbert.

**Nova Scotia, southeast coast, entrance to Prospect Harbor.**—On rock at eastern end of Saul's island, a gas beacon has been established showing an occulting white acetylene light, automatically occulted at short intervals, and consisting of a red lantern on a white pole with black steel tank at base; the light is unwatched, has an elevation of 28 ft., and is visible for 7 miles from all points of approach.

**Ontario, Bay of Quinte.**—Without further notice, the fixed white light on the pier, on the north side of the channel, will be replaced by an occulting white acetylene light, automatically occulted at short intervals. The light will be unwatched.

**Ontario, Georgian Bay.**—Change in position of range lights,—front light, on east side of mouth of Nottawasaga River, 247 ft. northeast of old site; back light, 264 ft., 111° 10' from front light; the alignment leads over the bar outside the mouth of the river, with a least depth of 5 ft.

**Ontario, Lake Huron and Georgian Bay.**—A new edition of sailing directions for Canadian shores on Lake Huron and Georgian Bay, has been published by the Naval Service Department's Hydrographic Survey. Price 25c.

**Ontario, Lake Huron, Georgian Bay.**—Beacons in the inside channel, between Penetanguishene and Parry Sound, have been rebuilt, as follows: Red Rock beacon, on summit, white wooden, diamond shaped, slatwork daymark; Kerr Island beacons, on south shore of island, white,

wooden, diamond shaped, slatwork daymarks; Kings Bay (Big Davids Bay) beacons, on south shore of island, south of Kings Bay, white, wooden, diamond shaped, slatwork daymarks.

**Ontario, Lake Ontario.**—While improvements are in progress in Toronto harbor, mariners are warned that they must use caution when approaching these works. All sunken obstructions are marked by white lights from sunset to sunrise, and all danger areas buoyed according to regulations. Mariners wishing to berth at the Canada Steamship Lines westerly dock, will find not less than 16 ft. of water between the buoys and the mainland.

**Ontario, Lake St. Clair.**—Without further notice, the gas buoy that was adrift will be replaced on its former position, at the outer end of the dredged cut, 1½ miles 320° 30' from the Thames River main light.

**Ontario, Lake Superior, Thunder Bay, Port Arthur Harbor.**—On or about June 1, the occulting white light on the crib-work block, 31 ft. from the south end of the northerly breakwater, will be changed to an occulting red light.

**Ontario, Lake Superior.**—An auxiliary hand fog horn has been placed at the lighthouse at Davideaux Island, on the south side of Michipicoten Island, and will be sounded should the fog bell become disabled.

The light on the northwest extremity of Otter Island will be re-established without further notice. Its character will be flashing white catoptric, showing one flash every 8 seconds, for half the time between flashes, or 4 seconds. The light will be totally eclipsed for the remainder of the time, a fixed light of 450 c.p. will be visible through which the stronger flash will show, the naked light will be 450 c.p. and the flash 20,000 c.p., the illuminant being petroleum vapor burned under an incandescent mantle.

**Ontario, Ottawa River.**—A black wooden spar buoy has been established on the north edge of shoal, about 3,750 ft. west of Carillon dam, at the west entrance to Carillon Canal.

**Prince Edward Island, North Rustico Harbor.**—A red bell buoy, of the steel cylindrical type, marked Rustico, in white letters, has been established off the entrance to the harbor, 1½ miles from North Rustico main light.

**Prince Edward Island, Northumberland Strait.**—Whistle buoy off the south extremity of Tryon shoals has been replaced by a red gas and bell buoy, of the steel cylindrical type, showing an occulting white light.

**Prince Edward Island, Northumberland Strait, Little Sands.**—On shore, at inner end of breakwater, a fixed red light, 7th order, dioptric Chance duplex lamp, at an elevation of 54 ft. on a white square wooden tower 13 ft. high, has been established, visible from all points seaward.

**Quebec, Gulf of St. Lawrence.**—The submarine bell buoy off Fame Point, about half a mile north of the lighthouse, has been withdrawn.

**Quebec, Lower St. Lawrence River.**—During June, July, August, September and October the Geodetic Survey Branch of the Interior Department will be using signal lamps for surveying purposes along the north and south shores of the lower St. Lawrence River. Mariners are warned that they must not confuse these

lights with aids to navigation. Search lights may be set up at the following points—north shore, Iberville, Laval, Bersimis, Manikonagan, St. Nicholas, St. Augustin, Trinity, Cawee; south shore—Mont Joli, Sandy Bay, Val Marie, Montane, Leclerc, Les Machins, Cap Chat, Edward.

**Quebec, River St. Lawrence.**—The barge Cuba lies sunk in 6½ fathoms of water, 3,750 ft. from Berthier wharf. A green steel cylindrical gas buoy showing an occulting white light has been established 115 ft. from the wreck.

**Quebec, River St. Lawrence.**—The wooden beacon on Wood Pillar Inlet has been destroyed, and will not be rebuilt.

**Quebec, River St. Lawrence.**—The master of the s.s. Gyp reports the extension of a derelict, on June 19, about 11 miles northeasterly from Riviere a la Martre. The derelict is a menace to navigation.

**Quebec, River St. Lawrence, Ship Channel** between Quebec and Montreal.—The pier supporting the front light of the Gentilly range lights has been carried away by ice, and, until further notice, a temporary light has been placed on a platform on piles on the same site.

**Quebec, St. Lawrence River.**—A new edition of the St. Lawrence River Pilot, above Quebec, comprising sailing directions from Quebec to the east end of Lake Ontario, has been published by the Naval Service Department's Hydrographic Survey. Price 25c.

**United States, Lake Huron.**—An auxiliary fog signal has been placed at Fort Gratiot light station on the mainland, at north entrance to St. Clair River. When foggy on river, but clear on lake, diaphone will sound a blast of 5 seconds duration every 60 seconds; no change in steam whistle, which will sound as heretofore when foggy on lake.

**United States, Lake Memphremagog.**—On or about June 10, the fixed red light at Whipple Point will be replaced by a flashing white light, showing a flash of 0.3 sec. duration, every 3 seconds.

**United States, Lake Superior.**—Commencing about May 19, the submarine fog signal at Whitefish Point light station, will be sounded continuously during navigation season.

**United States, Lake Superior.**—The submarine bell, in 30 fathoms, 2,185 yards north of White Fish Point lighthouse, will, after May 25, strike 4 strokes every 16 seconds.

**United States, St. Marys River.**—The east side upper light 6, in the West Neebish channel, has been destroyed, and, until it is rebuilt, a temporary gas buoy, showing a flashing red light, has been established in 22 ft. of water, on the channel bank, immediately above the location of the light.

**United States, St. Marys River.**—Ship masters are advised that, during the next two or three months, a floating plant will be employed by the lighthouse service, in rebuilding structures in the Middle Neebish channel. It is requested that ships exercise care to slow down in passing work of construction, to avoid damage to the floating plant and other work.

**Age of Stokers.**—The International Congress of Seamen at Genoa, Italy, has decided to place on the agenda for the next conference, a proposal that no seaman under 18 years old be employed as a trimmer, or stoker, on a ship. Another proposal, that no persons under 17 years old be employed on night watches on ships, between 8 p.m. and 6 a.m., did not obtain the necessary two-thirds vote to get a place on the agenda.

