

larger wheel in finding a diameter equal to the smaller wheel tracks nearer the outer rim thus forces the smaller wheel to track nearer the flange. Curvature of tracks also has considerable effect in causing sharp flanges. The wheels on one side of a six wheel truck are frequently forced $\frac{3}{4}$ in. out of line with each other, by the curvature of the track rails. A great saving of material in steel wheels can be made by taking those with worn flanges out of service before they reach the limits allowed by the M.C.B. wheel defect gauge. Steel wheels are frequently found on which the flanges are so much worn that $\frac{3}{4}$ in. of metal has to be turned off the tire thickness in order to restore the tread and flange to the standard shape, while the opposite wheel on the same axle, which generally wears hollow, does not require more than $\frac{1}{4}$ in. to be turned off. When we consider that $\frac{1}{2}$ in. of tire thickness is worth a day's wages, it is well worth while to inspect wheels closely under cars at home terminals for evidences of worn flanges. The M.C.B. wheel defect gauge is the only gauge in regular use for detecting worn flanges, but it was primarily intended for limiting the wear on cast iron wheels which cannot be re-turned, and it is unsuitable for gauging the flange thickness on wheels which can be re-turned, because it allows such wheels to get in the condition before mentioned. A very suitable gauge for limiting the flange wear of wheels which can be re-turned is the M.C.B. flange limit gauge for remounting cast iron wheels for cars of 80,000 lb. capacity and over. When the bottom inside corner of this gauge (which is nearest the throat of the wheel flange) rests on the wheel tread, the flange is usually so worn that seldom more than $\frac{3}{8}$ in. is required to be turned off to restore the standard shape. The use of this gauge will save further waste of good material and frequently prevent the necessity for remating wheels. A similar advantage, but somewhat less, could be obtained by limiting the worn vertical height of flanges to $\frac{7}{8}$ in. instead of 1 in. on wheels which can be re-turned.

The axles are made of steel, and are of sufficient strength to carry the loads, and to withstand the shocks they are liable to get under ordinary conditions. The shocks received from the track strain the axles as much as the load. All other parts of the truck which have to carry the load of the car should be proportionately strong with the axle. The whole load of the car is distributed on the axle journals, which are located outside the wheels. These are finished smooth, by rolling, so as to reduce friction and prevent heating. Axles are also becoming universally used as a source of power to generate electricity for lighting passenger cars. The revolving axle is harnessed to drive a dynamo which is frequently supported by the truck frame. The journals are enclosed by a metal box which also holds a brass bearing on the journal, a wedge to keep the bearing in place and the oil and waste necessary to keep the journal and bearing lubricated. The purpose of the box is not only to hold these parts, but also to keep out dirt and water. The causes of hot boxes are numerous, but the troubles may generally be attributed to lack of proper movement of the parts in relation to each other, or to lack of proper lubrication. When inspecting journal boxes, it is well to see that they have freedom to move in pedestals, that covers fit well and are tight, that dust guards fit well around the wheel seat, and inside the box, but have freedom to move in the box, that journal collars are not too large nor

too small, and that they have no sharp or rough edges to catch or tear the packing, that journals are perfectly smooth and that there is some clearance between the collar and the end of the bearing or between the side lugs of the bearing and the stops for same inside the box, that the bearing is central on the journal, that the wedge is resting on the bearing in proper relation to it and to the box, and that clearance is provided for the wedge to rock on its rounded surface under the top of the box; also that the packing is of good quality, free from grit, well oiled, and well packed in the bottom of the box to a height half way up the journal.

Journal bearings are made of brass because it is much softer than steel, and therefore will not get hot so readily from the friction created in service; but brass is costly and they are lined by a cheaper and softer metal called babbitt, which is composed of lead and other ingredients which give it the required hardness for wear, and yet render it soft enough to adjust itself to the varying diameters of journals. Bearings on which the linings have become worn can easily be relined by melting off the old lining, retinning the connecting surfaces where necessary and recasting the old babbitt metal as a new lining. It is not to be expected, however, that the new lining will adhere to an old bearing, as well as to a new bearing, on account of the oil which has saturated the brass, therefore, when melting the babbitt, the bearing should be made so hot that the tinning will be burnt off and the oil on top of the molten babbitt should all be skimmed off before any metal is taken out of the caldron to be recast. Grooves on each side of the inside of the bearing are good to form keyways for the lining so that it cannot move out of place should it become loose, but this is not provided for in the M. C. B. standard designs. Some railways re-bore the old brass, thus providing a surface practically as good as on new brass.

Journal bearing wedges or keys are made of steel, either cast or drop forged, and others are made of malleable iron. Wedges partially hollow on the tops came into use a few years ago, but have since been condemned on account of the ribs bedding into the tops of the boxes and thus doing away with the usefulness of the camber on the wedge, which is designed to eliminate the strains caused where the two track rails are not of equal height in relation to each other.

Journal box packing should act like a lamp wick, so that it will keep the oil continually in contact with the journal. In order to do this, the packing should not only be in sufficient quantity to reach the journal, but it should have the quality of permanent springiness, as packing which sags soon loses contact with the bearing. It is for this reason that wool waste is better than cotton. Packing which has been in service gets clogged and lumpy, and contains dirt, cinders and metal, which not only interferes with the process of lubrication, but injures the journal. Such packing should be removed and renovated when cars are undergoing repairs. The renovating process is done by heating the packing so that it will loosen and allow the solid matter to fall apart.

Dust guards should be capable of keeping dirt and cinders from entering the back of the journal box at all times. They should fit close to the axle, but without injuring it. The height and width should be such that they will have as much freedom to move in the slots in the boxes as the axles have, but the thickness of the

guard should almost fill the slot. The method of closing up the top of the dust guard slot in the box with a piece of tapered wood seems to leave something to be desired, as the blocks are frequently missing.

Truck frames have to transmit the load of the car to the axle journals and have to take the shocks from the track in return. They have also to keep the other parts of the truck in their proper places. There are two kinds of truck side frames most generally used for freight cars, one kind is the arch-bar type, built of rolled steel bars, and the other consists of a steel casting. The arch-bar type has its faults, which are principally that its parts become loose under the severe usage they get. These parts are bolted together, the strains cause the bolts to get loose, and the nuts become slack and eventually there would be numerous breakdowns if inspectors and repair men were not continually on the look out for parts getting slack. The cast steel frames are more expensive, and though they overcome some of the troubles of the arch-bar type, it is more difficult to obtain a casting to replace one that is broken, and also more difficult to put it in place when it is obtained. The welding of cast steel frames which have broken into two or more pieces does not produce good results and should only be used as a temporary expedient, and such frames should be replaced at the first opportunity. Small cracks may, however, be welded with good results. Attempts have been made to rivet the arch-bars together, and, while this is some improvement, it becomes a difficult proposition for repairs to be made at places where there are no facilities for cutting rivets. Other attempts have been made to improve the side frames by using two bolts at each column. This is of some advantage, because by using two bolts or two rivets in line, their size can be reduced with a corresponding increase in the area and strength of the arch-bars. Columns for arch-bar trucks are best made of cast steel because cast iron columns, even if very thick, will not stand the shocks delivered to them, neither will malleable iron castings. The truck frames are also so arranged as to hold the springs which carry the bolsters, and also to provide attachments for the brakes.

The bolsters being supported at the ends only and having to carry one-half of the car body at the center, have to be strong and substantial. There are two kinds of bolsters being made, those built of rolled steel sections and those made of steel castings. Both kinds are giving good satisfaction and it is largely a question of cost as to which is the more satisfactory of the two.

The springs to a large extent reduce the jarring which a car would otherwise get from the track. The helical form of spring is generally made of round steel bars, turned into coils of a uniform diameter, rising one above the other. The strength of these springs increases as the thickness of the steel increases and as the diameter decreases. The adding of coil upon coil simply gives the spring so much more movement and does not increase its strength to carry a load. These springs simply distribute the shocks and do not absorb any of them. Elliptic springs are made of flat steel plates put together in layers and arched. The strength of these springs increases as the thickness and number of the plates increases and as their length decreases. Elliptic springs are no stronger than semi-elliptic springs, and the additional half of the spring sim-

ply gives so much more movement and absorbs twice as much shock by the friction between the additional plates.

The center bearing is where the car body rests on the truck bolster. This is located at the center of the truck and is so made that it forms a pivot between the car body and the truck. A pin through the center keeps the bearing plate on the car body from getting away from the truck plate. Some center pins are so designed that they will hold the trucks to the body when the car is derailed. Center plates require lubricating occasionally, which is generally done when cars are being repaired. In order to keep the lubricating oil in place and to form a bearing for the center pin, a wall around the pin hole in the truck plate is a desirable feature.

Side bearings are required to prevent the car from tilting sideways, and as they are located near each side of the truck, they are formed to correspond with the radius from the center. It is not desirable for the car to rest on the side bearing all the time, as it does on the center bearing. If a car is resting hard on its side to try to maintain an average clearance of from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. at each side bearing. If a car is resting hard on its side bearings it is more liable to turn the trucks off the tracks. A side bearing should always be ready to receive the load of the car body temporarily, whether on straight tracks or curved tracks, and to move under it with as little friction as possible, and to allow the load to release itself as soon as necessary. There are many designs of side bearings on the market, some of which are very complicated and expensive. It is desirable that they should be simple in construction and have as few parts as possible. Complicated bearings, which are usually designed to be anti-friction, are very liable to get out of order, and their parts get lost and are difficult to replace. The old style of flat bearings, with an oil well in the centre of the bottom part, gives the least trouble to maintain and probably averages greater efficiency than the more complicated roller bearings.

The swing hangers under truck bolsters enable the car body to ride more easily over curved tracks. If they are properly set, they become lower on the side of the truck which rises on the outer track rail, and higher as the other side becomes lower on the inner rail, thus allowing the springs, bolsters, and side bearings to maintain a more nearly horizontal position for the car body.

Various roller bearing schemes have been tried and are in quite general use, but they are not a great success, as the rollers tend to bed themselves into the surfaces they come in contact with, or they get clogged with dirt and cinders.

The brakes on a truck are attached to the truck frame, and the power required to stop a car is applied by means of metal shoes being forced against the treads of the wheels, thus retarding their tendency to roll on the rails. Generally, this power is applied at a height a little below the center of the wheel, and on one side of the wheel only, and the force in many cases exceeds the load on the wheel. One reason for applying the brakes on one side only is to have the arrangement of parts as simple as possible, but it is far from being the ideal system. The effect of applying the brakes on one side only, is to force the axle journal to one side of the bearing and for the journal box to wear on one side against the truck frame. A better system is to apply the brakes on both sides of the wheels, and this is

known as the clasp brake system. Some of the best passenger cars on this continent are now being equipped with this system, and it has been in use many years in England. It overcomes the bad features of the single sided system already mentioned, and also allows lighter brake beams to be used. One of the troubles with the single sided system is that such great power is applied to the beams that they yield under the strain, and make it difficult to maintain the correct piston travel at the air brake cylinder. Brake beams when new are required to withstand tests equal to the greatest pressure liable to be put on them in service, but it seems necessary that this test should be considerably increased, so that they will be able to withstand the greatest service pressures after they have been in use for years. Trussed brake beams are now becoming universally used for freight cars, as the solid beams deflect too much under heavy cars and are also rapidly failing under light cars. On freight car trucks the attaching of brake fulcrums to the bolsters has a somewhat bad effect, inasmuch as the pressure from the lever causes one side of the bolsters to wear against the columns of the side frames whenever the brakes are applied. This wear is more apparent on trucks which allow the bolsters to have side motion. The suspending of brake beams from the truck frames is much better than suspending them from the bolsters, because the frames move in relation to the wheels and do not have the variable vertical movement which the bolsters get from the springs. Safety supports should be provided for all beams in order to keep them from falling down on the track in case of failure of the ordinary hangers or pins.

Fastenings, such as bolts, rivets, pins, cotters, nuts, nut locks, and other parts requiring replacement, should be located and applied so that they will be conveniently accessible for work to be done on them easily.

The modern truck is made almost entirely of steel, and of course has greater strength and staying qualities than those which were formerly made partially of wood, but it has not that extent of resiliency and feeling of easy riding which is a feature in favor of the wood frame trucks. In order to provide the easy riding qualities of steel passenger trucks, resort is made to cushions of softer material, such as wood or rubber, and these are usually inserted under the center plates and over the springs.

Clearances under all circumstances and at all times are a necessary requirement, and provision for easy adjustment to compensate for wear and movement should be made in the design. Vertical clearances should be provided for springs and bolsters to be free when new and without any load, and for all the moving parts to be free under load, when tires, journals, bearings, pins and springs are at their smallest limits. Horizontal clearances should be provided so that trucks can rotate horizontally on all railway track curves. An approximate figure for horizontal clearances for passenger car trucks and one easy to remember is 1 in. for each foot distant from the center pin. Clearances of parts above the top of track rails should be ample, so that when wheels and other parts are worn down to their smallest limits there will be no danger of anything striking the track. Some track switch parts project $2\frac{1}{2}$ in. above the rails, and all truck parts, with the exception of wheels, should always be kept well above that figure.

Friction between moving parts requires some consideration. Steel against steel soon wears away, and steel against iron is little better. Steel against cast iron is somewhat better, but cast iron against chilled cast iron gives still better results. These effects may be noted between journal boxes and pedestals, columns and bolsters, and upper and lower center plates.

Trucks and their parts should, as much as possible, be kept to one standard for each kind, in order to facilitate interchangeability and expedite repairs. One class of truck can be used under various classes of cars, but what is standard for one railway is too often not standard for other railways, and cars are frequently kept out of service for months waiting for unusual material to effect repairs. The M. C. B. standards should always be followed, unless there is a very good reason to do otherwise, and all railways should take an interest in helping that association to adopt the best practices that ingenuity can devise.

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

Argentine Railways' Requirements.

The railways of Argentina will spend over \$100,000,000 on rolling stock and equipment in the next two years, accord-

The moral—can you grasp it? ing to a statement by F. A. Lagrange, Technical Inspector of the Argentine Government Railways. If the manufacturers of American railway supplies will conform to Argentine railway standards, he says, there will be a market for their products, and even the introduction of American standard equipment, though difficult at any time, will be easier in the immediate future on account of the temporary withdrawal of European competition. European manufacturers, he states, will have to give close attention to necessities at home for some years to come.

The complete system of railways in Argentina has about 11,000 miles of track, of which about 6,500 miles are of 6 ft. 5 in. gauge, about 900 miles of 4 ft. 9½ in. gauge, and about 3,600 miles of the 3 ft. 4 in. gauge. The Argentine Government owns about 1,900 miles, or 18% of the total, which is under the direction of the Administracion de los Ferrocarriles del Estado, a board composed of a chief engineer, a chief of exploitation and an auditor general. It is presided over by an administrator who is appointed by the President of the republic. The other members of the board are appointed by the administrator. All of the railways are under the control of the "Direccion General de Ferrocarriles" (Argentine Administration of Railroads) which is headed by an Argentine engineer.

During the last four and a half years the railways have been unable to obtain materials, so that their maintenance and reserve stocks are very low and an expenditure of about \$100,000,000 for the next two years is probable. In addition to this, extensions are to be built, for several of which there is urgent need. It is expected that they will amount to about 1,000 miles and entail an expenditure of \$75,000,000. This is exclusive of the electric lines, which will also receive considerable attention.

In conclusion, he points out that although the opportunities are favorable for the introduction of American equipment, the market cannot be gained without a struggle, and that success will depend on close study and sound business principles.

Steel Bridge Replacements on Sydney Subdivision, Canadian Government Railways.

By A. H. Jones, Assistant Engineer, Canadian Government Railways, Moncton, N.B., formerly Resident Engineer, District 4, New Glasgow, N.S.

To take care of the heavy power which the management desired to operate on the Sydney Subdivision, C. G. Rys., the work of replacing 16 steel bridges and viaducts on the line between Point Tupper and Sydney was undertaken by the engineer-

The most interesting part of this work was perhaps the replacing of the old spans of Grand Narrows bridge with heavier ones. This bridge, which is across the narrows between the Big Bras d'Or and Little Bras d'Or Lakes, is one of the

of this bridge were replaced with heavier ones during the winter of 1915-16, by the Dominion Bridge Co., which company built the old bridge in 1888. The new swing span is operated by a 4-cylinder, 4-cycle marine engine, located in a cabin



Ottawa Brook Steel Viaduct, showing new steel work in place, and old partly taken down.

ing department in 1915, and is now completed. This section of the Intercolonial Ry. was built in 1887, and consequently the bridges are of a lighter design than the present day requirements, and are not strong enough to carry the heavy locomotives which it is now necessary to operate, in order to economically handle the great amount of freight going to and from the Sydneys in connection with the large steel works, coal mines and other industries located at these points, and also for trans-shipment by vessel to Newfoundland and other places. It has consequently been necessary for some years past to place speed restrictions on nearly all the steel bridges on this subdivision, resulting in a slow schedule and a loss of much valuable time.

It would be impossible to give anything here but a very brief description of the more important portions of this work. Eight steel bridges were replaced with heavier spans during 1916, including the big bridge at Grand Narrows, necessitating in most cases quite extensive alterations to the old masonry abutments and piers. Two steel viaducts have been entirely replaced with steelwork of a heavier design, on new concrete pedestals and abutments, viz., Ottawa Brook and Walker's Gulch, and 5 steel viaducts have been filled in. This extensive bridge replacement work, involving an outlay of approximately \$750,000, has made it possible to remove the speed restrictions from all these bridges, and during 1916 we removed the restrictions from 10 bridges.



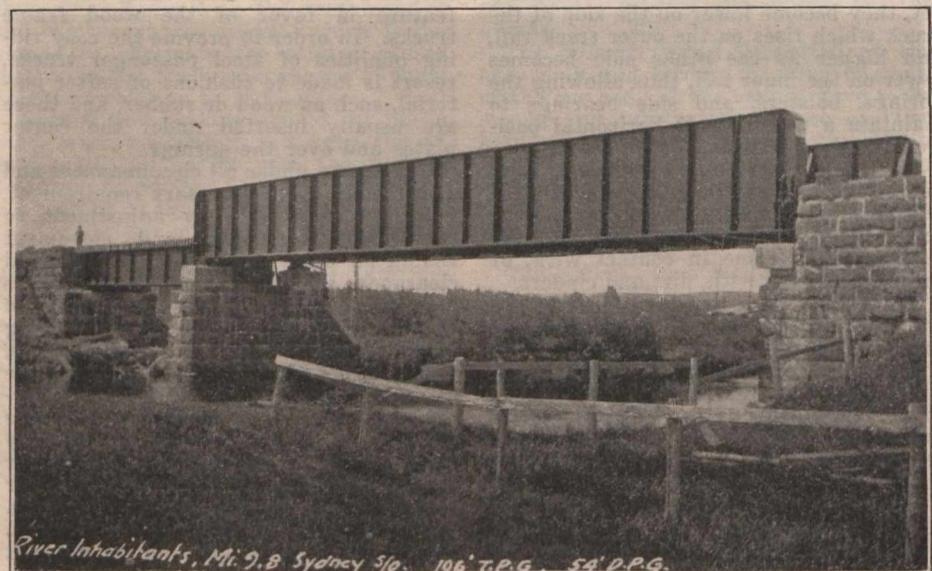
McDonald's Gulch, showing construction of rail concrete culvert, before filling commenced.

objects of special interest to tourists on this section of the C.G.R. It is 1,697 ft. long, or nearly a third of a mile, and consists of 6 through truss spans, each 242 ft. long, and a swing span at the east end of approximately the same length.



River Inhabitants Bridge, showing new concrete bridge seats.

overhead in the center of the span, which will open or close the bridge in one minute. The method of replacing these heavy spans—the new ones weighing almost 400 tons each—was as follows: Falsework was driven near the shore, at the east



River Inhabitants Bridge, showing new spans in place.

The piers are of stone masonry and the highest ones are over 80 ft. above the bottom of the lake. The water is very deep, coming up to within 5 ft. of the top of the piers at high water. All the spans

end of the bridge, and just south of the existing structure. Each new span was erected and rivetted up complete on this falsework. When a new span was ready to go in, scows containing water ballast

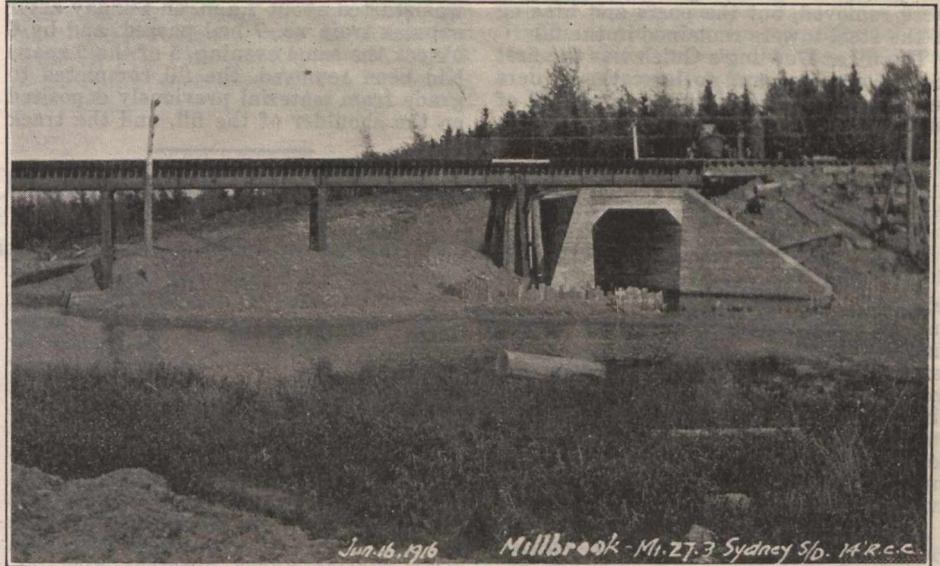
were floated under the span to be replaced, sufficient water was pumped out of the scows to allow them to raise the span from its seat. Tugs then towed the scows and the old span away to the erection site, where it was deposited on falsework by pumping water into the scows. The new span was then raised and floated into its place on the old piers in a similar manner. The work of replacing the spans could only be done under favorable conditions of wind and tide, which conditions are somewhat rare at this place, and it took from the early part of November to the end of March to replace the 7 spans.

In connection with the new steel bridges put in at Sydney River, River Denys, River Inhabitants, Jamesville Road, Leitches Creek and Ball's Creek, considerable alterations were necessary to the old masonry abutments and piers, on account of the different design of the new bridges. The old bridges, with the exception of Jamesville Road, were of the through pier-connected truss design, and the new bridges are of standard through, or deck plate, guide spans. The masonry alterations consisted of cutting down the old bridge seats to about 1½ ft. below the

the Dominion Bridge Co.

The steel viaducts at Jamesville, Mill-

was done by contract in 1916, and was completed and ballast put on by the rail-



Millbrook Steel Viaduct, showing new culvert.



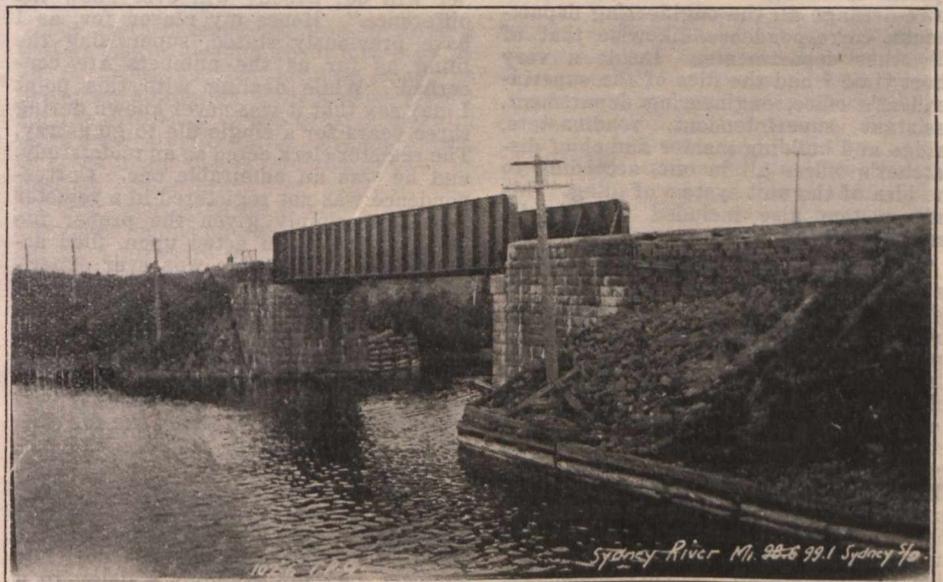
Dowling's Gulch Steel Viaduct, showing culvert and filling.

way forces in 1917. It was necessary, in connection with the filling in of these viaducts, to construct concrete culverts to take care of the water-courses, and some of the culverts were of considerable length on account of the height of the fill, the one at McDonald's Gulch being 280 ft. long and containing 3,000 cu. yd. of concrete. To avoid damaging the steel towers during the filling, by boulders striking them, aprons, made of spruce poles from the adjacent woods, were constructed along the ends of the ties over the towers, to throw the filling clear of the structure. Owing to the nature of the material used for filling at McDonald's Gulch and the great height (85 ft.) of this structure, considerable trouble was experienced from time to time by the material sliding out, and on one occasion the fill slid out beyond the ends of the culvert, breaking off parts of the wing walls and filling up the waterway beyond the ends of the culvert.

Although the filling was carried on as uniformly as possible, on either side of the trestle and from one end to the other,

elevation of the new bridge seat, or to the masonry course nearest to this, and building up a new bridge seat of concrete. The part of the bridge seats immediately under the pier members consisted of concrete blocks, which were cast during the winter of 1915-16 in the locomotive house at Point Tupper and were afterwards taken, as required, to the bridge site and swung into place with a small crane. Later, concrete was run in between the blocks and the bridge seats completed. Thirty-two of these concrete blocks were required in all and each weighed approximately 2 tons. The masonry alterations were made by the bridge and building department, and the new steelwork was furnished and placed by the Canadian Bridge Co. and the Hamilton Bridge Co.

Ottawa Brook and Walker's Gulch steel viaducts were entirely replaced with new steel of a heavier design, and new concrete pedestals and abutments were put in. Ottawa Brook viaduct is 540 ft. long and consists of six 60-ft. d.p. girder spans, supported on steel towers. Both viaducts are situated on curves. The concrete sub-structures were let by contract to Jones & Girouard, contractors, Ottawa; the steelwork was furnished and erected by



Sydney River Bridge, showing new d.p. girder in place.

brook, Dowling's Gulch and McDonald's considerable shifting took place in the trestle. and an anxious time was spent

until the fill was completed. After the filling of these viaducts was completed to the under side of the guides, the guides were removed, but the posts and bracing of the steel towers remained in the fill.

The fill at Dowling's Gulch was the first to be completed and to have the girders removed. This steel viaduct consisted of two 60 ft. and six 30 ft. d.p. girder spans.

The work of taking out the girders was accomplished in two days, without any interference to passenger trains. Work was started about 7 a.m. on Sunday after express train no. 7 had passed, and by 6 o'clock the same evening, 5 of the 9 spans had been removed, the fill completed to grade from material previously deposited on the shoulder of the fill, and the track

laid and connected up, in time to let express train no. 5 over. The following day we took out the remaining 4 spans and laid and ballasted the remainder of the track. The district wrecking crane (50 tons) was used to take out the spans. The 60 ft. girders were removed singly, but the 30 ft. girders were pulled out in pairs without first removing the bracing.

The Unit System of Handling Railway Correspondence.

By W. H. Mathews, Chief Clerk to Superintendent, Canadian National Railways, Capreol, Ont.

All office organization swings somewhere between two extremes—inefficiency one hand and red tape on the other—and the routine of railway organization tends distinctly towards the red tape extreme for two closely coupled reasons, viz., because no record of detail may be omitted, but must actually and properly be made, and because all routine duties must be based on the capacity of the average employe.

Every office, I am sure, is endeavoring to simplify its methods of getting the best results, or I might say to get speed in the filing of correspondence without reducing safety; at least this has always been my object. Almost the first work I did in a railway office was filing correspondence. I have clung to it as a hobby, and have studied closely the various methods employed in different offices where I have been on the staff, therefore I believe I have found numerous short cuts which are most efficient in the handling of railway correspondence.

The unit system of handling correspondence is without a doubt the only system for a railway office. If properly run, unnecessary correspondence will be avoided and time and expense saved. The system is simple and a chief clerk in charge of an office can save much of his own time, as well as that of his employer, by the adoption of it.

On the eastern lines of a large railway in Canada, it was decided some three years ago to inaugurate the unit system of handling correspondence. With this in view I started to work on a filing system that would cover successfully all operating departments. I completed in rough form a filing book, which I termed "Unit System of Filing." This done, I started to re-arrange all the engineering department's correspondence, likewise that of all other departments. Inside a very short time I had the files of the superintendent's office, engineering department, assistant superintendent, roadmasters, bridge and building master and chief dispatcher's offices all in one, according to the idea of the unit system of filing. This unit system also included the district master mechanic's office.

The morning mail bag arrived at 8.30, as did also the mail register clerk. He opened the mail (except personal), brought the letters to my desk, whereupon I looked them over, put the proper file numbers on the communications myself and turned them back to the register clerk, who attached the proper files to the letters requiring them, dated them and returned them to my desk. In other offices the mail clerk performed these duties alone. I sorted them according to the different officials and distributed them. Please bear in mind that I did not give the officials all the correspondence, but just what was actually necessary, as I considered it was my duty to look up all information called for, dictate it, and leave it on their respective desks for

signature. The reader may perhaps question the matter of having the register clerk bring the letters to my desk immediately he opened them. The reason for this is that I am a firm believer in having things done in the proper manner, and it is always my desire to be able to locate correspondence when called upon; therefore I personally supervised the numbering of files, as I was in a better position to judge for myself what particular file the letter should be placed on, than the average file clerk, who would place the same subject under different files, although they might not at all refer to the same subject in correspondence. Then there was the handicap of losing a file clerk by resignation or unforeseen reasons, and his successor, not being fully acquainted with railway correspondence, would file the letter, in a great many instances, under whatever file number came to his mind first. Or on the other hand, he might see that he was getting behind a little in his daily routine of office work

will describe below—likewise a derailment, delay to train, locomotive failures, hot boxes, etc. Other filing systems in vogue have separate file numbers for each subject. Take, for instance, a derailment. The train is delayed. Why use two special file numbers for the same case? Again, a locomotive failure—the train is delayed in this case. Why file under two different subjects, i.e., delay to trains and engine failures? This is being done by many railway offices; in fact, by the greater number. Two months after, some official will call for the file in connection with train such and such a number that was delayed, through what cause he is unable to say—might be locomotive failure, hot box, etc. This means to the file clerk that he has to search in different files for the papers desired, i.e., the locomotive failure file, the derailment, delay to train, and hot box files. To overcome this difficulty and to make it simple for the file clerk, the stenographer, and also for accuracy in locating the file, I classified

DATE	TRAIN	CONDUCTOR	ENGINEER	REMARKS
Aug. 5	10	"X"	"Y"	Hopper on "XYZ" Car 225,—came open allowing ballast to spill and derailing tender wheels of engine.
	File number 10.5			

Sample of Card 1 (11 x 8)

CAPREOL MP. 1418

and say to himself, "Oh, well, that number will do; nobody will ever know the difference." Hence my reason for, as I have previously stated, supervising the filing as far as the numbers are concerned. While dealing with this point I may say that it was never known during three years for a single file to go astray. The register clerk acted as an understudy, and he was an admirable one. Correspondence was not registered in a register book, but simply given the proper file number, and when acted upon, filed accordingly. No trouble was ever experienced to any great extent of having to repeat the hackneyed phrase, "Never received your letter of such and such a date." Properly filed, it was there when wanted.

Placing of file numbers.—Railway correspondence file books which are for sale, while good in certain respects, are not, what I term, exceptionally good value. There are too many subjects from which a file clerk can, and will, take incorrect file numbers for his correspondence. I aimed at making a file number cover like subjects, i.e., for example, a delay to a car of material, pilferage of goods from a car, a claim for shortage from a car, over, short and bad order reports, practically all bear the same file number, as I

derailments, delays to trains, locomotive failures, etc., all under one number. For example, train no. 8 was derailed on June 5. My file number would be 8-5, 8 denoting the train number and 5 the date. If the train was delayed on account of hot box, or other causes, the same file number would apply, therefore, as above stated, making one file number.

I had a file guide made for each train on the district, and behind it placed the correspondence in date order. This system applied to regular trains only. For extras, I worked in the following manner: I had a card (sample 1), which I placed in the mileage order of the district. Therefore if an extra "fell down" at a certain mileage, I registered the particulars on the card, and treated it in the same manner as delays to regular trains, as far as the file number was concerned. For example, extra 3421 on the 6th inst., was delayed. It was given file number 3421-6 and filed accordingly, viz., in numerical order, according to the number of the extra.

Correspondence relating to delays to cars, over, short and bad order reports, pilferage from cars, and claims.—Each of these subjects bears a special file number in the great majority of railway correspondence file books. I had one file

number and worked it out in the following manner: I maintain that a delay to a car oftentimes results in a claim being submitted for damages, on account of it containing perishable freight. Therefore, why two file numbers, one for claims and one for delay to cars? Over, short and

car was at my finger ends, I used for a file number the last two figures of the car number. For example, car 123456 was delayed, pilfered, or over, short and bad order report issued in connection with it, etc. Its number would be 56. I filed the correspondence numerically,

correspondence pertaining to staff records of employes, etc. For example, if I had correspondence pertaining to John Jones, I made my file number 10, as "J" (Jones) is the tenth letter in the alphabet, and so on. This method I found very good and reliable at all times.

Drainage claims, private sidings and special matters pertaining to improvements on the district were filed according to the mileage at which the work was performed—I have a special card (sample 2), and as soon as a correspondence started on the subject, I gave it a number. My cabinet for filing this correspondence was arranged in mileage order of the district and the correspondence placed, as mentioned above. I registered a letter only once on my cards, viz., when the subject was first brought up.

The above are not simply suggestions, but tried out principles which have proved their worth time and again. I would not hesitate a moment to recommend their adoption by any railway office which wishes to be up to date in modern filing systems.

Editor's Note.—The writer of this article was formerly chief clerk to Superintendent, C.P.R., Smiths Falls, Ont., and also chief clerk to Master Mechanic, Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ont.