## Hudson Bay Navigation.

The Lamson-Hubbard Canadian Co. has chartered the s.s. Thetis for a trip to Hudson Bay ports. The Thetis arrived at Montreal, July 10, from Newfoundland, where the party for the north was completed, and she sailed July 15, with a selected crew, under Captain A. C. Smith, who has had over 20 years experience of Hudson Bay navigation, having been master at different times of the Hudson's Bay Co.'s steamships Nascopie and Pelican. The s.s. Thetis was built at Dundee, Scotland, in 1881, and is screw driven by engine of 98 h.p. Her dimensions are,—length 181.1 ft., breadth 30.9 ft., depth 19.1 ft.; tonnage 828 gross, 396 net. She was originally bought by the U.S. Government, with the s.s. Bear, for the Greeley Relief Expedition, and sent to Cape Sabina, bringing back seven of a party of 25 men, who had been stranded there. She was later acquired by interests associated with Job Bros. & Co., St. John, Nfld., and is owned by the Thetis Steamship Co. Ltd., St. John's, Nfld.

The Hudson's Bay Co.'s s.s. Nascopie sailed from Montreal during July on her annual trip with stores for the company's various trading posts in Hudson Bay and James Bay, etc. The company's s.s. Pelican, which also loaded stores at Montreal for the company's posts, sailed July 9 for the north. The company's s.s. Discovery was stated recently to be in England preparing for its annual trip to Labrador and Bay ports. One of the passengers on the s.s. Nascopie is an Eskimo who is being returned to Chesterfield Inlet, about 400 miles from Fort Churchill, where he is to be tried for murder by a special court to be sent from Canada for the chief purpose of impressing the natives.

The s.s. Empress and the wharf property at Ottawa which were bought by W. H. Dwyer Ltd., Ottawa, for between \$21,000 and \$22,000 from the receiver of the Central Railway Co. of Canada, are being operated by the Empress Navigation Co., Ottawa, in connection with the Capital Amusement Co., the ship being run between Ottawa, Ont., and Montebello, Que. The Empress Navigation Co. also bought the s.s. Victoria from the Victoria Navigation Co., Thurso, Que., recently, and she is being operated between Ottawa, Ont., and Thurso, Que., daily except Sunday. The s.s. Empress was built at Ottawa in 1873, when she was named Peerless, and was rebuilt and renamed Empress, at Montreal, in 1886. She is paddle wheel driven by engine of 152 h.p. and has the following dimensions,—length 185.3 ft.; breadth 27.6 ft.; depth 8.1 ft.; tonnage 678 gross, 372 net. She was operated for several years on the Ottawa River in connection with the old Carillon & Grenville Ry., and when this railway ceased operation she was acquired by the Central Ry. Co. of Canada, and operated on the St. Lawrence between the Lachine Rapids and Montreal.

**Beeson's Marine Directory** of the Northwestern Lakes, for 1920, the 34th year of publication, in addition to the customary information as to steamships, both Canadian and U.S., operating on the Great Lakes, contains a number of interesting articles relative to shipping generally. A diagram showing some details of the large ships built during the past 20 years, gives the s.s. W. Grant Morden, owned by Canada Steamship Lines, as the largest steamship on the Great Lakes.

## Steamship Terminal for Sydney, N.S.

Some details were given in a previous issue of Canadian Railway and Marine World, in regard to plans prepared by the Public Works Department for the construction of a terminal dock at Sydney, N.S., on account of which \$100,000 has been included in this year's estimates. The total cost of the work is about \$800,000. The dock will be built near the old railway pier, at Barrack Point. The wharf will be 540 ft. long, 72 ft. wide, with a berth on each side 350 ft. long by 100 ft. wide, and with a depth of 30 ft. of water at low tide. There will also be a berth on each side, with a depth of water of 20 ft. at low tide, each berth being 150 ft. long by 100 ft. wide. The wharf shed will be 450 ft. long by 40 ft. wide, with a 4 ft. platform on each side at the same level as a freight car floor, with a railway track on each side of the wharf, with 3 ft. clear width between a box car and the outer edge. The wharf will consist of 25 concrete crib piers, filled with stone, and the bridge from the shore will be an earth embankment, with two railway tracks extending to each side of the wharf, and a wagon road leading from the west along the shore to George St.

**Shipbuilding Statistics.**—For the quarter ended June 30, 3,570,000 gross tons of shipping were turned out of United Kingdom yards, compared with 2,105,000 from U.S. yards in the same period. The total construction of the world for the same period was 7,720,000 gross tons, compared with 8,017,000 tons for the same quarter in 1919. The U.S. shipbuilding report of a year ago showed it to be ahead of United Kingdom shipbuilding by about 1,350,000 gross tons. The average gross tons of the British ships under construction is 4,012, while the average of U.S. ships is 5,609. The United Kingdom and the U.S. are far ahead of all other countries in shipbuilding, the nearest being Holland, with an output for the quarter ended June 30 of 400,000 tons, Canada being next with 40,000 tons.

**Drifter Sales.**—Canadian Railway and Marine World, for July, stated that the Anderson Co. of Canadian hold sold T.R. 59 to T. M. Kirkwood, Montreal, and that he had arranged options on a further nine through the Naval Service Department. We are advised that the sale was made direct by the Naval Service Department, which has also sold drifters 61 and 99 to the same buyer, who has an option on a further number. T. M. Kirkwood states that these drifters cost originally \$84,000 each, and he is offering them, newly painted and ready for sea, at \$16,000 each at Halifax, N.S., or \$17,000 delivered at any port to the head of Lake Superior. The Naval Service Department has also sold drifters 70 and 95 to Capt. Alex. Smith, Dartmouth, N.S.

**Marine Public Works Contracts.**—The Dominion Public Works Department has awarded the following contracts:—June 24, Rebuilding of wharf at Little Current, Manitoulin Island, Ont., Wm. Birmingham, Kingston, Ont., schedule of prices; July 2, Dredging at Port Arthur, Ont., Canadian Dredging Co., Midland, Ont., class B, 28c. a cu. yd., scow measure; July 5, Dredging, quarantine station, Williams Head, B.C., main and coal wharf, Pacific Coast Construction Co., Vancouver, B.C., class B, 48c. a cu. yd. in situ.

### Atlantic and Pacific Ocean.

R. P. Houston & Co., Liverpool, Eng., operating the Houston Lines, is reported to have decided to operate steamships between Montreal, Port Said, Suez, Aden, Suda, Bombay, Colombo, Karachi, Madras, and other eastern points.

The New Zealand Shipping Co. is reported to have arranged for the operation of a direct line of steamships between Montreal and ports on the Red Sea, East Indies, the Straits Settlement and Java, the new line to be known as the Ellerman-Bucknall Canada-India-Java service.

It is reported that the Cunard Steamship Co. will have one of the greatest steamship terminals in the world, it having secured about 1,100 ft. of water front along the Hundson River at Weehawken, N.J., where it purposes laying out the most complete and up to date terminal facilities.

The s.s. Kronprinz Frederich Wilhelm, one of the former German passenger steamships, which was allocated to Canadian Pacific Ocean Services, Ltd., has been overhauled and equipped for fuel oil burning and is now in the company's Atlantic service. Her dimensions are,—length b.p. 589.9 ft., breadth 68.3 ft., depth 38.6 ft.; tonnage, 17,082 gross. She sailed from Liverpool July 14, and arrived at Montreal July 24.

The North Atlantic Pacific Conference is reported to have agreed to increase passenger rates to Europe by \$15 for first class cabin and \$10 for second class. The new scale has been put into effect on all steamship lines operating from New York to the upper European ports. The companies claim that they are compelled to pay extremely high prices for bunker coal, labor and materials generally. Reports indicate that the trans-Atlantic passenger traffic, which has been unprecedented, is slowing down to some extent, but it is stated that nearly all companies are fully booked to the end of August.

### Maritime Provinces and Newfoundland.

The Lunenburg Marine Railway Co., Lunenburg, N.S., has deposited with the Public Works Department, Ottawa, under the Navigable Waters Protection Act, plans of works in Lunenburg harbor, existing and proposed.