Canadian Railway and Marine World will be pleased to hear from any other chief clerks or others, either in discussion of Mr. Mathews' article, or to describe other systems they may have in use.

DESIGNATING LETTER OF STATION — — — "AA" (Capreol)		CAPREOL MP. 1448
SUB-DIVISION		
File number	SUBJECT	
AA-1	Coal Chute, — at	
AA-2	.....
AA-3	.....

Sample of Card 2 (11 x 8)

bad order reports invariably result in claims. Pilferage from cars results in claims. Then with this in mind, I cannot realize why different file numbers are used for each subject. To facilitate the matching up of correspondence, so that every little detail pertaining to the special

arranging my file guides from no. 00 to 99. For damage to coaches, equipment missing therefrom, etc., I used the same principle, only filing it in a different compartment in the cabinet.

Staff records of employes.—Based on the 26 letters in the alphabet, I filed my

The Canadian Northern Railway's Montreal Tunnel and Electric Zone Construction and Operation.

By W. G. Gordon, Transportation Engineer, Canadian General Electric Co.

The City of Montreal is divided into two principal levels; the commercial and financial quarter being on a plain only a few feet above high water, and the residential and shopping districts being at a height of about 75 ft. above the river. As the space between Mount Royal and the St. Lawrence River is limited, this district has become very congested. Business has largely forced the residence section up and down the river, and around the mountain. The tunnel under Mount Royal was built with the idea of giving the Canadian Northern Ry., which property now belongs to the Dominion of Canada, an entrance into the heart of the city, and to render available a large area for residential purposes, only a few minutes by train from the main terminal.

The location of the present temporary terminal is about midway between the two levels and it is proposed to extend an elevated line, at the same uniform grade, which will connect with the proposed viaduct on Montreal Harbor Commissioners' lines, thus giving direct access to trans-Atlantic steamers, and all the harbor facilities.

The tunnel is 3.1 miles long and is the shortest line that could be devised to take advantage of the geological formation. It has a uniform grade of 0.6% toward the city to ensure proper drainage. In order to meet the various physical conditions, different cross sections were used; where hard, sound rock, unsound rock, and soft ground, were encountered respectively. The twin section type of tunnel was adopted for economy in construction, ease and economy in ventilation, protection and safety in case of derailment or accident.

In addition to working from both ends of the tunnel, a shaft was sunk one mile from the west portal at Maplewood Ave. When the heading from the west portal met that being driven from the Maplewood Ave. shaft, the lines checked within 1/16 in. on the alignment, and 1/4 of an inch in grade, and where the headings between the Maplewood Ave. shaft and that from Dorchester St. met, under the highest point of Mount Royal, the error was 3/4 of an inch in alignment, and 1/4 of an inch in grade.

The method employed was to drive a bottom center heading about 8 ft. high by 12 ft. wide, as this heading could be driven ahead rapidly without much regard for the character of the ground, and full sized excavation could be developed from it at as many places, simultaneously, as desired. Four drills were used in each heading, supported on a horizontal bar; the drills being operated by compressed air at a pressure of about 100 lb. a sq. in. The breakups, where the upper part of the tunnel section was excavated to its full width and height, were opened at intervals of from 500 to 800 ft. along the center bottom heading, the practice being to open up as many of these as necessary to keep up with the heading progress. The compressed air used for operating the drills and other pneumatic machinery was obtained from two plants, one at each end of the tunnel, with an aggregated capacity of 11,000 cu. ft. of free air a minute, compressed to 110 lb. to the sq. in. The muck from the tunnel was handled by two 10-ton and one 8-ton trolley locomotives, and six 5-ton storage battery locomotives.

The load curve was worked up on the following data of train weights and

speeds:

Class.	tons	level	Speed 0.6% up grade	Schedule
Transcontinental..	1130	37.0	26.5	21.2
Express and local..	550	37.5	27.1	21.6
One motor car....	60	50.0	41.5	22.2
Three motor cars..	180	50.0	41.5	22.2
Three motor cars and two trail cars...	260	47.8	34.8	21.8
Freight.....	1000	32.5	23.5	..8

The substation is a handsome building, and will harmonize with the buildings which will be erected in the neighborhood. Power is purchased from the Montreal Light, Heat & Power Co. at 63 cycles, 11,000 volts, 3 phase. It is delivered to the substation by a lead covered, 3-conductor cable, carried in a duct through the tunnel, and also by an overhead line, to ensure continuity of service. The general arrangement and capacity of the switching equipment provides for the later addition of a steam auxiliary plant at the Back River, near the Cartierville yards, for extension of the electrification of the main line to Ottawa.

There are 2 motor generator sets with provision for a third, later. Each of these sets consists of a synchronous motor, direct coupled to and on common bed-plate, with two 750 k.w., 1,200 volt, d.c. generators, the set running at 600 r.p.m. The generators are connected in series, giving 1,500 k.w. at 2,400 volts per unit. The sets have an overload capacity of 200% for 5 minutes. The heavy overload capacity of these machines is obtained by the use of a pole face winding of tubes and rods through holes near the pole faces, which is so connected as to directly oppose the armature reaction, thus ensuring satisfactory operation up to the heavy overload mentioned. The pole face windings are all connected on the ground

side of these machines. The shunt fields of the d.c. generators and the synchronous motor fields are arranged for 125 volt excitation. Each of the synchronous motors is started by a 3 phase, 11,000 volt compensator. This auto transformer has one coil per phase, with suitable starting tops brought out.

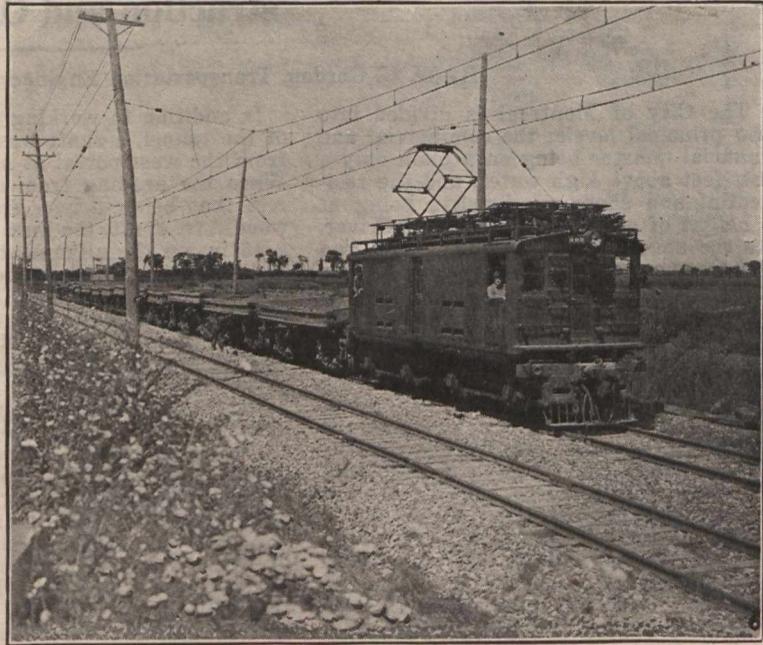
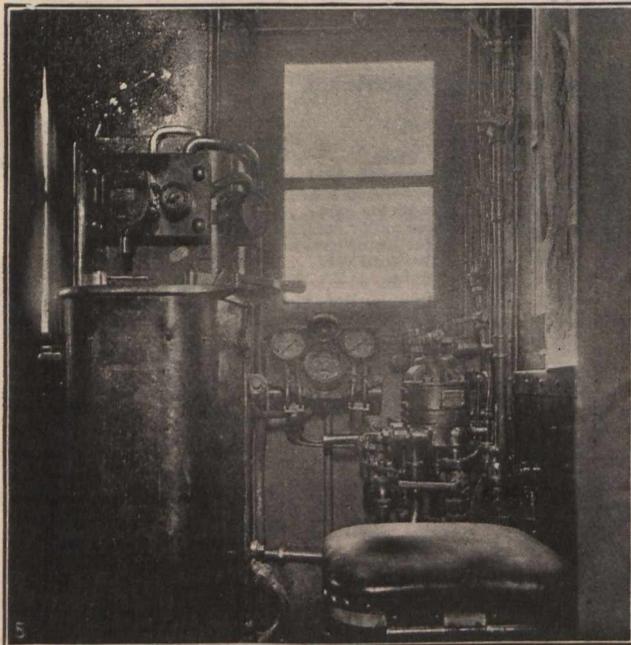
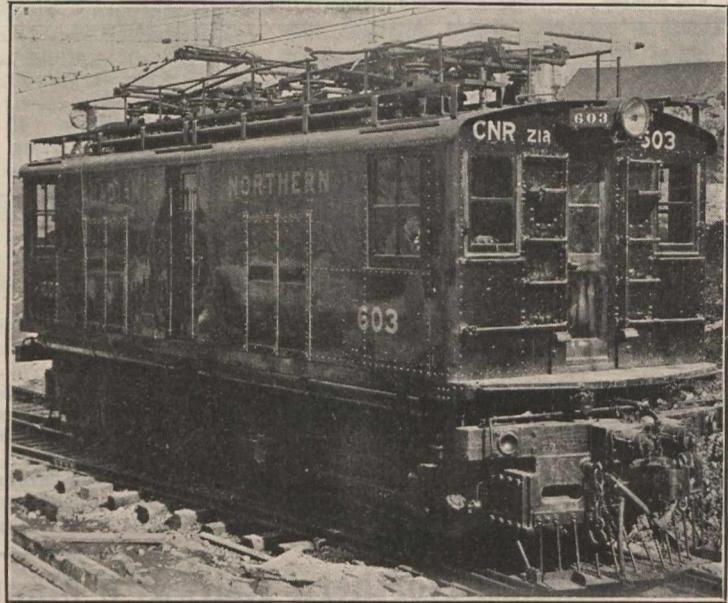
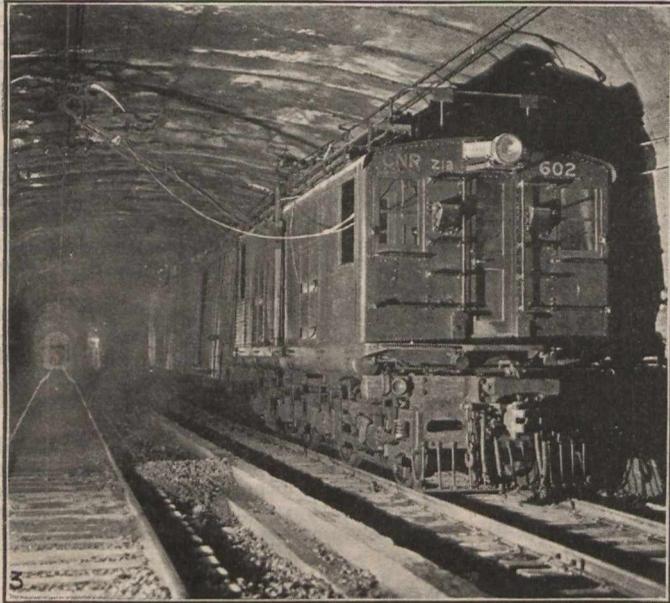
The 3 exciter sets each consist of a 50 k.w., 125 volt, d.c. generator, driven by induction motor. The generators are commutating pole type, flat compounded for the specified voltage, and are especially

line switches excepted, either instantaneously or with a time limit action as desired. The incoming line switches operate automatically on the reversal of power only. The synchronous motor starting switches are remote control, solenoid operated, mounted in cells, and have a rupturing capacity of 2,000 arc amperes at 11,000 volts.

The main switchboard is of three section panels of natural black slate, 90 inches high. The 2,400 volt direct current circuit breakers and lever switches

weight of the locomotive upon the 8 driving wheels. The running gear consists of two 4-wheel trucks, articulated together by a heavy hinge. The equalization of the trucks is accomplished by a semi-elliptic leaf spring over each journal box, connected through spring hangers to the frame and to the equalizer bars. The equivalent of a 3-point suspension is thus obtained through the side equalization of one of the trucks and both side and cross equalization of the other truck.

The friction draft gear is mounted in



Montreal Terminals Electrification, Canadian Northern Railway.

Upper row: Left, locomotive pulling in messenger and taking current from opposite track. Right, locomotive with low catenary construction. Lower row: Left, control apparatus in operator's cab. Right, catenary construction tangents.

adapted for exciter work and voltage regulator control. A bank of six 100 k.w. single phase transformers supply the induction motors of the exciter sets and miscellaneous station requirements.

All oil switches on the 11,000 volt circuits, except the synchronous motor, magnetizing and starting switches, are enclosed in masonry cells, and have 2 breaks per pole, each break in a separate tank. These switches have a rupturing capacity of 16,000 arc amperes at 11,000 volts. They are motor operated and will open automatically on overload, the incoming

are mounted on a panel, back of and above the main switchboard. They are operated by insulated handles on the front of the main board, so as to eliminate any possibility of the operator coming in contact with the 2,400 volt circuit. The circuit breakers are mounted between fire-proof barriers and are equipped with powerful magnetic blowouts. The field switches are mounted on a base back of the panels with the operating handles on the front of the main board.

There are 6 locomotives in operation. Each locomotive has 4 axles, with all the

the end frame casting of the truck. This type of construction restricts the hauling and buffing stresses to the truck side frames and articulated joint, thus relieving the cab and apparatus from the effects of severe shocks. The cab, which is of the box type, is divided into 3 compartments, the center one for the apparatus, and the two end ones for the operator. Each operator's compartment is supplied with controller, control switches, ammeter, air brake and pantograph control, air gauges, 2,400-volt cab heater, bell rope, and control for the whistle and

sanders, thus providing the locomotive with complete double end control. The motors are nose-supported in the usual way, and geared to the axle by twin gears, each of 4 in. face.

The motor equipment consists of 4 GE-229-A commutating pole motors, wound for 1,200 volts and insulated for 2,400 volts, 2 of these motors being permanently connected in series for operating on the 2,400 volt trolley circuit. The one hour rating of each motor is 320 h.p. at 1,200 volts. The motors are designed for forced ventilation, which is obtained by a blower in the locomotive cab. Either pair of motors may be cut out, by a special handle on the change-over switch. The locomotives are geared for a free running speed on tangent level track of approximately 45 m.p.h., and are operated as 2-speed machines, with 10 points in series and 9 points in series and 9 points in series-parallel. The master controller used is of the non-automatic type, and has 2 handles, one regulating the applied voltage at the motors and the other for controlling the direction of rotation of the motors. The rheostats, which form the external motor resistance, are placed near the roof of the cab and provided with ample natural ventilation.

The master controller and contactor energizing circuits are designed for 125 volts. Each contactor is easily accessible, without any disturbance to adjacent contactors. A special electro-pneumatic, change-over switch is used for making the transition between series and series-parallel connection of the pair of motors. The 125 volt current for operating the contactors and for lighting the cab and headlights is obtained from a motor-generator set, the motor of which has two 1,200 volt windings and two 1,200 volt commutators in series for operation on 2,400 volts. This set is mounted in the center cab and also drives the blower for providing forced ventilation to the main motors.

Fuses of the copper ribbon type, placed in fuse boxes, provide protection for each individual circuit, as well as the main circuit from the trolley. These fuse boxes are all arranged to blow into a common chamber, designed to take care of the arc. In addition to the fuse on the main circuit, a main switch is also provided. This is of the knife blade type, being opened and closed by a handle, in a position for easy operation in case of emergency, or when it might be necessary to open the circuit while carrying current. This main switch blows into the chamber provided for the fuses, and has a powerful magnetic blow-out.

The trolleys are of the slider pantograph type, pneumatically operated and mounted on insulated bases. Two pantographs are used per locomotive.

A speedometer, similar to the type largely used on automobiles, but especially designed for locomotives, is located in each operating cab. These are connected to the driving wheels of the locomotive by flexible shaft and gearing.

A combined straight and automatic air-brake equipment is provided on each locomotive. It includes a 2,400 volt motor driven air compressor, the set consisting of two 1,200 volt motors, operating in series on 2,400 volts, and direct connected to an air compressor having a displacement of 100 cu. ft. of free air a minute. The approximate total weight of each locomotive is 83 tons. Some of their principal dimensions and characteristics are given in the following table:

Length inside knuckles.....	37 ft. 4 in.
Length over cab.....	31 ft. 0 in.

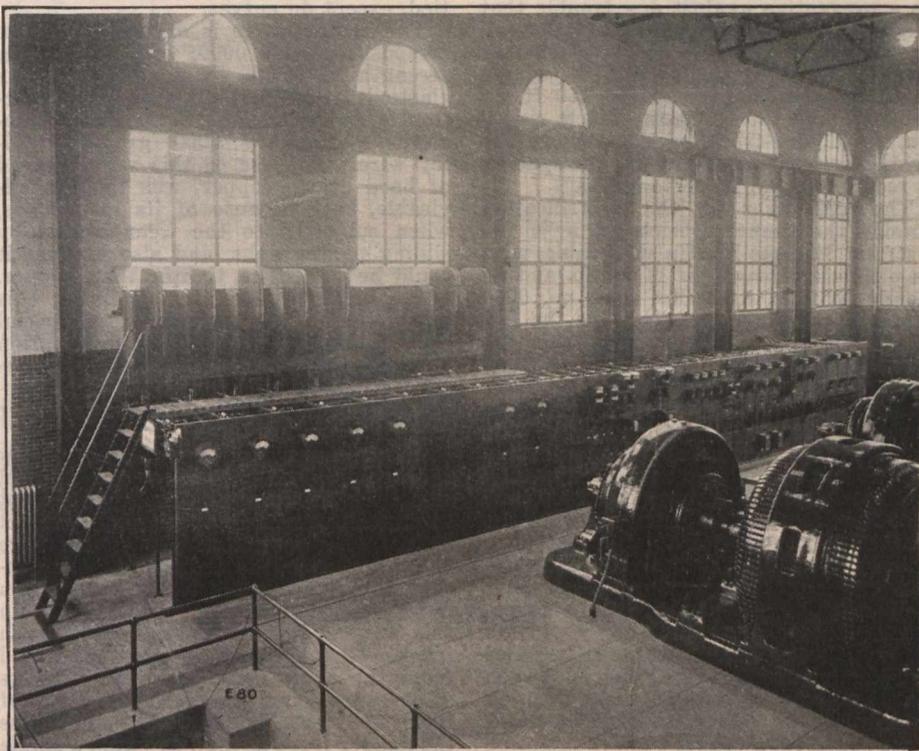
Overall height, pantograph down.....	15 ft. 6 in.
Height over cab.....	12 ft. 10 in.
Overall width.....	10 ft. 0 in.
Total wheelbase.....	28 ft. 0 in.
Rigid wheelbase.....	8 ft. 8 in.
Total weight, all on drivers.....	83 tons
Wheel diameter.....	46 in.
Tractive effort at 30% tractive co-efficient.....	49,800 lb.
Tractive effort at one-hour rating.....	20,300 lb.
Tractive effort at continuous rating.....	16,200 lb.
Speed at rated amperes, one-hour rating.....	23.4 m.p.h.
Total horse power, one-hour rating.....	1280 h.p.
Speed at rated amperes, continuous rating.....	24.6 m.p.h.
Total horse power, continuous rating.....	1090 h.p.
Gearing, 80-25. Reduction, 3.2.	

The multiple unit motor cars for handling local traffic are not yet in operation. The principal dimensions of these cars are given in the following table:

Length over buffers.....	67 ft. 5 3/4 in.
Length over body corner posts.....	57 ft. 6 1/4 in.
Truck centers.....	42 ft. 9 in.
Width over side sill angles.....	9 ft. 10 1/2 in.
Width over eaves.....	10 ft. 2 3/4 in.

commutating pole motors insulated for 2,400 volts. Two of these motors are permanently connected in series for 2,400 volt operation. Ventilation of the motor is accomplished by drawing air into the armature at the pinion end by the fan on the armature shaft. The air passes longitudinally through the whole interior of the motor and is expelled through an opening in the frame at the commutator end, protected by wire mesh.

The control is of the non-automatic type for multiple unit operation. The equipment includes a motor generator set for furnishing 600 volt current for the control circuits, the air compressor and lighting circuits. This set consists of two 1,200 volt motors, operating in series on 2,400 volt, direct connected to a 600 volt generator. The master controller, contactors, switches, reverses and pantograph



Switchboard in Substation, Mount Royal Tunnel.

Height top of rail over roof.....	13 ft. 0 in.
Height top of rail to underside of side sill.....	3 ft. 7 1/2 in.
Center to center of body side bearings.....	4 ft. 10 in.
Center to center deck sills.....	5 ft. 6 in.
Approximate weight loaded and equipped.....	160,000 lb.

The electric hot air system of car heating is used. One complete heater is placed underneath each car and receives its energy direct from the 2,400 volt supply. The heater has a capacity of approximately 25 k.w. and is constructed for 2 heat combinations, so as to provide for changes in temperature conveniently and economically. The complete heating equipment consists of the heating unit, blower and regulating mechanism, the controlling switch and thermostat of the regulating mechanism being arranged for operation from the 600 volt supply. Air is forced over the heating unit by the blower, and distributed to the car through the air ducts along the sides of the car. The blower used for the circulation of the air is operated by a motor, which is connected in series with the heating unit on the ground side. The capacity of the blower is approximately 1,000 cu. ft. of air a minute.

The motor equipment consists of 4 fully ventilated GE 239-a, 125 h.p., 1,200 volt,

are essentially the same construction and appearance as those already described for the locomotives. The controller has 5 steps in series and 4 steps in parallel. It differs from the locomotive controller in having the usual motorman's operating handle, instead of a lever. This handle is provided with the so called "dead man's" feature, for cutting off power and applying the air brakes in case the motorman removes his hand. Copper ribbon fuses, similar to those on the locomotive, are used, and an aluminum cell lightning arrester is installed on each car.

[EDITOR'S NOTE.—The multiple unit cars have not yet been built, so the description must be taken as applying to what is intended.]

Special local conditions and extremely low temperatures introduced features, making the design of the catenary system for this electrification somewhat out of the ordinary. The present electrified track is about 10 miles long and in this distance there is a passenger terminal station and passenger car yard in the city, a double track tunnel, double tracks in a cut with low clearances under highway bridges, a long stretch of single track, both tangent and curve, and a large freight yard with repair shops and storage tracks. The

temperature in the coldest winter weather reaches 35 deg. below zero; while in the hottest summer weather it will go as high as 110 in the sun. In the early spring severe sleet storms sometimes occur.

The poles are of eastern white cedar. The specifications for these poles, and also for the creosote oil used as a preservative, were based upon those of the National Electric Light Association. Steel poles are used in the terminal yard in the city, on account of their more slightly appearance. The wood poles are set 7 ft. in the ground and are all back-guyed. They are long enough to carry 2 cross arms for feeders, signal circuit and a 3-phase transmission line for supplying the shops in the Cartierville yard with electric power. On top of the poles there is a no. 000 copper ground wire, which serves both as a protection against lightning for the circuits on the poles, and also as a preventive against any trouble that might be caused by breakage of the rail bonds, which latter are of the welded V-type. The poles throughout the single track construction are spaced 150 ft. on tangents and 120 ft. on the 2-deg. curve. On the double-track portion, where the overhead clearance is limited, the spacing is reduced to 105 ft. on tangents.

The messenger for the electrification outside the tunnel consists of a ½ in., 7-strand Siemens-Martin steel cable, with an ultimate strength of 11,000 lb. and an elastic limit of 6,600 lb. Two no. 0000 copper feeders are installed, one the full length of the electrification outside the tunnel, and the other for about a mile west of the substation. The messenger is anchored every half mile by running the end of one half mile length past the end of the next for a distance of one span. It is then made fast to an anchor eye on the bracket, through an insulator and turn-buckle, and the same point of the bracket is guyed back to the next pole, which in turn is guyed against this strain. The two messengers, where they pass each other, are kept from 8 to 10 in. apart. By anchoring the trolley wire on the same bracket, the anchorage becomes a section insulation, the air space between the messenger and trolley wires forming the insulation. Where a section insulator is not required, a copper jumper is placed between the messenger and trolley wires. For the double track portion of the line, cross-span construction is used, the cross-span being a ¾ in., 7-strand Siemens-Martin steel cable. The messenger is fastened to this by a small malleable clamp. This cross-span is made up with a turnbuckle, strain insulator, and wedge grip in each end, and fastened to the poles by means of eyebolts.

In yard work spanning more than 2 tracks, the construction is similar, but with the addition of a cross messenger of ½ in. cable above the ¾ in. cable. This cross messenger is made fast to the poles directly, without insulators or turn-buckles, and carries the weight of the spans below through lengths of ¼ in. steel cable. These fasten to eyes in the tops of the messenger hangers, and to the cross messenger, by Crosby clips. There is a strain-insulator in each of these lengths.

Pull-offs are used on curves, for holding the contact wire and messenger in the correct position over the track, and at intervals on long tangents, for steadying the contact wire. The pull-offs are made of sherardized steel tubing, bent to avoid fouling the pantograph. Each pull-off is fitted with a clamp ear at one end and an eye at the other. Adjustable links are sometimes required with the pull-offs, to

keep the trolley wires the right distance apart at certain points, such as where the trolley wire for a turn-out approaches the main trolley wire at an angle. Each link is composed of 2 malleable iron brackets, with clamp ears, connected by a ½ in. pipe, the length of which is adjusted between the brackets and held by set screws.

Egg type insulators are used in two sizes. The larger, used with a ½ in. and ¾ in. steel cable, withstands a wet flash-over test of 14,000 volts, and has a breaking strength of 22,000 lb. The smaller, used with ¾ in. and ¼ in. steel cable, withstands the same voltage test, and has a breaking strength of 12,000 lb. The insulator used on the bracket construction is of the ordinary glazed porcelain, double petticoat, pin type, 4¼ in. in diameter. It has a wet flash-over test of 20,000 volts. The messenger rests in the groove in the top of this insulator, and is not tied, except on curves.

The contact wire is of special bronze composition, size 0000, with a breaking strength of 65,000 lb. a sq. in. and an elastic limit of 39,000 lb. a sq. in. Its section is American Electric Railway Association's standard 0000 grooved trolley wire. The use of this wire, instead of hard drawn copper, was thought advisable, both because of its longer life, when subjected to the wear caused by sliding pantographs, and also because it could be pulled up tighter than copper, on account of its greater strength. This latter reason was considered of special importance, because of the wide variation in temperature in Montreal, with the consequent great variation in the sag of ordinary copper trolley wire between winter and summer.

The trolley wire is hung straight over the center of the track, as the natural side sway of the pantograph is sufficient to prevent wearing grooves in the contact strips. The height of the trolley wire above top of rail is ordinarily 23 ft., except along the double track construction and in the tunnel, where it is 16 ft. In this section 2 wires are used over each track. They hang side by side, supported from the same messenger, the hangers of one wire being staggered with those of the other. These double wires do not raise the hanger loops as high as would a single wire, when a pantograph passes along, which is an obvious advantage where the head room is limited. Sparking and consequent wear, both of the contact shoes and contact wires, is reduced to a minimum, as there is always good contact between the slider strips and one of the contact wires. The hangers are all of the long-loop type, having a malleable iron, single bolt, clamp ear, and a strap varying in length to suit its position in the span. All parts are sherardized. In spans of all lengths from 150 ft. to 90 ft. the hangers are spaced 15 ft. apart.

Lightning arresters of the magnetic blow-out type are installed at half mile intervals. The arrester is placed near the top of the pole, and the ground wire run down the pole to a ¾ in. iron pipe driven about 10 ft. into the ground. Before driving this pipe, a 2 in. pipe was driven down about 5 ft., then withdrawn and the hole filled with rock salt. The ¾ in. pipe was driven down through the salt. In addition to these arresters on the poles, aluminum cell arresters are installed in the substation on the positive busbars and on each feeder.

In order to string the messenger cable with the proper tension, a dynamometer was used. It was therefore necessary for the foreman of the line gang to know what the tension should be at different

atmospheric temperatures. The right sag at any given temperature was also of importance, as a check on the tension. This information was supplied in tables to which the line gang worked, the sags and tensions being given at 5 deg. intervals. In the tunnel the overhead clearance was so limited that the catenary had to be very flat. This meant pulling the messenger up very tight for spans of reasonable length. A cable of phosphor bronze was decided upon, composed of 19 wires, and having an overall diameter of 0.888 in. This cable has an ultimate breaking strength of 22,000 lb., and an elastic limit of 18,600 lb. This messenger is supported every 90 ft. from the roof of the tunnel by a combination of iron yokes held in the concrete by four 1-in. bolts. The cross yoke carries the messenger insulator, and is supported on two insulators carried on the 2 end yokes, so that there are 2 insulators between the messenger and the ground. The insulators are of glazed porcelain, and have a wet flash-over test of 20,000 volts. All clamps and small parts of the messenger supports are of malleable iron sherardized. The yokes are of 2 x ¾ in. and 1½ x ¾ in., mild steel, painted with an asphaltum compound as a protection against rust.

Two no. 0000 phosphor-bronze contact wires hang side by side from the messenger. The hangers for each contact wire are spaced 15 ft., or 7½ ft. between adjacent hangers. The hanger lengths vary from 6 in. to 13¾ in., with 90 ft. span. The 2 hangers nearest the messenger support, viz., those 11¼ and 13¾ in. long, are made with 2 loops, one sliding inside the other, where the clearance to the roof is small. The remaining hangers are similar to those used outside the tunnel, except that the loop is wider, in order to take the larger messenger. It was found that the 2 messenger cables and the 4 contact wires over the 2 tracks in the tunnel would give ample conductivity, so that no feeders through the tunnel were required. Both the messenger and contact wires are anchored every half mile. Two bridles of ½ in. steel cable are fastened to the messenger by six ¾ in. Crosby clips, and the ends of the bridles are fastened each way, through 2 cemented-type strain insulator in series, a turnbuckle and wedge grip, to roof plates. The contact wire is anchored by lapping the ends for one span and then carrying each end up and slightly to one side of the center, making fast to a roof plate through 2 insulators, a turnbuckle and a wedge grip.

At the only curve in the tunnel, one of 2-deg., 2 pull-offs are placed in each span, over each track, one for each of the contact wires. The pull-offs are fastened to the tunnel arch through 2 strain insulators in series by an expansion bolt. The 2 pull-offs are placed 7½ ft. apart, and this arrangement prevents hard spots and at the same time keeps the 2 contact wires close enough together for satisfactory operation.

The United States Court, sitting at Grand Rapids, Mich., on Dec. 27, refused to grant the Grand Rapids, Grand Haven & Muskegon Interurban Ry.'s application to prevent the state from enforcing the 2c a mile railway rate. This is a matter in which the G.T.R. is interested.

Vancouver, B.C., merchants are asking the railways running into the city to abandon the 5c arbitrary rate, and a report states that the Board of Railway Commissioners may be appealed to upon the matter by the Vancouver Board of Trade.

Frog, Switch and Crossing Manufacture at Transcona Shops, Canadian Government Railways.

By S. Lewis, General Foreman, Blacksmith Shop, C.G.R., Transcona, Man.

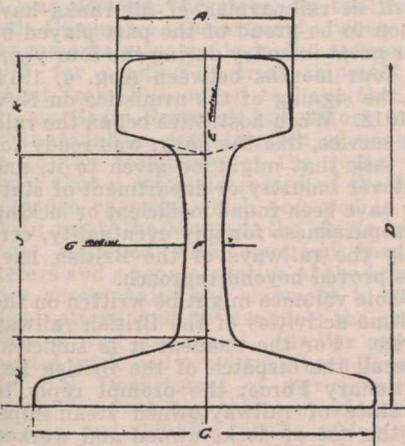
Successful maintenance of any railway equipment means the greatest reliability in service combined with greatest economy. The Canadian Government Railways engineering department, above all other departments, must have had one object in view pertaining to railway track and track work, and that must have been to standardize its equipment, and the advantage of standardization tends toward an effective system of railroading. Under such conditions it is possible to have uniformity, and above all it can be known exactly from one end of the system to the other what is required, to the smallest detail, without any possible chance of a misunderstanding.

ing rather than to carry in stock a variety of these fittings for the small amount of differences existing between those two sections.

There is no class of work at the C.G.R. shops at Transcona given more attention as to detail and accuracy of workmanship than the building of frogs, switches and crossings. And there seems to be a great

not seriously objectionable, provided the variation is uniform and constant over a long distance. Wide gauge due to worn rail need not be corrected until the excess over the proper gauge is equal to 1/2 in.

The most universally used switch point is the split one, which is made exclusively of the T rail (80 and 85 lb.) and is planed as a general rule. The split



Weight per Yard	A	C	D	E	F	G	H	J	K
85	2 1/2	5 1/2	5 1/2	10	2 1/8	1 1/2	3	2 1/2	1 1/2
85	2 1/2	5 1/2	5 1/2	12	2 1/8	1 1/2	3 1/2	2 1/2	1 1/2
80	2 1/2	5	5 1/2	14	2 1/8	1 1/2	3	2 1/2	1 1/2
80	2 1/2	5	5	12	2 1/8	3 1/2	3	2 1/2	1 1/2

Fig. 1.

I do not need to enter into the fundamental principles of design or emphasize the importance of uniform standards, because this has already been recognized with reference to switches, frogs, guard-rails, and crossings, and a good grade of this special track structure largely affects the smooth riding of trains and the life of the rolling stock on the C.G.R. Our standard plans containing details of all this work are unique, and any person with elementary education can read them and well understand how to manipulate these special parts. The subject of rail sections has been an absorbing one.

Fig. 1, shows the various designs in active use of the 80 and 85 lb. sections per yard, in which a little metal has been added to the head or to the base of the 80 and 85 lb. section.

Fig. 2, shows three popular sections in which the exceedingly small differences are apparent, and yet one section cannot be substituted for the other in the manipulation of frogs and switches without much trouble and care.