The Commercial Cable Co. has completed the erection of new storage sheds at Upper Water St., Halifax, N.S., and it is reported that an additional cable ship will be placed in service shortly, operating from Halifax.

The Newfoundland Government, in dealing with supplementary estimates, at a sitting of the legislature early in July, promised consideration of additional facilities in steamship service with St. Marys and Trepassy, in Placentia Bay.

The Newfoundland Government has bought the s.s. Lobelia from the British Government, and is reported to have bought three other steamships from the U.S. Government, for use in the coastal mail and passenger service in Fortune Bay, Northern Labrador, Humbermouth and Battle Harbor.

The Canadian National Rys. car ferry Prince Edward Island underwent some repairs at Charlottetown, P.E.I., early in

July, and later proceeded to Halifax, N. S., where she was docked for hull examination. While she was under repair the car ferry Scotia replaced her on the route between New Brunswick and Prince Edward Island.

The British Board of Trade has recommended that the crew of the Imperial Oil Ltd. s.s. Luz Blanca, which was sunk by German submarines off Halifax harbor Aug. 5, 1918, be awarded a clasp. Two of the crew were killed by shell fire from the submarine, the remainder being rescued and taken to Halifax.

The s.s. Princess, owned by Farquhar & Co., Halifax, N.S., has been sold to Peruvian parties, and is expected to sail from Halifax for Peru during August. She was built in 1896, was for some time in the Newfoundland trade, and was bought by Farquhar & Co. in 1919. She is 542 tons gross, 125 tons net, and has been thoroughly overhauled and refurnished this year.

The Maritime Wrecking Co.'s tug Sarnia City and the Halifax Tow Boat Co.'s tug W. F. Roebing left Halifax during July for Norfolk, Va., where they are taking in tow a sandsucker for use in the St. John, N.B., harbor. The sandsucker is said to be the largest in the world, being of the following dimensions: length 200 ft., beam 80 ft., with about 30 pontoons for carrying pipes.

Canada Steamship Lines Ltd. is stated to have opened its Nova Scotia-Prince Edward Island-Newfoundland service with the sailing of the s.s. Corunna, which was taken to Sydney, N.S., from Montreal about the middle of July, and it is stated that the Corunna will shortly be replaced by the s.s. Mapledean. The s.s. Corunna is owned by the Dominion Iron & Steel Co. and was built at Leith, Scotland, in 1891. She is screw driven, by engine of 99 h.p., and has the following dimensions,—length 230 ft., breadth 34.1 ft., depth 19.7 ft.; tonnage 1,269 gross, 792 net.

The Lunenburg Marine Railway Co. is rebuilding its patent slips 1 and 2, and building a new slip 3, details of which are as follows:—No. 1, length over all 120 ft., depth at high water on block, 11½ ft. forward, 16½ ft. aft, with lifting power of 400 tons, it has 2 tracks with cradle; No. 2, length over all 85 ft. and 110 ft., depth on blocks, 11½ and 15½ ft. forward, and 15½ and 18½ ft. aft, with lifting power of 300 and 600 tons, there are two tracks with cradles, which can be coupled into one, making it 195 ft. long; No. 3 will be 180 ft. long on block, 10 ft. deep forward, and 17 ft. aft,

with lifting power of 1,000 tons; it will have two tracks with one cradle.

### Province of Quebec.

The Quebec Harbor Commissioners have completed the alterations to shed 18 on the breakwater. An additional story has been built on the front half, with a passage way run from end to end, wide enough to swing a small gangway from the shed to steamship decks at high tide.

The s.s. Vega, owned formerly by the Interlake Steamship Co., Cleveland, Ohio, has been bought by the Port aux Quilles Lumber Co., Montreal, and has been transferred to the Canadian register, under the name of Sapin. She was built in 1906, and is 416 ft. long, with 50 ft. beam, and 4,382 gross tons.

### Ontario and the Great Lakes.

The Brockville-Morrystown Transportation Co. is reported to have bought the s.s. Victoria from the Detroit and Windsor Ferry Co., Detroit, Mich., to replace the s.s. H. P. Bigelow, destroyed by fire recently.

The Northern Navigation Co.'s s.s. Hamonic grounded on a reef near Harbor Beach, July 7, during high winds and fog, while on her way to Sarnia. She was released a few hours later, without damage.

The Couchiching lock, on the Trent Valley, Canal, near Washago, was opened for traffic July 6, thus giving direct water communication between Trenton, on Lake Ontario, and Honey Harbor, on Georgian Bay.

The s.s. New York, which was libelled at Kingston, early in July, on account of wages due to the crew, was, after being released, again libelled for the Collingwood Shipbuilding Co., for \$400 due for repairs. The matter was settled, and the ship released.

The Great Lakes Transportation Co., Midland, Ont., is having a steamship built by the Midland Shipbuilding Co., for its Great Lakes service. Details of the ship are given on another page of this issue, under General Shipbuilding Matters Throughout Canada.

The dredge Kennaquhair, which was bought by the Dominion Government in 1917, for terminal and harbor work at Port Nelson, Hudson Bay, and which has been berthed at Cornwall, Ont., since then, will, it is reported, be taken to Cape

### Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during June, 1920:

Articles	Eastbound	Canadian Canal	U.S. Canal	Total
Lumber	.....	M. ft. B. M. 4,449	31,439	35,888
Flour	.....	290,940	791,581	1,082,521
Wheat	.....	868,910	5,107,215	5,976,125
Grain, other than wheat	.....	1,356,398	1,720,388	3,076,986
Copper	.....	Short tons	3,063	3,063
Iron Ore	.....	Short tons	140,608	8,707,350
Pig Iron	.....	Short tons	.....	8,000
Stone	.....	Short tons	1,650	6,350
General Merchandise	.....	Short tons	674	5,498
Passengers	.....	Number	2,356	2,161
Coal, soft	.....	Short tons	24,488	941,894
Coal, hard	.....	Short tons	7,900	263,120
Iron Ore	.....	Short tons	.....	17,696
Manufactured Iron and Steel	.....	Short tons	1,418	7,536
Salt	.....	Short tons	831	17,975
Oil	.....	Short tons	.....	41,720
Stone	.....	Short tons	.....	98,541
General Merchandise	.....	Short tons	24,797	51,019
Passengers	.....	Number	3,435	1,435
	.....	Number	493	2,143
	.....	Net	710,060	7,486,339
Vessel Passages	.....	Short tons	237,760	8,916,124
Registered Tonnage	.....	Short tons	59,434	1,434,501
Freight—Eastbound	.....	Short tons	297,194	10,350,625
Westbound	.....	Short tons	.....	.....
Total Freight	.....	Short tons	.....	9,153,884
	.....	Short tons	.....	1,493,985
	.....	Short tons	.....	10,647,819



## Dominion Government Aid for Shipbuilding.

The name of the s.s. Beaver, owned by the Gulf of Georgia Towing Co., Vancouver, has been changed to Honeymoon. She was owned formerly by Maritime Fisheries Ltd., Vancouver, and was built at Ballard, Wash., in 1892. She is screw driven by engine of 22 h.p., and has the following dimensions,—length 51.4 ft., breadth 13.7 ft., depth 5.7 ft; tonnage, 38 gross, 26 net.

The negotiations between the Vancouver Harbor Commissioners and the Great Northern Ry. as owner of the site for the construction of the Ballantyne pier in Burrard Inlet, are reported to have been concluded, the G.N.R. agreeing to accept \$1,000 a foot as offered by the Commissioners. It is stated that the prolonged negotiations in no way delayed the work of preparing the site, and one contract has already been let.