There is no reason why an 85 lb. rail should not conform to an 80 lb. or vice versa, to eliminate different patterns for the different fittings for frogs, switches and crossings; it would be a decided sav-

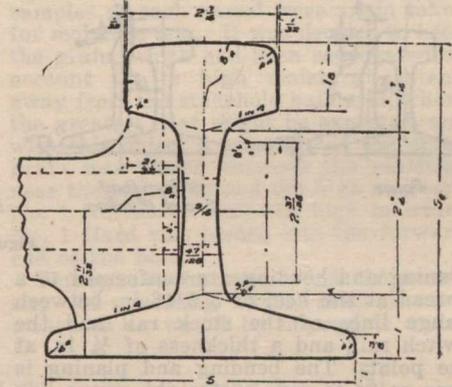
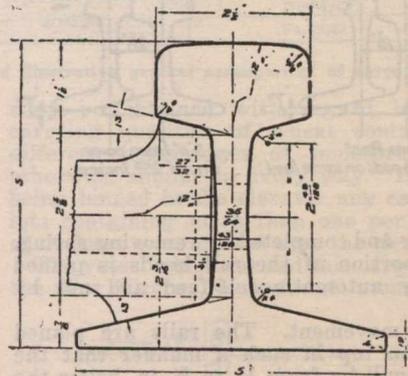


Fig. 2.

diversity of opinion among railway engineers as to the deviations allowable from drawings and specifications in given dimensions. The character, class and nature of the pieces also have a bearing upon the degree of accuracy to be expected or the variation allowable, and it would be a difficult task to set fixed rules to cover all cases. The matter must be

switch is shown in fig. 5, in which 2 rails of the switch were reduced to a given point. A train coming in either direction, whether travelling on the main line or on the siding, has to pass over one of these points, and there is no doubt left that this type of switch is universally acknowledged to be the best, and possesses decided advantages for high speed trains

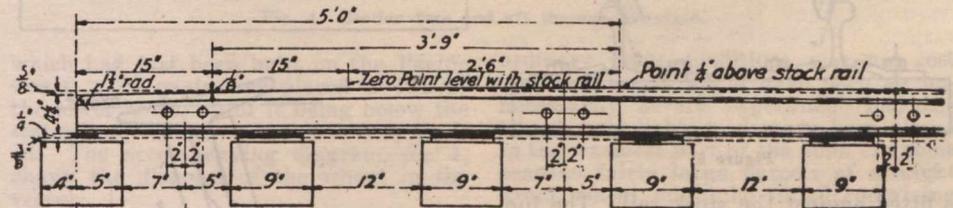


Fig. 3.

left largely to the good judgment of the person directly in charge of this class of work.

The question of gauge is a very important one, and almost every engineer has his own views in regard to it. The American Railway Engineering Association has recommended that 8 degree curves and under should be maintained to

at junctions, over all other types of switches which are more or less in use on other systems. Split switches were first introduced in England in 1825.

The method of bending and planing switch rails and the shaping of the point have been under discussion ever since the split switch was first introduced. First, the rails are sawn to length, then bent

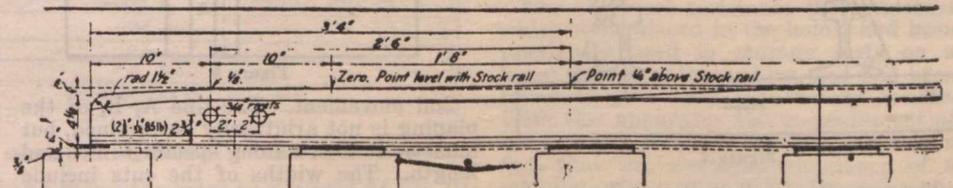


Fig. 4.

standard gauge, and that the gauge should be widened 1/8 in. for each 2 degrees, or fraction thereof over 8 degrees, to a maximum of 4 ft. 9 1/4 in. Where frogs occur on the inside of curves, the gauge at the frog should be standard, or the flangeway should be widened to compensate for the increased gauge. A slight variation from standard gauge is

horizontally so as to bring the stem or web of the rail directly under the extreme point. It is further planed vertically, so that a portion of its base flange is preserved to pass over the base flange of the main or stock rail and to rest upon supports. Furthermore, it is planed vertically, so as to bring the top of the switch rail somewhat above the main or stock

rail, to facilitate the passing of hollowed out wheel treads with the so-called false flanges over and across the head of the stock rail. The same thing applies to the spread at the heel of the switch and the throw at the point. The C.G.R. has one standard, almost every road has a different spread. Our standard is 5 5/16, while other roads have different spreads for every different length of switch. There is no reason why all roads should not follow the recommendation for a standard spread for switches of all lengths, which is ample to allow the easy fastening of any style of joint plate. Side

points. The reason for doing so is obvious: that the points may be allowed to close tight before the points farther toward the heel close. The rails then are placed on a 62 in. planer in pairs, which consist of a right and left hand in special adjustable jigs, designed by J. Rugg, foreman of this department, which are shown in fig. 6, and also the position of the rail at first cutting. These simple and serviceable jigs are so made that the rails can be adjusted vertically and horizontally—the rails are held quite rigidly—but owing to the base planing causing rails to spring, they must be taken to the

3rd movement. The planing on the third movement is done so as to give a straight gauge line to the switch rail, when the tools are on an angle of 70 degrees. Such operations as illustrated in fig. 6 are continued on account of having only one planer to take care of this class of work, and upwards of 200 rails are finished off in this manner before the chucks or jigs are changed to plane off the base.

The portion of the flange shown in section lining in fig. 7, is then planed off. This amount varies with the thickness of the elevation plates to be used, and with the thickness of the flange of the stock rail. This completes the switch point outside of dressing the extreme point drilling for the lugs and stops; which can be seen in fig. 8.—C. G. Rys. *Employes Magazine*.

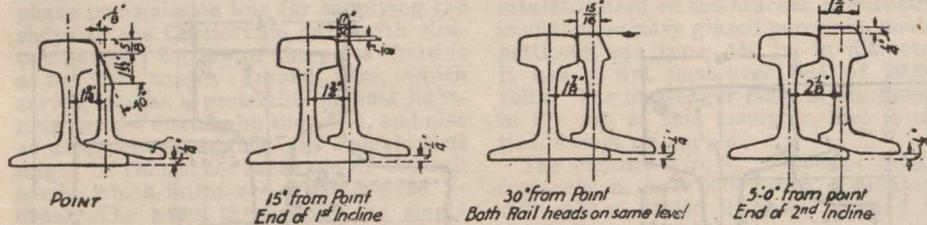


Figure 5

planing and bending are conformed to a spread at the heel of 5 5/16 in. between gauge lines of the stock rail and the switch rail, and a thickness of 1/4 in. at the point. The bending and planing is done so as to give a straight gauge line to the switch rail; and the head of the switch rail must fit neatly against the head of the stock rail, from the front of the switch rail to the point of divergence. The inner edge of the head of the stock rail and the outer face of the web of the switch rail at the point, must be in the same vertical line when the switch point

bender and completed by removing spring. The portion of the rail heads is planed off by automatic self-feed and not by hand.

1st movement. The rails are planed first on top in such a manner that the point will be from 1/4 to 5/8 in. below the top of the stock rail, when it is in position on the elevation plates. This planing is accomplished by setting the chuck vertical in such a way as to bring the required line horizontal.

The British Railways and the War.

British railwaymen of all ranks have reason to be proud of the part played by their great industry during the four years and four months between Aug. 4, 1914, and the signing of the armistice on Nov. 11, 1918. When hostilities began the railway service, like the navy, was ready for any task that might be given to it, and whatever industry or department of state may have been found inefficient or lacking in preparedness for any eventuality, certainly the railways of the British Isles were proved beyond reproach.

Whole volumes might be written on the wartime activities of the British railway service. For the moment it is sufficient to recall the dispatch of the British Expeditionary Force; the prompt reply to the state of railway-owned steamships, and the use of docks owned and worked by railways. Then mention should be made of the use of the great locomotive and general railway workshops, for the manufacture of the munitions of war and the building of ambulance trains.

Of the railway staff quite 25% entered war service, and a large number of railway officers were lent to the Government for administrative and military duties. Prominent among these were Sir Eric Geddes, Sir Albert Stanley, Sir Guy Calthrop, Sir Guy Granet, and Sir Sam Fay.

Fortunately the government in taking over the control of railways had sufficient wisdom to leave the administration in the hands of capable railway officers. The work of Sir Herbert Walker, acting Chairman of the Railway Executive Committee, will never lack appreciation. Truly, Sir John Aspinall in his presidential address to the Institution of Civil Engineers was able to say: "The deadening effect of government operation of industry has not been felt on the railways."

That the victory has been won by all sections of the community pulling together is an accepted fact. There is today a much better understanding between employers and the employed, and the railway service is no exception to the rule.—*Railway Magazine*.

The Pacific Great Eastern Ry. is reported to show a profit on operation for 1918. As showing how traffic is being secured along the line, it is stated that during 1918, from the Chilcotin and 150 Mile House districts, over 7,000 cattle were shipped out.

The Canadian Northern Ry. Transfer Co., on Jan. 2, took over the handling of the collection and delivery of freight in Winnipeg for the National Transcontinental Ry. It now handles all freight in that city for the Canadian National Rys.

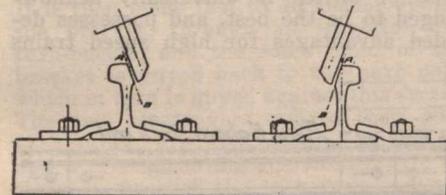


Figure 6

is fitted against the stock rail. The top planing must conform to the measurement shown in figs. 3, 4, and 5. In the two latter drawings it will be seen that the top of the switch rail is carried on the same level above the main rail from the planed down point all the way back to the heel. This requires elevation plates for the entire length of the switch, but at graduated thickness even beyond the heel.

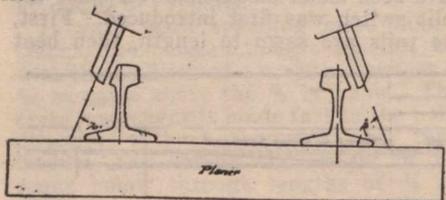


Figure 7

The practice followed at Transcona shops is to bend the rail sufficiently to bring the side of the web at or near the gauge line, and the bend is made to such length that the point of bend occurs at the intersection of the line of the stock rail and the line of the back of the switch point rail head. This length is usually increased by an allowance of 1/2 in. for each foot of bend length, which allowance has the effect of giving a slight clearance between the two rails at the bending

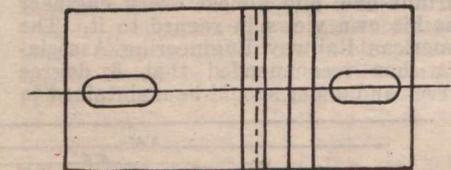
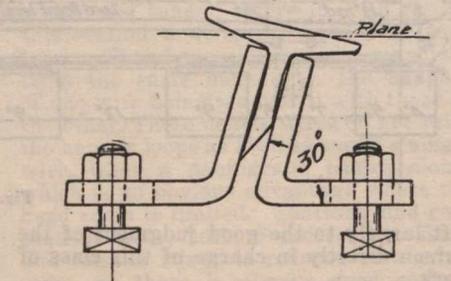
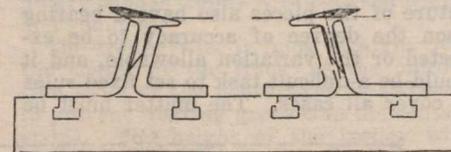


Figure 8

2nd movement. The line A, B, of the planing is not arbitrarily determined, but must be followed along specified lines and length. The widths of the cuts include the total depth of railhead. Both tool heads feed automatically; the average cut being from 1 1/2 in. wide by 3-32 in. feed to 2 1/4 in. wide by 1/10 in. to 3-32 in. feed.

The speed of the planer which has been found to give the best results is 30 ft. a minute, the return of course being considerably faster. The tools are of the shape of a right and left offset side parting tool, size 2 x 1 in., made of high speed steel.

the separating cloths, the line of thermometers for that particular layer was dropped down one of the ventilators leading into the hold, stretched out and embedded in the grain at a depth of 6 to 12 in. All the lead wires from the line of thermometers passed up through the ventilator and their ends were soldered to a thirteen point switch. This switch was screwed into a hard wood box which was lashed to the outside of the ventilator and afterwards covered over with tarpaulin for protection against the weather. When the temperatures were to be measured, this cover was taken off, the door of the box opened and the switch connected with the temperature indicator and battery.

The loading of the grain, owing to delays from various causes, occupied five days and was concluded on Nov. 13, 1917, but it was not until Dec. 3, after taking on further cargo at Portland, Oregon, that the ship sailed for the Panama. During the voyage between Portland and Norfolk, Virginia, daily records were kept of the maximum temperature of the air, and of the readings of wet and dry bulb thermometers, while the sea water temperatures were obtained from the engineer's department. The humidity of the air was usually very high, often reaching the saturation point after sunset. On the arrival of the ship at Norfolk on Jan. 10, 1918, the sea water and air temperatures

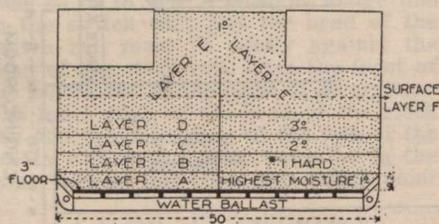


Fig. 3. Section through hatch 2.

were about 32° F, and the weather remained cold until the voyage was resumed on Jan. 26. While crossing the Atlantic no observations were made, on account of the very rough weather experienced. The readings of the electrical thermometers in the holds were taken every two or three days during the voyage between Portland and Norfolk. Fig. 6 illustrates the variations in temperature shown by 4 of the thermometers situated in different parts of the hold.

The ship docked in London on Feb. 16, 1918, and the discharging of the grain was started two days later. An attempt was made to take the temperatures in the holds before discharging, but this was found to be impossible. The protection of the switches had not been sufficient for the very rough weather which was experienced, and the metal contacts had corroded to some slight extent, so that when the battery was connected, short circuits were set up and it was impossible to obtain an accurate balance on the galvanometer. Careful examination of the grain at the time of unloading showed that a certain amount of damage had occurred.

In layer A. the wheat was found to be heating in two places close to the stokehold bulkhead. This wheat was slightly warm and very musty, but the amount so affected was quite small—probably not more than about 3 bush. altogether. In addition, a few pounds of wheat, which was wet, soft and discolored, had caked here and there to the floor of the hold in the vicinity of the bulkhead. Except in these places the floor was quite clean and dry, and the rest of the wheat in this parcel was perfectly sound.

In layer B. heating wheat was found

immediately above the warm spots in layer A. The amount of damaged grain was rather more than in the bottom parcel, but it was still quite small. There was no other damage in this layer.

Layer C., except for a few bushels of hot wheat close to the stokehold bulkhead, arrived in good condition.

In layer D., the quantity of wheat found to be heating was considerably more than in layer C., probably amounting altogether to about 60 bush. The position of the damaged grain was the same as in the lower layers.

Layer F., with the exception of about 2 bush. of slightly warm wheat under the forward ventilator on the port side, arrived in perfectly sound condition.

In layer E. the damage was most extensive. A body of grain occupying the space between the sides of the ship and the oil settling tank was found to be heating and musty. In some places the wheat was warm 5 ft. away from the bulkhead, and to the full depth of the layer. Probably 700 to 800 bush. were affected altogether, some of it being very warm, covered with fungi growth, and caked so badly that it was difficult to

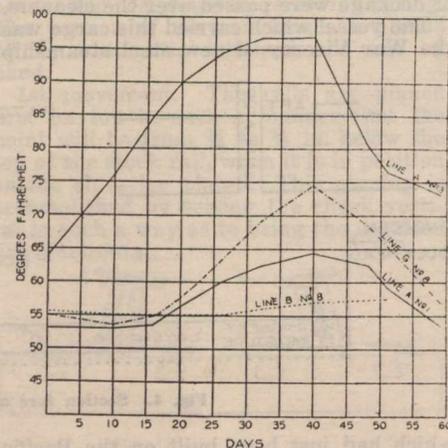


Fig. 6. Variations in temperature shown by thermometers 1 and 13.

break down, while in other places it was only just warm and held together very loosely. All the heating wheat which has been described up to the present was mixed up and worked in with the sound wheat during the unloading. The cargo superintendent apparently considered that the damage was not sufficient to make the separate treatment of this grain necessary, and it is for this reason that more accurate information cannot be reported with regard to the weight of grain which arrived out of condition. Underneath the port ventilator at the forward end of the hold, about 4 bush. of grain were found to be badly heating in this parcel. There seems to be little doubt that the cause of this damage was the drainage of water down the ventilator. This wheat was not mixed up with the sound grain. Along the sides of the ship in the after half of the hold there was a thin layer of very wet, sour and discolored grain, which near the surface had sprouted badly. The bad condition of this wheat was attributed to sweat damage. All the grain so affected was kept separate from the main bulk of the parcel.

In layer X. very small quantities of soft, wet wheat had caked in places to the floor of the hold. This damage was probably caused partly by sweat and partly by the leakage of small amounts of water around the rivets in the ship's side.

Layer Y. was discharged in good condition except for a little wheat which had

caked round the side, as in layer X., and small quantities which were heating and musty on each side of the propeller shaft tunnel immediately under the mast. This latter damage was evidently caused by the leakage of sea water around the mast.

The damaged grain from layers X and Y, together with that from under the forward ventilator and the sweat damaged grain in layer E, was weighed up apart from the rest of the cargo, the total quantity being about 160 bush. This was the only damage reported by the cargo superintendents, and amounted to less than 0.2%. But the total quantity of damaged grain was increased by probably more than 800 bush. if the more or less injured grain be taken into account. As far as this shipment is concerned, this damage is perhaps of little commercial interest, since the wheat affected by it was mixed with the sound grain when the usual practice was followed during the discharging. It will indicate, however, where trouble may be expected in the case of future shipments unless certain precautions are taken.

While the reported damage was evidently due to sweat, or to the admission of water into the hold, the cause of the heating near the stokehold bulkhead is not quite so clear. The heating took place under the ventilators, down which a little water may have dripped during and after

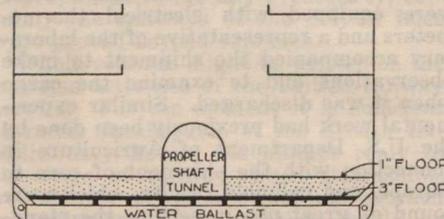


Fig. 5. Section through hatch 4.

the loading. Tests on samples of heating wheat from layer C showed 15.2 and 15.7% of moisture, while a sample from layer E, contained as high as 21% of moisture. These percentages do not, however, necessarily indicate the admission of water into the hold, since the chemical changes due to respiration, which is very rapid in warm grain, always result in an increase in the proportion of water present. But whether the cause of the heating was the drainage of some water from the outside, or whether the moisture content of the wheat as loaded was dangerously high for the conditions in that part of the ship, there is no doubt whatever that the temperatures close to this bulkhead were altogether too high for safety.

During the discharging of the grain, average samples were collected from some of the parcels. These samples were tested in the laboratory for moisture and the results obtained showed that no appreciable changes in moisture content occurred during transit.

A comparison shows 99,209 bush. of wheat loaded on the ship and 98,833 bush. discharged, a loss of less than 0.4%.

Conclusions.—The results of the investigations in connection with this shipment indicate that if certain precautions are taken wheat may be carried to Europe via the Panama Canal without damage. The following recommendations are therefore made:

Only wheat which is quite sound in every way should be shipped by this route. It should be carefully tested for moisture and any lots containing an excessive amount should not be loaded into the vessels. It has not been possible to determine just how much moisture the

grain may safely carry, but until some limit is definitely set, a moisture content of more than 14.5% should be regarded as dangerous.

The temperatures recorded by the thermometers against the false bulkheads near the engine room and stokehold are evidently too high for safety, and an unventilated air space of 9 to 12 in. cannot then be considered sufficient protection. It is recommended therefore, that when it is necessary to stow grain close to the engine room or stokehold, these spaces be either ventilated or extended. The records clearly show that it was only in these portions of the holds and close to the propeller shaft tunnel that dangerously high temperatures occurred. The conditions will vary in different ships, but the adequate protection of the grain cargo in these parts of any vessel is one of the most essential conditions for its safe transportation.

Excepting in the neighborhood of the stokehold bulkhead, the only damage which occurred in this shipment was due to sweat, or the admission of water. The importance of keeping the grain dry during loading and of preventing the subsequent entrance of water into the holds hardly needs to be emphasized. If the Panama Canal route is used to any extent for this trade, most of the shipments will probably be made from Vancouver during the rainy season, and it will therefore be necessary to take steps to prevent water from dripping down the hatches and ventilators during loading. In addition to this, the ventilators should be covered during rough or wet weather at sea, and no wet cargo of any sort should be stowed in the same hold as the grain.

One feature which was against the present shipment was the length of the voyage, the grain being in the vessel 3½ months altogether. When heating once

starts in a body of grain it proceeds at an accelerating rate, so that the length of time the wheat is in transit may have a great deal of influence on the quantity which arrives out of condition, and the extent of the damage.

The conditions to which the grain is subjected in transit by this route are much more severe than those experienced by Atlantic shipments. The temperatures are higher and the voyage much longer, but it is believed that if it is possible to observe the above precautions, there will be little difficulty in carrying wheat cargoes safely. The results of this experiment certainly seem to justify further trials.

The foregoing are extracts from a bulletin by F. J. Birchard, Chemist in Charge, and A. W. Alcock, Assistant Chemist, Trade and Commerce Department's Dominion Grain Research Laboratory.

Birthdays of Transportation Men in February.

Many happy returns of the day to:—

T. Britt, General Fuel Agent, C.P.R., Montreal, born there Feb. 3, 1871.

J. S. Byrom, General Superintendent, Sleeping, Dining and Parlor Cars, and News Service, Eastern Lines, C.P.R., Montreal, born at Jersey City, N.Y., Feb. 10, 1872.

H. R. Charlton, General Advertising Agent, G.T.R. and G.T.P.R., Montreal, born at St. Johns, Que., Feb. 9, 1866.

R. Colclough, Superintendent, District 1, Transcontinental Division, Canadian Government Railways, Quebec, Que., born at Bic, Que., Feb. 24, 1871.

R. Crawford, Northwest Agent, Northern Navigation Co., Winnipeg, Man., born at Kingston, Ont., Feb. 21, 1870.

V. A. G. Day, Resident Engineer, Toronto Terminals, C.P.R., born at Aberdeen, Scotland, Feb. 4, 1883.

A. J. Donegan, ex-Superintendent, Algoma Eastern Ry., Sault Ste. Marie, Ont., born at Perth, Ont., Feb. 17, 1872.

R. W. Drew, Division Freight Agent, Saskatchewan District, C.P.R., Regina, born at Kingston, Ont., Feb. 17, 1874.

E. A. Evans, M.Can.Soc.C.E., ex-General Manager and Chief Engineer, Quebec Ry., Light & Power Co., Quebec, born at Kensington, London, England, Feb. 26, 1855.

Goodwin Ford, General Superintendent Western Lines, Dominion Express Co., Winnipeg, born at Bordentown, N.J., Feb. 23, 1859.

U. E. Gillen, Vice President (Operating), G.T.R., Montreal, now on leave of absence, born at Brooklyn, Mo., Feb. 27, 1867.

L. L. Grabill, General Baggage Agent, G.T.R., Toronto, born at Walkerton, Ont., Feb. 6, 1878.

A. J. Hills, Assistant to President, Canadian National Railways, Toronto, born there, Feb. 15, 1879.

T. C. Hudson, General Master Mechanic, Eastern Lines, Canadian National Railways, Montreal, born at Brockville, Ont., Feb. 20, 1873.

H. Hulatt, Manager of Telegraphs, G.T.R. and G.T.P.R., Montreal, born at London, England, Feb. 15, 1883.

C. Gardner Johnson, Lloyd's Agent for British Columbia, Vancouver, B.C., born at Dunblane, Scotland, Feb. 8, 1857.

A. H. Jones, Assistant Engineer, Canadian Government Railways, Moncton, N.B., born at Liverpool, Eng., Feb. 16, 1884.

John McCraw, ex-General Agent, Cen-

tral Vermont Ry., New London, Conn., born at Craigvale, Ont., Feb. 6, 1868.

G. L. McCrea, Local Freight Agent, C.P.R., Vancouver, B.C., born at Springtown, Ont., Feb. 9, 1876.

T. McNab, ex-Master Mechanic, Alberta Ry. & Irrigation Co., now of Picture Butte, Alta., born in Scotland, Feb. 16, 1849.

J. K. McNellie, Superintendent, Susquehanna Division, Delaware & Hudson Co., Oneonta, N.Y., born at Toronto, Feb. 23, 1874.

J. D. McNutt, Inspector of Train Dispatching, Canadian Government Railways, Moncton, N.B., born at Stewiacke, N.S., Feb. 8, 1873.

D. C. Macdonald, Assistant General Claims Agent, C.P.R., Winnipeg, born at Elmsdale, N.S., Feb. 9, 1874.

C. S. Maharg, Superintendent, Cranbrook Division, British Columbia District, C.P.R., Cranbrook, born in Dufferin County, Ont., Feb. 4, 1867.

V. J. Melsted, ex-Engineer of Water Service, C.P.R., Winnipeg, born at Gardar, N.D., Feb. 20, 1887.

G. A. Montgomery, Vice President and General Manager, Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ont., born at Bradford, Ont., Feb. 11, 1871.

A. Z. Mullins, Commercial Agent, G.T.R., Grand Rapids, Mich., born at Apin, Ont., Feb. 14, 1862.

M. G. Murphy, General Agent, Passenger Department, C.P.R., Detroit, Mich., born at Halifax, N.S., Feb. 26, 1878.

J. E. Proctor, District Passenger Agent, C.P.R., Calgary, Alta., born at Sarnia, Ont., Feb. 17, 1878.

C. T. Ridalls, Car Foreman, C.P.R., London, Ont., born at St. Heliers, Jersey, Channel Islands, Feb. 8, 1864.

W. J. Robider, General Master Car Builder, C.P.R., Montreal, born at Savannah, Ga., Feb. 15, 1869.

A. E. Rosevear, General Freight Agent, G.T.P.R. and Grand Trunk Pacific Coast Steamship Co., Winnipeg, born at Montreal, Feb. 20, 1863.

J. G. Scott, ex-General Manager, Quebec & Lake St. John Ry., Quebec, born there Feb. 13, 1847.

J. J. Scully, General Superintendent, Algoma District, C.P.R., North Bay, Ont.,

G. Spencer, Chief Operating Officer, Board of Railway Commissioners, Ottawa, born at Montreal, Feb. 3, 1872.

wa, born in London, Eng., Feb. 21, 1865.

H. E. Suckling, Treasurer, C.P.R.,

Montreal, born at Gibraltar, Feb. 27, 1851.

F. L. Wanklyn, General Executive Assistant, C.P.R., Montreal, born at Buenos Ayres, Feb. 25, 1860.

J. R. Watson, Assistant Superintendent, Sleeping, Dining and Parlor Cars, and News Service, Eastern Lines, C.P.R., Montreal, born at Morpeth, Eng., Feb. 8, 1873.

A. Williams, Superintendent, London Division, Ontario District, C.P.R., London, born at Mono Road, Ont., Feb. 22, 1872.

There's an Excuse for Everything, Except Excuses.

By G. A. Hoag, Superintendent, Canadian National Railway, Capreol, Ont.

Once upon a time a poor farmer owned a team of horses. In the early spring, one of the horses died. The man started to find a mate for his one horse. Horses were scarce and high. He failed to find one within the reach of the few dollars he had, with which to buy. But he found a bull whose owner claimed that the animal was broken to work.

The farmer decided to buy the bull and hitch him with his horse. He took the bull home. He fed him well, gave him a good straw bed, and left him to get a good rest for the next day's work. When the morning came, the bull refused to get up. The farmer finally filled his rack with hay, put some oats in the manger box, and left with his one horse for the field.

That night he fed the bull again, bedded him down, and went to the house. After the farmer had left, the bull spoke up to the horse and said, "How did you get along today?" "Pretty well," said the horse. "We needed you and could have done more if you had been there to help, but we got along pretty well under the circumstances." The bull ate his oats and lay down and chewed his cud. He decided he had a snap and would continue the strike.

The next morning he refused again to get up. The farmer gave him an extra portion of oats, and all the hay he could possibly eat, and all the water he would drink, and left with the horse for the field. That night he gave the bull another extra fine meal, a good bed to lie on, and as soon as he had left for the house the bull again inquired of the horse how they

Small Dump Car for Railway Ditching.

had got along. "Better than yesterday," replied the horse. "Not so well as we would had you been there to help us, of course. In fact, we needed you very much, but we accomplished quite a good day's work." "Did the boss mention me?" asked the bull. "No, he didn't mention you all day."

The bull decided, since he was having such good "eats" and such an easy time in general, that he would continue the system. He therefore refused to get up the next morning, and again at night, after the farmer had left for the house, the bull inquired of the horse how they got along.

"Fine!" said the horse. "Much better than before. To be sure, we needed you, but we are managing to get along, and are doing better each day." "Did the boss say anything about me?" demanded the bull. "No," said the horse. "He said nothing about you to me, but on the way home we met the butcher, and I heard him mention your name to him."

I could truthfully tell a lot of fellows, right now, that I heard their employers mentioning their names to the butcher. And I could tell them why, just as I could tell all the lazy bulls.

G. H. Shaw's Farewell to His Staff.

Geo. H. Shaw, General Traffic Manager, Canadian Northern Ry., on retiring from that position recently, issued the following circular to the freight and passenger traffic officials.

"June 1, 1901; vale Dec. 31, 1918.

"Dear Sir:—In retiring from the service of the Canadian Northern Railway after 17½ years of service, I wish to express my appreciation of your loyalty and assistance in the upbuilding of the business of the company, without which no such results as attained would have been possible. Under conditions, often discouraging and disheartening, you have been prompt and tireless in your devotion to the business interests of the company. No Canadian railway has received a greater measure of service from its representatives, and to this fact is largely due the substantial increase in its revenues, as shown by the following figures for the fiscal years 1901-1902 and 1917-18:—

	1901-1902	1917-1918
"Mileage	1,280	9,433
"Passengers	169,270	10,025,200
"Passenger revenue	\$249,020	\$7,451,500
"Freight revenue	\$1,003,160	\$32,565,400
"Freight tons	639,885	14,506,300
"Mails, express and sundries	\$28,445	\$2,433,700
"Total revenue	\$1,280,625	\$42,450,600

"These figures indicate substantial growth, but are no indication of the earning power of the property when deferred maintenance is overtaken, terminal and divisional points adequately equipped and the necessary locomotives and rolling stock provided to enable the staff to furnish a reliable and efficient freight and passenger service to the public.

"My successor is unknown to most of you. He merits your generous and loyal support. With best wishes for your future prospects and happiness, I am, yours very truly, Geo. H. Shaw."

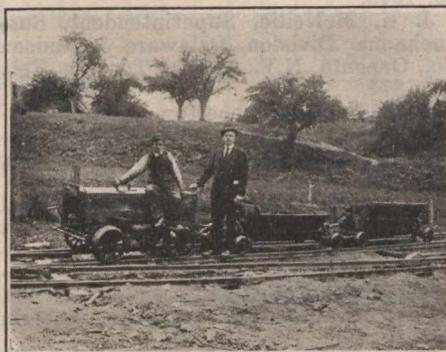
St. Felicien & Ungava Ry.—The Quebec Legislature is being asked to incorporate a company with this title, to build a railway from St. Felicien, Lake St. John County, by way of Lake Nichekun, to the waters of Lake Petitsikapou, in the Ungava area, and also to build branches. Demers & Demers, Quebec, are solicitors for applicants.

To facilitate the clearing of ditches along railway tracks, a ¾ yd. side-dump steel car has been designed and built by the Baltimore & Ohio Rd. The car is



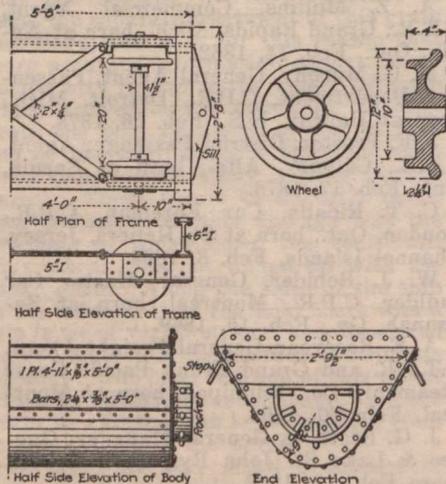
Dump car, on track 20 in. wide.

operated on a track of 20 in. gauge laid directly over the ditch, and is made low and narrow so as to clear trains in narrow



Train used for clearing ditches, on track 20 in. wide.

cuts. One car can be loaded and handled by two men, but where the work is heavy and requires a long haul, two or three



Details of construction of small dump car for railway ditching.

cars are coupled and are hauled by a home-made motor car, as shown in the illustration. For this latter plan a larger crew is employed, with two trains, a

switch and siding being put in at the end of the track so that one train can be placed for loading while the other is being taken away and dumped.

The dump cars contain a single plate forming the V-shaped shell, which is 5 ft. long, 3 ft. wide at the top and about 25 in. deep.

Rockers on the end plates have projecting lugs or teeth which engage with perforated castings on the end sills, and thus hold the body in position as it dumps. The rockers can be locked to prevent accidental dumping. The frame consists of 2 end sills resting on side sills, the latter being connected by diagonal bars and reinforced by plates at the holes for the axles. Cast iron 10 in. wheels are secured to 1½ in. axles by set screws and give a wheelbase of 4 feet.

The design of the car was made under the direction of Earl Stimson, General Superintendent of Maintenance of Way and Structures, Baltimore & Ohio Rd.

The Northwest Route, Limited.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway from the westerly end of Baker Lake, northwesterly to the eastern end of Schultz Lake; from the junction of the Hanbury and Thelon Rivers, westerly and southwesterly to Old Fort Reliance at the eastern end of Great Slave Lake, or in the alternative, from the junction of the Hanbury and Thelon Rivers, westerly to the southeastern end of Clinton Golden Lake, and from southwest of Kasba Lake southwesterly to the north-eastern end of Artillery Lake; or from the junction of the Hanbury and Thelon Rivers westerly to the northeasterly end of Artillery Lake; and from the southwesterly end of Artillery Lake to Old Fort Reliance at the eastern end of Great Slave Lake; with power to build branch lines to connect the different sections of railway by steam or other vessels, to build wharves, and to improve the navigation of the Thelon River. Smellie & Lewis, Ottawa, are solicitors for applicants.