The Vancouver Harbor Commissioners has passed a bylaw, effective Aug. 1, imposing a tax on all cargo landed within the harbor, of 5c. a ton, with certain exceptions. Until this bylaw was passed, no charge had been made at the port on the cargo of ships, but only on the ship tonnage. It is stated to be the intention to abolish the ship tonnage charge and all charges for wharfage on the Commissioners' property, in about two years, or on the completion of the Ballantyne pier.

The Kettle Valley Ry., which is operated under lease by the C.P.R., will handle traffic on Dog Lake between Penticton and Okanagan Falls with the C.P.R. s.s. York, which was run formerly on Okanagan Lake. The s.s. York was built at Toronto in 1901 and shipped in knockdown shape to Okanagan Landing and was re-erected there. She is screw driven, by engine of 12 h.p., and has the following dimensions,—length 88 ft., breadth 16.2 ft., depth 4.9 ft.; tonnage 134 gross, 91 net.

The board of conciliation, consisting of Mr. Justice Murphy, chairman; E. A. James, for the C.P.R., and J. Taylor, for the employes, appointed to deal with the demands of the C.P.R. freight handlers on the water front at Vancouver, reported during July. It is stated that the majority report does not recommend any increase in wages, but agrees that men called upon to do more than ten hours work in 24 hours should be paid for the excess time at \$1.35 an hour for checkers and \$1.20 an hour for truckers, against \$1.10 and \$1 respectively at present. A minority report is being presented by J. Taylor, who represented the men.

The British Columbia Telephone Co. has bought the barge Iwalani to convert into a cable ship for laying cables through the Gulf of Georgia. The Iwalani was built at San Francisco, Cal., in 1881, as a private yacht, and was sold afterwards to Hawaiian parties and operated in the sugar trade between California and Honolulu and was later on the run between San Francisco and Seattle in the freight trade. A short while before the war she was bought by a Vancouver concern, and later her engines were removed and sent to Japan, where there were installed in another ship, and the Iwalani passed to the Imperial Munitions Board for use as a barge. Her dimensions are,—length 148 ft., breadth 27 ft., depth 8.5 ft.; tonnage 275 net.

**Car Ferry Steamship Maitland No. 1.** Particulars of the operation of this steamship, for 1919, are given in the Toronto, Hamilton & Buffalo Ry.'s annual report on another page of this issue.

Canadian Railway and Marine World for July contained the resolution adopted by the House of Commons on motion of the Finance Minister, Sir Henry Drayton, to make advances to shipbuilders. Following is the complete text of the bill, An Act respecting the Shipbuilding Industry, which was based on the resolution, as passed by Parliament.

Whereas large numbers of men are employed in the shipbuilding industry in Canada; and whereas at the present time there is no sufficient demand for the construction of ships by Canadian purchasers and the Government of Canada has ceased placing further orders; and whereas inhabitants of European countries are desirous of placing orders for ships in Canadian yards, but owing to the present rates of exchange and the depreciated value of foreign currencies they are unable to finance such orders; and whereas it is advisable to assist in financing the construction of ships in existing Canadian shipyards: Therefore, His Majesty, by and with the consent of the Senate and House of Commons of Canada enacts as follows:

1. In any case where a person (hereinafter called "the purchaser") has entered into a contract with a shipbuilder for the building in Canada of a vessel of not less than 3,000 tons, and such contract is approved by the Ministers of Finance and Marine and Fisheries, and a sum not less than 10% of the price of such vessel is paid by the purchaser to the shipbuilder in cash at the time the contract is entered into, and, if such cash payment is less than 20% of such price, the payment to the shipbuilder of a further sum which with the said cash payment will amount to not less than 20% of such price not later than six months after such time, and the payment of a further sum not later than nine months after such time, if the previous payments are less than 25% of such price which will be sufficient with the other said payments to amount to at least 25% of the total of such price are contracted for and secured to the satisfaction of the Minister of Finance; and the payment of an additional 25% of the price is arranged between the purchaser and the shipbuilder and secured to the satisfaction of the Minister of Finance, the Governor in council may authorize the Minister of Finance to endorse on behalf of His Majesty promissory notes drawn by the purchaser in favor of the shipbuilder for the 50% of the price of the said vessel. The Governor in council shall prescribe the place where such

notes shall be paid, the method of discounting them, and the time when such notes are to be paid.

Provided that the first of such notes shall be made payable at a date not less than 21 months after the time the contract was entered into, and the last of such notes shall be made payable at a date not later than 57 months after such time:

A first mortgage on the vessel for the full amount of the notes so endorsed by the Minister of Finance, in such form as the Minister of Justice may approve, shall be given to His Majesty, and the said vessel shall be registered in Canada, and the register shall not be transferred until the amount secured by the mortgage has been fully satisfied and paid. Until the amount secured by the mortgage is fully satisfied and paid, the vessel shall be insured and kept insured in favor of His Majesty for such amount and against such risks and in such insurance companies as the Minister of Finance may determine.

Provided that if the vessel is being built for an alien, and the provisions of this Act with respect to mortgaging the vessel cannot conveniently be complied with, such security for the amount of the said promissory notes endorsed by the Minister of Finance shall be furnished by the purchaser as may be approved by the Governor in council.

2. The whole amount that notes may be endorsed on behalf of His Majesty as herein provided shall not exceed \$20,000,000, and no notes shall be endorsed as aforesaid until 25% of the contract price shall have been paid in cash.

3. An account in detail of the endorsements made or liabilities incurred under the provisions of this act shall be laid before Parliament within 15 days if Parliament is then sitting, and if not sitting then within the first 15 days of the session next ensuing.

Canadian Railway and Marine World is advised that applications for assistance, under the act's provisions, should be made to the Marine Department, which will pass upon the business aspects of the propositions, before they are dealt with by the Minister of Marine and Fisheries, and the Minister of Finance respectively.

**British Shipping Control Ended.**—The British Government has announced the removal of control over all shipping, including limitations on freight, as from July 15, although it is stated that formal licenses will still be necessary.

### Ships Added to and Deducted From the Canadian Register During April, 1920.

	Steam.		Sailing.	
	No.	Tonnage—Gross Registered.	No.	Tonnage—Gross Registered.
<b>Added.</b>				
Built in Canada .....	25	10,890 6,549	17	2,624 3,438
Purchased from foreigners.....	1	1,231 727	4	3,614 .....
Transferred from United Kingdom.....	.....	.....	.....	.....
Transferred from British Possessions .....	.....	.....	.....	.....
New registers .....	4	157 132	.....	.....
Re-registered after wreck .....	.....	.....	.....	.....
<b>Totals .....</b>	<b>30</b>	<b>12,278 7,408</b>	<b>21</b>	<b>6,238 5,605</b>
<b>Deducted.</b>				
Wrecked or otherwise lost.....	3	1,562 976	14	1,326 1,959
Broken up or unfit for use.....	5	93 68	6	355 850
Sold to foreigners.....	2	105 74	1	364 382
Transferred to United Kingdom.....	1	3,365 1,491	.....	.....
Transferred to British possessions.....	.....	.....	3	1,214 1,123
New registers .....	.....	.....	4	157 146
<b>Totals .....</b>	<b>11</b>	<b>5,125 2,609</b>	<b>28</b>	<b>3,416 3,210</b>

## Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

### Collision of s.s. Picton with Laurier Pier, Montreal.

Held at Montreal, June 12, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. J. Stuart and J. C. Caine, as nautical assessors, in the collision of the s.s. Picton with the Laurier pier, Montreal, June 8. The evidence showed that while, in some cases, the casting off of the stern tow line may be trivial, in this case it proved to be a factor in the damage caused by the s.s. Picton. Owing to an eddy, at the end of the Tarte pier, causing an inward flow, the moment the line was cast off the stern of the ship, she gradually left the wharf until she was within 150 ft. of the Laurier Pier. In the meantime, those on the bridge of the Picton had been warned that her engines were not ready to respond to orders, and no attempt was made by the master or pilot to secure the ship to the wharf, both of them relying on the two tugs in attendance. The evidence with respect to orders to the tugs was conflicting, but the court accepted the version of the masters of the tugs, who stated that they had no orders, and found that the responsibility for the damage caused to the pier, rested with the pilot, A. Perreault, who allowed the Picton to approach too close to the pier, this being brought about by the stern line having been cast off before her engines were ready, and without orders from either the pilot or master, in consequence of which, the stern of the ship drifted 150 ft., before any action was taken. The pilot erred in judgment and was therefore reprimanded and cautioned to be more careful in future. The master of the Picton, M. Mathias, was also cautioned, for the reason that his engines were not ready, it being his duty to see that his ship did not leave her berth before everything was in order. The opinion was expressed that an order to pass a breast line ashore should have been given, when it was found that the stern line had been cast off. The tugs were held not to be in any way to blame for the accident.

Capt. C. J. Stuart, one of the assessors, reported that he could not agree to exonerating the masters of the tugs. He stated that while of the opinion that it was the duty of the tugs to obey orders from the ship in tow, he did not consider that their duties ended there, but that they should be able, owing to experience, to anticipate the pilot's orders and have such control as to avoid such an accident, and for this reason he considered that the masters of the Sincennes-McNaughton Line's tugs Mathilda and Macsinco were jointly responsible for the casualty.

### Stranding of the s.s. Quebec.

Held at Montreal, June 21, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and C. J. Stuart, as nautical assessors, into stranding of Canada Steamship Lines' s.s. Quebec near Three Rivers, Que., June 3. The court decided that the pilot, E. Gauvreau, erred through over confidence in his courses, and that he was in default for not taking a cast of the lead occasionally, to ascertain if his vessel was keeping in navigable waters. Being an unlicensed pilot, the court had no method of dealing with him, but to find him at fault. The court held that the first offi-

cer showed a lack of knowledge as to his duties while in charge, and it took into consideration that he was a stranger in that service and had not received specific instructions as to the role he had to play in connection with the pilot and wheelsman. He was therefore only reprimanded severely, and cautioned to use better judgment in future, and acquire a better conception of his duties and responsibilities as a first officer. The court expressed the opinion that in view of the evidence adduced, the chemical fumes from the Wayagamack mills played an important part in the casualty, as they cast a mist over the surroundings, obliterating all lights at intervals. It therefore strongly recommended that some action be taken in order to cause the elimination once and for all of these fumes, which to its knowledge have been a nuisance and a danger to navigation in the vicinity of Three Rivers for some time past.

### Stranding of s.s. Manchester Division.

Held at Montreal, June 24, by Capt. J. B. Henry, Wreck Commissioner, assisted by Capt. J. C. Caine and C. J. Stuart, as nautical assessors, into the stranding of Manchester Liners' s.s. Manchester Division in Quebec harbor, June 7. The court expressed the opinion that the casualty was due to the parting of a new 9 in. hawser leading from the starboard bow to the tug Belle. There was nothing to indicate undue chafing of the rope, which was protected on the stem by a paunch mat, and the evidence of the master of the Belle showed that the rope parted well clear of the stem. After the parting of the rope, the only practical manoeuvre was thought of, and acted upon, by the master and pilot, going full speed ahead, with the helm hard a starboard, in an endeavor to bring the ship's head round to port, but owing to the squally condition of the wind, this could not be executed before she took the bark and stranded beam on, the striking being so light, as not to be perceptible to those on board. No reason for the parting of the rope could be given, except that there was an unknown defect. No negligence was attributed to those handling her, and both master and pilot were exonerated, the court recommending that in going into this berth, vessels should use a line from each bow.

### Stranding of s.s. Hamonic.

Held at Sarnia, Ont., July 21, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. E. Millard and W. A. Glass as nautical assessors, into the cause of the grounding of the Northern Navigation Co.'s s.s. Hamonic off Hardwood Point, Lake Huron, July 7. The master, Capt. O. M. Wing, stated that he had been in command since 1913, without accident. On July 6 he had occasion to alter his course, to counteract leeway caused by a strong breeze off the port side. His compasses was but imperfectly adjusted in the spring and as a result he had found an error by observing ranges. He also stated that the towing log had a new propeller and he had not had the opportunity of verifying its running. The soundness of the machine was in order but not used, one reason being that one of the crew would have had to be called from his sleep if it had been used. He was advised by the second officer that he had passed the s.s. Huronic inside and assumed from that that he was steering a correct course and was in a proper posi-

tion as to location. The second officer called him when fog came on, with the information that he had seen a light once, but had not had time to take a bearing. He had not heard the fog horn at Port aux Barques, but kept up his speed until the ship struck. Soundings showed that there was 18 ft. forward and 16 ft. aft, and interior soundings revealed a leak in no. 1 hold. The ship was released by the use of tugs. The second officer, Andrew Allan, stated that the ship was steered correctly and that he had not offered any suggestion as to reduction of speed or soundings, assuming that the captain was master of the situation. The master was recalled and notified that on his own evidence the court would likely find him in default and deal with his certificate, and that if he wished to make a defence and secure counsel, the court would adjourn, but he elected to leave the case in its hands.

The court found that the master was in default and stated that he gave his evidence in a straightforward and honest manner. It did not consider the accident due to an error in judgment or careless behavior, but to an omission to exercise the necessary caution. Owing to his youth, clean record and straightforward evidence, the court exercised leniency and suspended his certificate, 6939, for two months from July 21 to Sept. 20. The second officer, Andrew Allan, was exonerated, but cautioned that his responsibility and duties demand more than to call the master and pace the bridge.

### Welland Canal Lock Gate Accident.

Canada Steamship Lines' s.s. Maple-grove, downbound, with a cargo of wheat, July 11, struck the lower gates of lock 2 in the Welland canal, ploughing through them in an 18 ft. descent to the level below. The rush of water released from the level above also carried out the heel of both upper gates in lock 1 level. Three spare gates were placed in position, and navigation resumed July 12, after a suspension of 33 hours. Considerable trouble was experienced in getting the two lower gates out of the lock, they being jammed together between the lock walls. The floor of the lock on the outer recess was covered with several feet of material washed into it from the level above, and the removal of this by divers required considerable time. The ship is believed to have suffered heavy damage, and after the removal of her cargo, she is to be placed in dry dock for examination and repairs. The damage to the canal lock is estimated at \$7,500. It is said that the accident was caused by the engines going ahead instead of reversing while entering the lock.

**Welland Ship Canal.**—It is reported that there is to be a resumption of work on the various uncompleted contracts on the Welland ship canal. Some work was done on these contracts last year, especially to relieve the unemployment situation, due to demobilization, the plants being closed down again in December.

**Glen Transportation Co. Ltd.** has been incorporated under the Dominion Companies Act, with \$500,000 authorized capital and office at Midland, Ont., to carry on a general transportation, towing, wrecking and salvage business, and in connection therewith to own and operate steam and other ships.

## Agreement between Canada Steamship Lines, Ltd., and British Empire Steel Corporation.

The following agreement between Canada Steamship Lines Ltd. and British Empire Steel Corporation Ltd. was ratified by the former company's shareholders at a meeting in Montreal July 24.