Central Ry. of Canada Winding Up.—In connection with the winding up of the affairs of this railway, the rather ambitious projects of which ended disastrously, application is being made to the Board of Railway Commissioners for a recommendation for confirmation by order in council of agreements of sale between the company and the following companies:—Central Counties Ry., Ottawa Valley Ry., Ottawa River Ry., Carleton & Grenville Ry., St. Agathe Branch Ry., and Ottawa River Navigation Co. The agreements were signed by the president and secretary of the respective companies in Sept. and Oct., 1911. Copies of the agreements can be seen at the offices of the receiver, F. Stuart Williamson, 103 St. Francois Xavier St., Montreal.

Shefford, Bagot & Missisquoi Ry.—The Quebec Legislature is being asked to extend the time within which this company may build its projected railway from the parish of St. George de Clarenceville, on the Quebec-Vermont boundary, northeasterly to a junction with the Intercolonial Ry. between Bagot and St. Eugene; a branch from Adamsville to the International Boundary in the parish of St. Armand, and a branch from Roxton Point, northeasterly to Richmond. The company is authorized to connect its lines with those of any existing railway,

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 National Rys.—EUGENE E. FAIRWEATHER, M.A., LL.B., who has been appointed Assistant Counsel, Canadian National Rys., at Ottawa, as announced in Canadian Railway and Marine World for January, also continues as Departmental Solicitor, Railways and Canals Department, there.

STANLEY SCOTT, heretofore chief clerk, General Superintendent's office, Canadian Northern Ry., Vancouver, and formerly Secretary to M.H. MacLeod, then General Manager and Chief Engineer, Western Lines, Canadian Northern Ry., Winnipeg, has been appointed Secretary to the President, Canadian National Rys., D. B. Hanna, at Toronto, succeeding W. A. TUXFORD, who has been appointed in charge of the Pass Bureau.

WALTER PRATT, heretofore General Superintendent, Sleeping, Dining and Parlor Cars and Hotels, Canadian Northern Ry., Winnipeg, has been appointed Manager, Sleeping, Dining and Parlor Cars and Hotels, Canadian National Rys., with jurisdiction over all lines. Office, Toronto.

A. L. GRABURN, heretofore Assistant Superintendent of Rolling Stock, Eastern Lines, Canadian Northern Ry., Toronto, has been appointed General Fuel Agent Canadian National Rys. Office, Toronto.

W. L. CRIGHTON, heretofore Advertising Agent, Canadian Government Rys., Moncton, N.B., has been appointed General Advertising Agent, Passenger Traffic Department, Canadian National Rys. Office, Toronto.

R. R. EDGLEY, heretofore acting Superintendent, Canadian Northern Ry., Quebec, has been appointed Superintendent, Saguenay Division, Quebec District, Canadian National Rys. Office, Quebec.

E. W. OLIVER, heretofore Assistant Engineer, Canadian Northern Ry., Toronto, consequent on the appointment of E. F. Seixas, heretofore Manager, Niagara, St. Catharines & Toronto Ry., as General Manager and Official Representative, Monterey Ry., Light & Power Co., has been appointed General Superintendent, N. St. C. & T. R., reporting to S. J. Hungerford, Assistant Vice President, Canadian National Rys. He will also be in charge of the Toronto Suburban Ry. and the Toronto Eastern Ry. Office, Toronto.

W. T. MOODIE, heretofore Division Engineer, Canadian Northern Ry., Winnipeg, has been appointed Superintendent, Division 1, Central District, Canadian National Rys., vice J. E. Nelson, transferred. Office, Port Arthur, Ont.

B. T. CHAPPELL, heretofore Superintendent, Pacific District, Canadian Northern Ry., Vancouver, B.C., has been appointed General Superintendent, Prairie District, Canadian National Rys. Office, Saskatoon, Sask.

W. I. MUNRO, heretofore Chief Dispatcher, Canadian Northern Ry., Winnipeg, has been appointed acting Superintendent, Division 2, Prairie District, Canadian National Rys., vice T. J. Brown, assigned to other duties.

D. R. CAMPBELL, heretofore Assistant General Manager, Pacific District, Canadian Northern Ry., Vancouver, B.C., has been appointed General Superintendent, Pacific District, Canadian National Rys. Office, Vancouver.

J. E. NELSON, heretofore Superintendent, Division 1, Central District, Canadian Northern Ry., Port Arthur, Ont., has been appointed Superintendent, Pacific District, Canadian National Rys. Office, Kamloops Jct., B.C.

R. M. MITCHELL, heretofore Right of Way Agent, Canadian Northern Ry., Winnipeg, has been appointed Right of Way Agent, Western Lines, Canadian National Rys. Office, Winnipeg.

THOMAS TURNBULL, heretofore Assistant Chief Engineer, Canadian Northern Ry., Winnipeg, has been appointed Engineer, Maintenance of Way, Western Lines, Canadian National Rys. Office, Winnipeg.

A. V. REDMOND, heretofore Division Engineer, Transcontinental Division, Canadian Government Rys., Cochrane, Ont., has been appointed District Engineer, Central District, Canadian National Rys. Office, Winnipeg.

H. L. VERCOE, heretofore Special En-

has been appointed General Boiler Inspector, Eastern Lines, Canadian National Rys. Office, Moncton, N.B.

A. McCOWAN, heretofore Supervisor of Car Work, Canadian Northern Ry., Winnipeg, has been appointed Master Car Builder in charge of all car work, Western Lines, Canadian National Rys. Office, Winnipeg.

H. G. REID, heretofore Assistant Superintendent of Rolling Stock, Canadian Government Rys., Transcona, Man., has been appointed General Master Mechanic, Western Lines, Canadian National Rys. Office, Winnipeg.

H. A. ENGLISH, heretofore Master Mechanic, Central District, Canadian Northern Ry., Winnipeg, has been appointed Master Mechanic, Central District, Canadian National Rys. Office, Winnipeg.

L. G. ROBLIN, heretofore General Master Mechanic, Western Lines, Canadian Government Rys., Cochrane, Ont., has been appointed Master Mechanic, Prairie District, Canadian National Rys. Office, Saskatoon, Sask.

W. H. GRANT, heretofore Tie and Timber Agent, Eastern Lines, Canadian Northern Ry., who has also been acting as General Storekeeper, during the absence in the Imperial Munitions Board's service of L. C. Thomson, has been appointed General Tie Agent, Canadian National Rys. Office, Toronto.

F. W. HARGRAVE, heretofore Purchasing Agent, Canadian Northern Ry., Toronto, has been appointed Assistant to General Purchasing Agent, Canadian National Rys., Toronto.

J. A. SUTTON, heretofore Fuel and Tie Agent, Transcontinental Division, Canadian Government Rys., has been appointed District Fuel Agent, Divisions 1 and 2, Central District, Western Lines, Canadian National Rys. Office, Cochrane, Ont.

T. J. LOWE, heretofore Fuel Agent, Western Lines, Canadian Northern Ry., has been appointed Fuel Agent, Western Lines, Canadian National Rys. Office, Winnipeg.

L. C. THOMSON, General Storekeeper, Eastern Lines, C.N.R., who was loaned to the Imperial Munitions Board early in the war, and has been its Superintendent of Transportation at Ottawa, has returned to his duties at Toronto, and his jurisdiction has been extended over all Eastern Lines, Canadian National Rys.

W. F. TAYLOR, heretofore General Storekeeper, Canadian Government Rys., Moncton, N.B., has been appointed Assistant General Storekeeper, Eastern Lines, Canadian National Rys., that is, east of Port Arthur, Ont., and O'Brien, Que. Office, Moncton.

A. E. COX, heretofore General Storekeeper, Western Lines, Canadian Northern Ry., has been appointed General Storekeeper, Western Lines, Canadian National Rys. Office, Winnipeg.

P. MOONEY, heretofore Assistant General Freight Agent, Canadian Northern Ry., Toronto, has been appointed Assistant General Freight Agent, Canadian National Rys., with jurisdiction, Quebec City, Levis, east of O'Brien and Garneau to Chicoutimi and Quebec, and also Quebec and Saguenay Ry. Office, Quebec, Que.

J. E. LePAGE, heretofore Division Freight Agent, Canadian Government Rys., Quebec, Que., has been appointed Division Freight Agent, Canadian Na-



F. J. Buller, Local Treasurer, Eastern Lines, Canadian Northern Railway System.

gineer, Canadian Northern Ry., Winnipeg, has been appointed District Engineer, Prairie District, Canadian National Rys. Office, Saskatoon, Sask.

T. W. WHITE, heretofore Assistant Engineer, Bridge Engineer's Office, Canadian Northern Ry., Winnipeg, has been appointed District Engineer, Western District, Canadian National Rys. Office, Edmonton, Alta.

W. H. PIRIE, heretofore Car Foreman of Shops, Canadian Government Rys., Halifax, N.S., has been appointed General Car Foreman, Halifax Terminals, Canadian National Rys. Office, Halifax.

J. B. TURNER has been appointed District Car Foreman, Maritime District, Canadian National Rys., all lines Mont Joli, Que., and east, except Halifax terminals.

C. STEEVES, heretofore General Boiler Inspector, Canadian Government Rys.,

tional Ry., with jurisdiction Quebec City, Levis, east of O'Brien and Garneau to Chicoutimi and Quebec, also Quebec and Saguenay Ry. Office, Quebec, Que.

R. E. PERRY, heretofore Assistant General Freight Agent, Canadian Government Rys., Moncton, N.B., has been appointed Assistant General Freight Agent, in charge of publication of tariffs and divisions for lines east of Fort William and Armstrong, Ont. Office, Montreal.

S. G. TIFFIN, heretofore Assistant General Freight Agent, Canadian Government Rys., Montreal, has been appointed Assistant General Freight Agent, Canadian National Rys., with jurisdiction Kingston and east of North Bay, Ont., to Garneau and Matapedia, Que., and Edmundston, N.B. Office, Montreal.

JAMES ORR, heretofore General Freight Agent, Canadian Northern Ry., Montreal, has been appointed Assistant General Freight Agent, Canadian National Rys., with jurisdiction, west of Kingston to Windsor, Ont., Toronto to Port Arthur, Armstrong, Ont., and O'Brien, Que. Office, Toronto.

G. R. FAIRHEAD, heretofore District Freight Agent, Canadian Northern Ry., Hamilton, Ont., has been appointed Division Freight Agent, Canadian National Rys., with jurisdiction west of Kingston to Windsor, Ont., Toronto to Port Arthur, Armstrong, Ont., and O'Brien, Que. Office, Toronto.

G. M. THOMAS, heretofore Travelling Freight Agent, Canadian Government Rys., Toronto, has been appointed District Freight Agent, Canadian National Rys. Office, Hamilton, Ont.

W. HATELY, heretofore Chief of Tariff Bureau, Freight Traffic Dept., Western Lines, Canadian Northern Ry., Winnipeg, has been appointed Assistant General Freight Agent in charge of publication of tariffs and divisions for lines west of Port Arthur and Armstrong, Ont., and Duluth, Minn. Office, Winnipeg.

W. A. WHYTE, heretofore District Freight Agent, Canadian Northern Ry., Regina, Sask., is reported to have been appointed District Freight Agent, Canadian National Rys., Calgary, Alta.

H. G. FOREMAN, heretofore Chief Accountant, Eastern Lines, Canadian Northern Ry., Toronto, has been appointed Assistant Treasurer, Canadian Northern Ry. System. Office, Toronto.

F. J. BULLER, heretofore Cashier and Paymaster, Eastern Lines, Canadian Northern Ry., has been appointed Local Treasurer, lines east of Port Arthur, Ont., Canadian Northern Ry. System. Office, Toronto.

W. L. BROWN, heretofore Assistant Auditor of Agencies, Canadian Northern Ry., Toronto, has been appointed Auditor of Agencies, Canadian Northern Ry. System, Toronto, vice A. C. Egan, promoted.

A. C. EGAN, heretofore Auditor of Agencies, Canadian Northern Ry., Toronto, has been appointed Assistant to Comptroller, Canadian Northern Ry. System, Toronto.

W. D. WADDELL, heretofore chief clerk, Audit Department, Canadian Northern Ry., has been appointed Chief Accountant, Canadian Northern Ry. System. Office, Toronto.

Canadian Pacific Ry.—W. H. CAVERS, heretofore Night Chief Dispatcher, has been appointed Chief Dispatcher, Smiths Falls, Ont., vice H. C. Taylor, whose appointment as Car Service Agent, Ontario District, Toronto, was announced in a recent issue.

C. L. LEIGHTY, heretofore Superintendent of Telegraphs, Ontario Division, Toronto, has been appointed Night Chief

Dispatcher, Smiths Falls, Ont., vice W. H. Cavers, promoted.

Major W. M. KIRKPATRICK, M.C., who, prior to going overseas with the 87th Battalion, Canadian Grenadier Guards, was Assistant Freight Traffic Manager, Eastern Lines, Montreal, has been appointed Assistant Freight Traffic Manager, Western Lines, vice W. B. Lanigan, who was, some months ago, appointed Freight Traffic Manager, Montreal. Office, Winnipeg.

G. H. HUTTON, Superintendent, Dominion Experimental Farm, Lacombe, Alta., is reported to have been appointed Superintendent of Agriculture and Animal Husbandry, Department of Natural Resources, C.P.R., vice J. G. Rutherford, C.M.G., whose appointment as a Railway Commissioner for Canada has been announced previously. Office, Calgary, Alta.

E. OFFICER, heretofore chief clerk to District Passenger Agent, Calgary, Alta., has been appointed Travelling Passenger Agent there.

I. G. TRUDEL, Storekeeper, Moose Jaw, Sask., is reported to have been appointed Storekeeper, Vancouver, B.C.

SIR GEORGE McL. BROWN, heretofore European Manager, has been appointed European General Manager. Office, London, Eng.

Delaware & Hudson Rd.—G. W. DITMORE, heretofore Assistant Master Car Builder, Colonie, N.Y., has been appointed Master Car Builder, vice R. W. Burnett, resigned, and his former position has been abolished. Office, Colonie, N.Y.

Grand Trunk Ry.—W. WALKER, heretofore acting Division Engineer, Eastern Lines, Montreal, has been appointed Division Engineer, Eastern Lines, vice Major F. L. C. Bond, promoted. Office, Montreal.

J. E. DUVAL, heretofore General Superintendent of Transportation, has been appointed General Superintendent of Car Service. Office, Montreal.

W. KENNEDY, formerly in G.T.R. and Central Vermont Ry. service, but latterly in private business, has been appointed General Mechanical Inspector. Office, Montreal.

H. R. McLENNAN has been appointed Chief Dispatcher, Brantford, Ont., vice W. M. Doherty, assigned to other duties.

F. A. RUTHERFORD, heretofore Inspector of Transportation, has been appointed Trainmaster, District 17. Sarnia Tunnel to Hamilton, including Petrolia Subdivision, District 18. Komoka to Glencoe, District 19. Glencoe to Kingscourt Jct., and District 24, vice R. E. Newcomer, transferred. Office, London, Ont.

R. E. NEWCOMER, heretofore Trainmaster, London, Ont. has been appointed Trainmaster, Districts 20 and 21, Brantford, Ont.

Grand Trunk Pacific Ry.—F. BARNARD has been appointed Assistant Car Foreman, Melville, Sask., vice R. Laing.

A. M. BOUILLON, heretofore Resident Engineer, Regina, Sask., has been appointed Assistant Engineer, Prince George, B.C.

Kettle Valley Ry.—ANDREW McCULLOCH, Chief Engineer, has been appointed acting General Superintendent, vice J. W. Mulhern, resigned.

Pacific Great Eastern Ry.—R. WILSON, heretofore Auditor, Vancouver, B.C., has been appointed acting Manager, vice G. L. Courtney, heretofore General Manager. Office, Victoria, B.C.

Toronto, Hamilton & Buffalo Ry.—J. McBRADY has been appointed foreman blacksmith, Hamilton, Ont., vice J. Templeton.

Canadian Northern Railway Earnings, etc.

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

	Gross earnings.	Expenses.	Net earnings.	Increases.	Decreases.
July	\$3,739,400	\$3,462,700	\$276,700	\$628,200	
Aug.	3,933,300	3,433,700	499,600	93,600	
Sept.	4,050,900	4,109,000	*58,100	484,000	
Oct.	5,175,000	4,355,500	819,500	*228,400	
Nov.	4,679,500	4,018,800	660,700	94,000	
Dec.	5,043,300	4,433,100	610,200	*544,900	

	\$26,621,400	\$23,812,800	\$2,808,600	\$526,500	
Inc.	\$4,764,600	\$5,291,100			
Dec.			\$526,500		

*Increase.

Canadian National Railways.

As all Government lines, including the Canadian Northern Ry., are now operated under Canadian National Railways as one system, the reports of earnings in future will cover the entire system.

Approximate earnings for three weeks ended Jan. 21, \$4,255,864, against \$2,990,687 for same period 1918.

Canadian Pacific Railway Earnings, Etc.

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

	Gross earnings.	Expenses.	Net earnings.	Increases.	Decreases.
Jan.	\$10,789,818	\$9,621,824	\$1,167,993	\$1,263,485	
Feb.	9,574,302	8,893,404	590,898	1,396,151	
Mar.	12,427,915	9,435,134	2,992,781	944,536	
Apr.	13,328,849	9,873,459	3,455,390	719,588	
May	13,314,117	9,626,341	3,687,776	863,944	
June	12,577,286	9,765,139	2,812,147	1,103,759	
July	12,374,165	10,204,153	2,170,012	1,589,995	
Aug.	13,109,753	9,901,123	3,208,630	608,908	
Sept.	13,584,771	10,463,330	3,121,441	625,710	
Oct.	15,682,780	10,596,945	5,085,835	*31,134	
Nov.	15,023,088	11,624,616	3,398,472	1,859,420	
Dec.	15,750,854	12,939,143	2,811,011	1,100,267	

	\$157,537,698	\$123,035,310	\$34,502,388	\$12,043,631	
Inc.	\$5,148,363	\$7,191,994			
Dec.			\$12,043,631		

*Increase.