Whereas the Steamship Company was incorporated under the Dominion Companies Act for the purpose and object, amongst others, of carrying on a general business of water borne transportation; and whereas the Steel Company was incorporated under the Nova Scotia Companies Act with like objects and powers, as well as the mining of coal, the production of iron and steel, and the construction of vessels, with power to enter an agreement of the nature agreed upon between the parties hereto; and whereas it having been concluded that the co-ordination of the operations of the respective companies, the reciprocal privileges and benefits, the transportation by the Steamship Company of the Steel Company's products, and the facilities of the Steel Company for the construction and repair of vessels, will be of immense advantage one to the other, in consequence the parties have agreed and covenanted one toward the other, as hereinafter set forth; therefore this agreement witnesseth: For and in consideration of the sum of \$1 to each in hand, one paid to the other, the receipt whereof is hereby acknowledged, and further the considerations hereinafter mentioned, it has been covenanted and agreed between the parties as follows:—

1. The Steamship Company undertakes for 25 years from and after July 1, 1920, to operate and manage the business of the Steamship Company, and to conduct the same in all respects as efficiently as heretofore, for the profit and/or loss of the Steel Company, which shall be entitled to any surplus profit arising therefrom after deduction therefrom of all expenses of such operations, including management and direction expenses, and the further deduction hereinafter mentioned, the Steel Company on its part to bear any loss or deficiency;

2. Out of the surplus revenues arising from the operations and expenses as hereinbefore provided, the Steamship Company shall retain and pay the amount necessary to meet interest on its outstanding debenture stock and/or bonds, mortgages, whether due by the Steamship Company or its subsidiaries, and a dividend at the rate of 7% per annum, payable quarterly, on the Steamship Company's issue of preferred and common stock outstanding, as well as making provision for requisite depreciation and sinking fund which in no event shall be less than the depreciation and sinking fund required by the trust deed securing the company's debenture stock and/or bonds, and should the revenues of the Steamship Company and its subsidiaries be insufficient for such purposes the Steel Company covenants and agrees to supply the deficiency as required;

3. The Steel Company on its part further covenants and agrees to provide or advance such additional cash capital as the Steamship Company may reasonably require from time to time for its operations and extensions to secure the repayment of which provision or advances the Steamship Company shall give proper security therefor, covenanting to pay a reasonable rate of interest thereon having regard to prevailing conditions at

the time of such advances;

4. In consideration of the foregoing covenants on the part of the Steel Company the Steamship Company agrees to transfer and pay over to the Steel Company its surplus net earnings, subject to the provisions aforesaid, during the currency of this agreement;

5. This agreement shall remain in force for such period beyond the term of 25 years as aforesaid until cancelled by one year's notice in writing given by either party to the other, but shall in no event extend beyond the period of 99 years;

6. Furthermore, for the consideration aforesaid the Steamship Company covenants and agrees that the Steel Company, provided it has not in the meantime increased its outstanding capital stock, by the declaration of stock dividends or stock bonuses to its shareholders, shall during the period of 25 years from the date hereof have the right at any time to purchase all the then existing assets and undertakings of the Steamship Company, including goodwill, but subject to the assumption of its liabilities, as a going concern, upon the payment or transfer by the Steel Company to the Steamship Company of 125,000 shares of 7% cumulative preference stock, 120,000 shares of cumulative second preference stock, and 66,500 shares of common or ordinary stock of the Steel Company, such shares to be fully paid and of the par value of \$100 each. In the event of this option being exercised the said shares of the Steel Company shall carry dividends from the date in respect of which the last dividends have been paid upon the shares of the Steamship Company, or the Steel Company shall pay to the Steamship Company the equivalent in cash;

7. Nothing herein contained or covenanted to be agreed and performed by the Steamship Company shall be construed as a covenant on the part of the Steamship Company which would in any way affect or impair that company's obligations towards the trustees representing its bondholders and/or debenture stockholders, nor shall the steamship company be held hereunder to any obligation which would have any such effect until such time as the said debenture stock and/or bonds have been retired or the consent of said bondholders and/or debenture stockholders duly obtained in accordance with the provisions of the trust deed therefor, and after all legal requirements have been complied with;

8. This agreement shall not become effective and binding on the part of the Steamship Company until it has been approved, ratified and confirmed at a special general meeting called for such purpose, and until its board of directors shall have passed a resolution declaring that it is satisfied with the organization of the Steel Company;

9. Failure on the part of the Steel Company to make any payment to the Steamship Company as provided for in and by paragraph 2 hereof shall, at the option of the Steamship Company, after giving 90 days' notice, and should such default then continue, render this agreement null and void.

### Agreement for Acquisition of Canada Steamship Lines' Stock.

The following agreement has been entered into between the British Empire

Steel Corporation and the Prudential Trust Co. Ltd., the former being referred to in the agreement as "the company" and the latter as "the trustee".—Whereas the company is desirous of acquiring 125,000 shares of preferred stock and 120,000 shares of the common stock, both of the par value of \$100, all fully paid, issued and outstanding, of Canada Steamship Lines Ltd., and has made an offer to the shareholders of Canada Steamship Lines Ltd. to exchange for the said 125,000 shares of its preferred stock 125,000 shares of 7% cumulative preference stock of the company and 12,500 shares of the common stock of the company, all fully paid and of the par value of \$100; and to exchange for 120,000 shares of the common stock of Canada Steamship Lines Ltd. 120,000 shares of second cumulative preference stock and 54,000 shares of common stock of the company, all fully paid and of the par value of \$100; and whereas for the purpose of carrying into effect such exchange, the company has agreed to deposit with the trustee its shares as hereinbefore described; therefore this agreement witnesseth:—

1. The company agrees to exchange, the trustee on its part accepting the deposit thereof on behalf of the shareholders of the Steamship Company, (a) 125,000 shares of its 7% cumulative preference stock, all fully paid and of the par value of \$100 each, and (b) 12,500 shares of its common stock, all fully paid and of the par value of \$100 each, for 125,000 shares of the preference stock of Canada Steamship Lines Ltd.; and to exchange (a) 120,000 shares of its 7% second cumulative preference stock, fully paid and of the par value of \$100 each, and (b) 54,000 shares of its common stock, all fully paid and of the par value of \$100 each, for 120,000 shares of the common stock of Canada Steamship Lines Ltd.;

2. The company covenants and agrees forthwith after the execution hereof to deposit with the trustee, for the purpose of making the exchange as hereinbefore referred to, said 125,000 shares of its preference stock, 120,000 shares of its 7% cumulative second preference stock, and 66,500 shares of its common stock;

3. Upon such deposit as aforesaid, the trustee shall give notice to the shareholders of Canada Steamship Lines Ltd. of the terms of this agreement with an invitation to them to make the exchange as herein provided, and shall in exchange for each share of preferred stock of Canada Steamship Lines Ltd. give to the holders thereof one share of 7% cumulative preference stock and the equivalent of one-tenth of a share of common stock of the company, and in exchange for one share of the common stock of Canada Steamship Lines Ltd. give to the holders thereof one share of 7% cumulative second preference stock and the equivalent of 45% of a share of common stock of the company;

4. The shares of stock of Canada Steamship Lines Ltd. so acquired is exchange by the trustees as aforesaid shall be held by the trustee on behalf of the company, and upon its request transferred to the name of the company;

5. The company shall not be called upon to issue, nor shall the trustee be called upon to deliver, certificates for fractional shares, but the trustee shall

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deliver to the persons entitled thereto its own certificate covering such fractions issued in favor of the persons entitled thereto, and upon receipt by the trustee from time to time of the dividends payable upon such shares pay the same over to the holders of such certificates in the proportion in which they are entitled thereto;

6. The shares of preferred stock of the company shall, at the time of the exchange herein provided for, carry dividends for the term and in proportion to the dividends accrued on the stock of Canada Steamship Lines Ltd. If, however, they do not do so, the difference shall be adjusted either by the shareholder

or paying the difference to the trustee or the trustee paying the difference to the shareholder, the amount necessary for the latter purpose having been previously supplied to the trustee by the company;

7. This agreement to exchange shall be binding and effective upon the company until Nov. 30, 1920, unless such time be further extended by the company, at the expiration of which time, or an extension thereof, the trustee shall return to the company any shares of its stock not so exchanged and the remaining shareholders of Canada Steamship Lines Ltd. shall thereafter cease to have any such privilege of exchange.

## Fisheries Control Transferred to Marine and Fisheries Department.

The following Dominion order in council no. 1,227 was passed May 29:—"The committee of the Privy Council have had before them a report, dated May 27, from the Minister of the Naval Service, submitting as follows with reference to the minute of council, 1,574, approved June 16, 1914, transferring to the Minister of the Naval Service from July 1, 1914, the duties and powers theretofore vested in the Minister of Marine and Fisheries with respect to the sea coast and inland fisheries, the management and regulation and protection thereof, and the payment of fishing bounties; as well as all such matters as refer to the fisheries of Canada:—

"1. That following the transfer of the Fisheries Branch from the Department of Marine and Fisheries to the Department of the Naval Service, the name of either department was not changed. This has caused, and continues to cause, much confusion in the public mind, and in the press of the country, and otherwise the Fisheries Branch is commonly referred to as a portion of the Department of Marine and Fisheries;

"2. That there is nothing in common in the duties of the Naval Service Department and of the Fisheries Branch. While the Fisheries Protection service, the duty of which is to prevent illegal fishing in Canadian waters by foreign fishing vessels, is carried on by the Department of the Naval Service, the vessels of that fleet are Naval Service vessels, and co-operation between this service and the Fisheries Branch can be as readily effected if the latter were a portion of the Department of Marine and Fisheries as under present conditions;

"3. That at the time the Fisheries Branch was transferred to the Department of the Naval Service, the work of that department was comparatively light; but owing to conditions brought about by the war, and the reorganization of that department, the work thereof will in future require the full attention of the Deputy Minister. On the other hand, as the shipbuilding programme of the Marine and Fisheries Department will soon be completed, the Deputy Minister of that department can fittingly resume the responsibility for the administration, under the Minister, of the Fisheries Branch;

"4. That as the records and the staff of the Fisheries Branch are distinct from those of the Naval Service, the transfer of the Fisheries Branch from the Department of the Naval Service could be effected without interference with the functioning of either the Department of

the Naval Service or the Fisheries Branch."

"The Minister, therefore, recommends that under the authority of 8-9 George V, chap. 6, that the above cited minute of council of June 16, 1914, be cancelled, and that the duties and powers thereby vested in the Minister of the Naval Service, with respect to the sea coast and inland fisheries, the management, regulation and protection thereof, and everything relating thereto, and the payment of fishing bounties; also all such matters as refer to the fisheries of Canada, shall, as from July 1, 1920, be vested in the Minister of Marine and Fisheries, and that the latter department undertake from that date the administration of all matters and acts connected with the fisheries of Canada.

"The Minister also recommends that the unexpended balance of the parliamentary appropriation for Fisheries for the fiscal year 1920-21, amounting for \$1,275,000, and the appropriation for fishing bounty amounting to \$160,000, be transferred from the Naval Service Department to the Marine and Fisheries Department from July 1, 1920.

"The Minister further recommends that as the work of the Fisheries Branch will need to be carried on as distinct from that of the Marine Branch of the Marine and Fisheries Department, and by separate staffs, and that as the General Superintendent of Fisheries, the chief administrative officer of the Fisheries Branch, will be in practice an assistant deputy minister and will act for the Deputy Minister in his absence, so far as all fishery matters are concerned, the title of General Superintendent of Fisheries be changed to that of Assistant Deputy Minister of Fisheries.

"The Minister also recommends under the authority of sec. 45 of the Fisheries Act, chap. 8, statutes of 1914, and under the authority of sec. 20 of the Meat and Canned Foods Act, that in all fishery regulations adopted under the authority of sec. 45 of the Fisheries Act, and in all regulations adopted under the authority of sec. 20 of the Meat and Canned Foods Act, where any power or duty is conferred or charged upon the Minister of the Naval Service, from July 1, 1920, such power may be exercised and the duty shall be discharged by the Minister of Marine and Fisheries. The Committee of Marine and Fisheries, the Committee of the foregoing recommendations, and submit the same for approval."

Under the provisions of this order, W. A. Found, heretofore General Superintendent of Fisheries, is now Assistant Deputy Minister of Fisheries.

## Mail Subsidies and Steamship Subventions Estimates.

The further supplementary estimates, for the year ending Mar. 31, 1921, passed at the Dominion Parliament's recent session, contain the following items:—

Mulgrave and Canso, steam service between, further amount required	\$2,000
Petit de Grat and Mulgrave, steam service between, further amount required	2,000
Victoria and Vancouver, way ports and Skagway, steam service between, further amount required	12,500
Victoria and West coast of Vancouver Island, steam service between, further amount required	10,000
Campment d'Ours Island and mainland Georgian Bay, ferry service between	3,000
Grand Manan and the mainland, steam service between, further amount required	2,500
Halifax, Canso and Guysboro, steam service between, further amount required	2,000
Halifax and Newfoundland, via Cape Breton ports, steam service between, further amount required	2,000
Vancouver, and Northern ports of British Columbia, steam service between, further amount required	8,000
Charlottetown, Pictou and New Glasgow, steam service between	2,000
Pictou, New Glasgow, and Antigonish County ports, schooner service between	1,500

**Projected Dominion Commercial Port in England.**—The City of Portsmouth, Eng., is reported to have under consideration a scheme prepared by Sir Maurice Fitzmaurice, who was, at one time, on the board of engineers for the designing of the Quebec Bridge, for the development of Langstone harbor at Portsmouth, Eng., as a general commercial port. It is stated that the scheme, which was estimated before the war to cost about £5,000,000, will now probably cost £12,000,000, and this is heavier than the corporation feels that it can undertake at present. It has therefore decided to ask the governments of the various British dominions to consider the possibility of co-operating in the development.

**Sale of Dominion Government Submarines.**—The Naval Service Department will receive tenders to Aug. 23 for the purchase of submarines C.C.1, built of steel, length 144 ft., beam 15 ft., displacement on surface 310 tons, displacement submerged 373 tons, built in 1914, and C.C. 2, built of steel, length 151½ ft., beam 15 ft., displacement on surface 310 tons, displacement submerged 373 tons, built in 1914. These ships will be sold as they lie at Halifax, N.S. They were built by the Seattle Construction & Dry Dock Co., Seattle, Wash., for the Chilean Government, and bought by the Dominion Government on the outbreak of war. They were then named Antofagasta and Iquique respectively.

**The Caraquet & Gulf Shore Ry.,** which was taken over by the Dominion Government, as at June 1, full particulars of which were given in Canadian Railway and Marine World for July, on page 384, is now known as Caraquet Subdivision, Campbellton Division, Maritime District, Canadian National Rys. R. H. Martin is Superintendent of the division at Campbellton, N.B., and H. V. Mulgrave is Assistant Superintendent.

**Naval Service Estimates.**—The further supplementary estimates for the year ending Mar. 31, 1921, passed at the Dominion Parliament's recent session, contain the following items:—To provide for the maintenance of the Royal Canadian Navy, further amount required, \$1,700,000; pay of temporary officers and clerks at headquarters, Halifax and Esquimalt dockyards, \$60,000.

## Apprentices for Canadian Government Merchant Marine.

In carrying out the scheme originally outlined at the inception of the Canadian Government Merchant Marine, arrangements have been completed by the management for carrying boys as apprentices on the larger ships, taking two for each ship, and signing them up for four years service. While under indentures they will be taught seamanship, so that they will be able to obtain certificates in due time. It is desired to obtain a good class of healthy, intelligent boys, who wish to make the sea their profession, and for this purpose, the management is working in close connection with the Navy League of Canada, and has agreed to accept boys from that organization. Should, however, any boy make independent application, he will be given consideration. No boy will be taken under 16 years old, unless he be exceptionally developed for his age, and he must have the approval of the Marine Superintendent. The management also requires the parents or guardians of the boys sailing, to put up a guarantee in the way of security that the boys will perform their part of the agreement. It is reported that the first two apprentices under this system sailed during June on the s.s. Canadian Navigator. The arrangement as at present outlined is intended to apply only to those boys who intend to become officers, and, so far, nothing is arranged to induce those to join who only desire to become able bodied seamen. Those boys who are selected will be made graded allowances, increasing yearly, the total payable to each during the course of his indentures being \$1,100.

The Navy League of Canada is preparing a booklet on the subject, with some useful hints written by Thomas Robb, Manager, Shipping Federation of Canada, with the view of conveying to the boys some idea of what the life means, to themselves, as well as to the country at large.

## Canada Position at the International Seamen's Conference.

London, Eng., copyright cable, given to Montreal Gazette July 21:—Canada's case as it was presented to the International Seamen's Conference at Genoa last week was outlined to your correspondent today by Thos. Robb, Manager of the Shipping Federation of Canada, Montreal, who represented Canadian shipowners and general shipping interests at the conference. He said that the inability of the conference to come to any practical agreement regarding the question of hours by no means implied that the discussions were fruitless, inasmuch as it succeeded in arriving at an agreement on a draft of conventions relating to the minimum age for employment in ships and for securing a seaman's right to compensation in case of his ship being lost, and the conference also adopted important recommendations in regard to the drawing up of an international code for seamen, for provision of insurance against unemployment, and other questions directly affecting the daily life of the seafaring community.

So far as Canada is concerned the absence of any United States representatives was felt especially to be a serious defect. When the question arose as to how far workers employed in the fishing

industry and inland waterways should be included in the conference, Mr. Robb spoke, pointing out that Canada and the U.S. have large lakes which form adjacent boundaries to the two nations. "These lakes," he said, are navigated by U.S. and Canadian vessels, and it is most essential in view of the fact that these matters only concern the U.S. and Canada, that they should be dealt with by these two countries. Before any action is taken by the conference I think we should hear from our U.S. friends; therefore I most strongly protest against any recommendation being made from this conference."

Mr. Robb added that his colleague, G. J. Desbarats, Deputy Minister of Naval Service, explained to the conference that there are two different laws in Canada, one for the great lakes and rivers, and another for coast traffic, and that if Canada is obliged to have three or four laws for inland navigation, it will be still more difficult to agree on one rule for inland navigation for the whole world. T. Gauthier, delegate for the Canadian seamen, pointed out that Canada used in inland navigation vessels are large as 12,000 tons, to which he contended, the same rules should be applied as to ships for ocean navigation, and he believed the same rules should be applied to vessels below 2,000 tons; otherwise it would be impossible to find seamen willing to go on board the latter if they did not enjoy the same privileges as men on larger vessels.

As regards the fishing industry, the proposition discussed was how far should the workers employed in this industry be included in the decisions of the conference. On this matter, as also on that of inland waterways, the conference eventually decided that control should be vested in the permanent international labor office at Genoa, any proposals that office may have to suggest to be submitted at the next conference.

## Halifax Drydock Expropriation Judgment.

The Exchequer Court's judgment in the matter of the expropriation by the Dominion Government of the Halifax Graving Dock Co.'s property at Halifax, N.S., was delivered July 6 by Mr. Justice Audette, who found that the value of the plant and property at the time of the Halifax explosion in Dec., 1917, together with the value of the goodwill, as a going concern, was \$1,400,000, from which certain deductions are made in crediting payments by the Crown to the company, so that the net amount payable to the company is \$1,394,070.17, and on this amount the company is to receive interest at 5% from June 24, 1918, to the date of the judgment, with costs of the trial. In a subsidiary action, by way of petition of right, in which the company sought to recover \$195,638.18, as the estimated cost of certain reconstruction of the dock necessitated by the explosion, the court dismissed the petition, on the ground that the full compensation was awarded in the previous case.

This matter has been pending since May 24, 1918, when the Minister of Public Works reported on it and recommended to the Privy Council that \$1,100,000 was a fair value of the property, and that the question of compensation for the expropriation, carried out under the War Measures Act, 1914, be submitted to the Exchequer Court for adjudication.

## Ocean and River Service Estimates.

The further supplementary estimates for the year ending Mar. 31, 1921, passed at the Dominion Parliament's recent session, contain the following items:—

To provide for raising, repairing and maintaining C.G.S. Aranmore .....	\$75,000
Registration of shipping, further amount required .....	4,200
Additional amount required for two motor patrol vessels for buoy and lighthouse service in British Columbia .....	15,000

Steamship Julius Kessler Corporation Ltd. has been incorporated under the Dominion Companies Act, with \$650,000 authorized capital, and office at Montreal, to build, own and operate steamships of every description, wharves, docks, etc., and to carry on a general navigation and transportation business. Those associated with this company are connected with Pure Cane Molasses Co. of Canada Ltd., a subsidiary of Pure Cane Molasses Co., New York, and owned by Sugar Products Inc., a U.S. concern. We are advised that the s.s. Julian Kessler is being bought in Duluth, Minn., for \$650,000, and that she will be transferred to the Canadian register at St. John, N.B., where she will be placed under the management of Wm. Thomson & Co.

British Shipbuilding.—London, Eng., press dispatch July 21.—The total ship tonnage now building in the United Kingdom exceeds the amount under construction in the United States by 1,672,000 tons. The aggregate amount under construction in Great Britain is 3,578,000 tons—the highest amount ever recorded. Much comment has been aroused in shipping circles by these figures, but the failure of the United States to maintain its lead in shipbuilding was expected, since the intensive construction there was chiefly a war measure.

Trawlers and Drifters for Scottish Fishing Trade.—It is announced that 4 trawlers and 21 drifters, built in Canada during the war for mine sweeping purposes, sailed from Halifax, N.S., during July for Scotland, via the Azores, to engage in the fishing industry there. Each of the trawlers carried crews of 10 each, while the drifters had crews of 8 each. It is also stated that an additional 80 of these ships will be dispatched across the Atlantic at intervals, having been taken over by the Admiralty for home fishery service.

Halifax Ocean Terminal Docks. — The estimates passed at the Dominion Parliament's recent session contain an item of \$12,004.05 to refund Foley Bros., Welch, Stewart & Fauquier, amount of royalty paid Public Works Department, for filling taken from Halifax harbor, and used in connection with their contract for ocean terminal docks.

The Rose Castle Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with \$1,500,000 authorized capital, and office at Montreal, to own and operate steam and other ships, wharves, docks, warehouses, etc., and to conduct business as warehousemen, common carriers, and steamship agents and managers.

Atlantic and St. Lawrence Stevedoring & Contracting Co. Ltd. has been incorporated under the Dominion Companies Act, with \$25,000 authorized capital, and office at Montreal, to carry on a general stevedoring business. The incorporators are: P. J. Melvin, J. Mauro, stevedores; H. B. MacLean, manager; W. Audas and J. A. Mancotel, all of Montreal.