Approximate earnings for three weeks ended Jan. 21, \$8,696,000, against \$7,035,000 for same period 1918.

Grand Trunk Railway Earnings.

	Gross earnings.	Expenses.	Net earnings.	Increases.	Decreases.
Jan. to					
June	\$26,162,127	\$25,855,560	\$306,567	*\$4,652,068	
July	5,788,482	4,358,163	1,430,319	214,767	
Aug.	6,106,006	4,325,751	1,780,255	656,719	
Sept.	6,350,967	5,121,049	1,229,918	270,528	
Oct.	6,352,428	5,168,531	1,183,897	321,907	
Nov.	6,173,455	5,271,775	901,680	318,498	

	\$56,933,565	\$50,100,829	\$6,832,626	*\$2,869,649	
Inc.	10,422,043	13,291,692			
Dec.			2,869,649		

*Decrease.

Approximate earnings for December, \$6,130,471, against \$4,311,598 for Dec., 1917; and for two weeks ended Jan. 14, \$2,033,209, against \$1,428,642 for same period 1918.

An Overloading of Passengers Case.—

The Niagara, St. Catharines & Toronto Ry. and two of its conductors were charged before the St. Catharines, Ont., Police Magistrate on Jan. 8 with breaches of the board of health's regulations, by carrying more passengers than seats were provided for in the cars. The company's solicitor, in defence, urged that the company was incorporated by the Dominion Parliament, that all its cars ran through other municipalities as well as St. Catharines, which was the only restricted area, and that as common carriers the company was obliged to carry all passengers offering, whether there was sitting room or not. A local report of the case adds that it was also contended that the board of health's order was not directed against the steam railways operated in the city, and therefore was discriminatory. The magistrate dismissed the case.

Canadian Railway AND Marine World

ESTABLISHED 1898.

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Toronto cannot be accepted. Remittances should be
made payable to Canadian Railway and Marine World.

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ADVERTISING COPY must reach the publishers by
the 10th of the month preceding the date of publication.

TORONTO, CANADA, FEBRUARY, 1919.

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Railway Finance, Meetings, Etc.

Boston & Maine Rd. shareholders voted Jan. 9 by a large majority to adopt the plan for a reorganization of the system endorsed by the directors and by Hon. W. G. McAdoo, while Director General of U.S. Railroads. The specific proposal voted on was the adoption of an agreement consolidating a number of small lines with the B. & M. Rd. Co. One of the lines so consolidated is the Concord & Montreal Rd., part of the route between Boston and Montreal.

Canadian Northern Ry.—It was reported in New York, Jan. 22, that the \$7,500,000 of C.N.R. equipment trust 6% gold certificates, Series B, placed on the market recently, had been oversubscribed. The bonds were offered at a price to yield 6 3/4 %.

The Dominion Securities Corporation is making an issue of Canadian Northern Western Ry. Co. 4 1/2 % first mortgage coupon bonds at a price to yield 5 3/4 %. These bonds are issued by the Canadian Northern Western Ry. Co. (Canadian Northern Ry. System), under its trust mortgage of June 22, 1912, and supplementary mortgage of April 8, 1913, and are a direct first mortgage lien at various rates from \$13,000 to \$20,000 a mile on certain branch lines in Alberta, which province has unconditionally guaranteed payment of principal and interest. The entire capital stock of the Canadian Northern Ry. System is owned by the Dominion of Canada, and the road has been merged with other roads owned by the Dominion into the Canadian National Railways, thus in effect placing the credit of the Dominion of Canada behind these securities, in addition to the guarantee of the Province of Alberta.

Canadian Northern Ry.—There has been deposited with the Secretary of State at Ottawa, a duplicated of a trust mortgage dated Oct. 22, 1919, made between the C.N.R. and Lloyd's Bank, London, Eng., and the King, securing an issue of 5% guaranteed secured gold notes of the company.

Timiskaming & Northern Ontario Ry.—

	Nov., 1918	Nov., 1917
Passenger revenue.....	\$ 47,498.94	\$55,625.49
Freight revenue.....	154,932.31	116,032.97
Total revenue.....	202,431.25	161,658.46

White Pass & Yukon Route.—The earnings from Jan. 1 to Sept. 30, 1918, were \$645,687, against \$570,127 for same period 1917.

Freight and Passenger Traffic Notes.

The C.P.R., on Jan. 6, began the operation of its Waltham Subdivision trains into the central station at Ottawa, instead of into the Broad St. station as theretofore.

The privilege heretofore granted to Dominion civil servants of certificates enabling them to travel at half fare on Canadian Government Railways has been withdrawn.

From Jan. 2, inbound and outbound freight theretofore handled by the National Transcontinental Ry. sheds at Winnipeg is being handled at the Canadian Northern Ry. freight sheds.

The traffic carried over the Quebec bridge during 1918 is reported to have included 40,000 loaded freight cars, 11,000 empty freight cars, and 3,644 passenger cars in 860 regular trains.

A. R. Muiner, a C.P.R. employe at

Piapot, Sask., was fined \$5 and costs at Moose Jaw, Sask., Jan. 7, for stealing railway tickets from the company. Mrs. Muiner was detected in an attempt to travel to Quebec on a stolen ticket, and Muiner, when arrested, had another one in his possession.

Passenger service on the following C.P.R. branch lines in Alberta has been reduced to a one day a week train, as follows:—Irricana to Bassano, Thursdays, returning on Fridays; Suffield to Lomond, Wednesdays, returning Thursdays; Lethbridge to Manyberries, Tuesdays, returning Wednesdays.

The Canadian passenger associations withdrew the privilege granted to soldiers in uniform of buying return tickets at single fare rate, as from Jan. 1, for eastern Canada, and from Jan. 10 for western Canada. This special rate is now only available for hospital patients and convalescents, who must produce forms signed by the superintendent of the hospital on the roll of which they are carried.

Owing to a rock slide on the line connecting the C.P.R. and the Kettle Valley Ry. at Hope, B.C., the K.V.R. trains are being operated via Spences Bridge, and this will continue until the line is cleared. dian triangulation in the Juan de Fuca clearing of the line will not be undertaken until the summer.

The G.T.R. is reported to have applied to Connecticut State authorities for a lease of the state dock at New London, in order to increase its available docking space for overseas trade, the accommodation at Portland, Me., not being sufficient.

C.P.R. eastern passenger officials met in Montreal, Jan. 15, under the presidency of C. E. E. Ussher, Passenger Traffic Manager, for their annual conference, the following being present: F. R. Perry, New York; L. R. Hart, Buffalo; G. Clifford, Cleveland; E. F. L. Sturdee, Boston; H. E. Malone, Cincinnati; R. L. Elworthy, Minneapolis; A. L. Powell, Winnipeg; E. G. Chessborough, Atlanta; C. L. Williams, Pittsburg; M. G. Murphy, Detroit; S. J. Wall, Chicago; E. G. Sheehan, St. Louis; Max Enos, New York; C. B. Foster, W. H. Snell, A. O. Seymour, A. B. Calder and J. M. Gibbon, Montreal.

The June Mechanical Conventions.—At a recent meeting of the executive committees of the American Railway Master Mechanics Association and the Master Car Builders Association, at New York, it was decided to hold the annual conventions at Atlantic City, N.J., as follows,—the Master Car Builders Association, June 18 to 21, and the American Railway Master Mechanics Association, June 23 to 25.

Siberian Railway Control.—A press dispatch from Vladivostok Jan. 20 says that an inter-allied agreement for controlling the Siberian Ry. has been signed. The British control the line from Omsk to the front; the French control the Kandarowsk line; the Japanese the line from Blagokestchensk to Chita, and the United States control from Porgranichna to Omsk, 3,000 miles. The administrative positions are filled by Russians and United States officials in equal numbers, and there are Russians only in the working staff. Major Stevens is Chief Administrator, with Gen. Horvath as co-director. The United States is to guard the line. Cars and locomotives are being supplied from America. Greatwork shops are being opened up in Vladivostok and every effort will be made to speed up operations.

The Future of Railways in the United States.

A statement made by Hon. W. G. McAdoo, Director General of U.S. Railroads, before the Interstate Commerce Committee of the United States Senate on Jan. 3, just prior to his retirement from that position, has been issued. It covers 48 closely printed pages, and reviews the result of the operation of U.S. railways from the time their operation was taken over by the Federal Government. The first section deals with a survey of the railway conditions as they existed from the autumn of 1916, when "the transportation stringency reached such a point that traffic was almost paralyzed through inability to dispose of it at destination," until the end of 1917, when, after "strenuous efforts and a larger degree of co-ordination than had ever before been attempted" in connection with the railway service, there was "on all roads a total of nearly 145,000 cars accumulated on account of the congestion which prevailed in the territory east of Chicago and St. Louis and north of the Ohio and Potomac in excess of the normal movement." Control of the lines was taken by the Federal Government Dec. 28, 1917. During the year that has elapsed there had been put into operation such plans as were deemed necessary for the cutting out of all unnecessary traffic; for the co-ordination of routes, so as to compel traffic to be carried by the shortest route direct to destination; the use of all terminal facilities in common; the pooling of repair shops, and numerous other reforms which only the unification of control of all the railway systems of the country could permit. The putting in force of these plans under general orders not only cleared up the congestion of traffic that was found to exist at the end of 1917, but permitted the carrying to the seaboard of immense quantities of supplies for Europe and the transportation of over 6,000,000 troops within the country.

The most important section of the statement is that devoted to changes inaugurated during 1918, many of which, it is claimed, should prove of permanent value, and which it is recommended should continue as far as possible whatever form of control is decided upon. These changes are: The maintenance of the permit system, so as to control the traffic at its source; the maintenance of heavy loads for cars; the pooling of repair shops; the elimination of circuitous routes; the unification of terminals; the maintenance of the sailing day plan; the consolidation of ticket offices; the utilization of universal mileage tickets; the standardization of equipment; the maintenance of the uniform freight classification introduced by the U.S. Railroad Administration; the maintenance of common time tables between important points; the maintenance of high demurrage rates and uniform rules; the establishment of through way-billing freight from point of origin to destination; rendering unnecessary the re-billing by connecting or intermediate routes; the elimination of the old practice of paying mileage or per diem rental for the use of freight or passenger cars of one carrier by another; the simplification of the old practice of apportioning inter-line passenger revenue; and the utilization of water routes for the relief of crowded rail lines.

The permit system prohibits the loading of traffic, in the absence of an assurance that it can be disposed of at destina-

tion. Under the heavier loading system in use during 1918 the average train load was increased from 655 to 682 tons, and the average car load from 26.8 to 29 tons, resulting in producing 1.9% more ton miles, with a decrease of 2.1% of train miles and a decrease of 5.8% of loaded car miles. The experience of the year showed that, due largely to the co-ordination of shop work, there had been an average increase of 20.93% each week in the number of locomotives receiving classified repairs. By re-routing freight a total of 16,863,633 car miles were saved in eastern and northeastern regions, and in the ore trade from Minnesota and Michigan mines to Lakes Superior and Michigan ports, 64,770 loaded and empty cars were re-routed, saving 3,577,464 car miles. A table showing 24 old routes, covering 15,764 miles, is given, together with the new routes, covering 11,203 miles. Information is also given as to the other changes which it is urged should be continued.

Questions affecting rolling stock, for which \$656,943,745 was authorized; of betterments for which \$531,925,525 was authorized, and of new construction, for which \$46,421,888 was authorized, are discussed. Labor matters and questions affecting public convenience are also dealt with, as well as water routes.

The concluding section deals with the future, and recommends that the government should continue to exercise control over the lines for five years, in order that the value of the fundamental changes outlined should be fully tested.

The Interstate Commerce Commission's Recommendations.

At another sitting of the Senate's Interstate Commerce Committee, E. E. Clark, one of the Interstate Commerce Commissioners, presented an alternative to Mr. McAdoo's plan for a five year extension of government control. A majority of the Interstate Commerce Commission considers that the 21-month period intervening between the signing of the peace treaty and the return to private ownership affords sufficient opportunity for readjustment before the roads are turned back by the government. Mr. Clark said, among other things:—"Considering and weighing as best we can all of the arguments for and against the different plans, we are led to the conviction that with the adoption of appropriate provisions and safeguards for regulation under private ownership it would not be wise or best at this time to assume government ownership or operation of the railways of the country."

He also stated that it seemed obvious that no plan of private ownership should be considered unless it be under broadened, extended and amplified government regulation. He said that comparatively few contracts for compensation had been perfected between the transportation companies and the government. Return to private ownership and operation should, therefore, not be understood as meaning precipitous return. A reasonable period of readjustment or preparation should be afforded, and reasonable notice given that upon a given date the properties would be restored to their owners.

Commissioner Woolley dissented from part of the report and gave a number of reasons why he favored the extension plan proposed by Mr. McAdoo, saying that the good accomplished far outweighed the shortcomings and was a promise of better

things for the future, and that the proposal to return the railways to private control had not been productive of any concrete plan which would carry the undertaking safely over the breakers obviously ahead.

The Interstate Commerce Commission reiterated its recommendations, made last year, that the presidential power to merge lines during war or peace should be continued, that railway construction should be limited to works of necessity, and that inland waterways should be developed and co-ordinated with the railways.

The Railway Companies' Managements' Position.

At a meeting in Philadelphia Jan. 5 the Association of Railway Executives, of whose standing committee T. De Witt Cuyler is chairman, unanimously adopted a plan calling for the creation of a Department of Transportation, headed by a Secretary of Transportation, who would be a cabinet officer and to whom would be transferred the administrative functions now performed by the Interstate Commerce Commission. Among other principles for an elaborate revision of existing railroad control legislation, the plan includes the following:

Private ownership, management and operation should, as a matter of national policy, be continued.

The power of regulation, including all rates, state or interstate, should be exclusively in the hands of the Federal Government, but administered through machinery or agencies responsive to the needs of and convenient to the people of the several states.

The carriers should have the power to initiate rates. The statute should provide the rule of ratemaking, and should require that rates be not only what has been called reasonable, but adequate and sufficient. Rates, whether approved or disapproved by the Secretary of Transportation, should by complaint be brought before the Interstate Commerce Commission, which should have power to pass upon their reasonableness and adequacy. The Interstate Commerce Commission should have power to prescribe minimum rates as well as maximum rates.

Other provisions were submitted covering in detail the questions of rates and the required modification of the Clayton Act, the control of securities and a system of federal incorporation.

Traffic Orders by Board of Railway Commissioners.

Diversion of Carload of Beans.

28045. Jan. 21. Re complaint of Universal Importing Co., Montreal, against refusal of C.P.R. to divert a carload of daifuku beans ex steamer Chicago Maru from Victoria wharf to New York: Upon hearing the complaint Jan. 17, in the presence of counsel for C.P.R., no one appearing for the complainant, and what was alleged, it is ordered that the application be dismissed.

Hudson Heights Commutation Tickets.

28046. Re complaint of John Barrett, Montreal, that C.P.R. refuses to sell monthly commutation books containing less than 55 tickets, between Montreal and Hudson Heights, Que.: Upon hearing the complaint at Montreal, Jan. 16, in the presence of counsel for the railway, the complainant appearing in person, and what was alleged, it is ordered that the complaint be dismissed.

Canadian Pacific Railway Construction, Betterments, Etc.

Betterments in 1918.—Following are particulars of the principal works done last year:—

On the main line tracks over 3,685,000 ties were renewed, and 460,000 tie plates, and 64,100 rail anchors were inserted.

A large amount of track has been re-ballasted in gravel and crushed rock. In the New Brunswick district the portion of the line between Fairville and West St. John was double tracked.

The bridge and culvert work consisted of the necessary repairs and a few renewals, and was confined principally to standard bridge work, or the reinforcing of second-hand bridge material.

On the line between Leaside Jct. and North Toronto on the double track work, the large reinforced concrete viaducts over the reservoir ravine were completed.

Interlocking and extension of block signals and changes of this character were carried out at a number of essential points and about 20 miles of automatic signals between Guelph Jct. and Guelph, Ont., were installed.

At Delson, Kemoka and Fairville, the interlockers were reconstructed and the plant at Delson was equipped with track circuit locking.

A number of crossing bells and gates were erected at various points, as well as interlocked signals and derails.

Mechanical time locks on electric approach or route locking were applied to all interlocking plants.

At a number of terminals, the facilities for handling locomotives were extended and increased by making additions to the shops, locomotive houses, coaling stations, water towers, machine and boiler extensions, housing and rest accommodation for the men and storage for materials, etc.

At St. John, N.B., the freight sheds were extended and alterations and additions made, the cold storage plant was also improved, and the amount of freezing space was largely increased.

At Outremont, Que., an additional 5-stall extension and a large machine shop was added to the locomotive house, including a 2-track depressed ash pit and a water supply tank. At Sortin a large coaling station was erected and the water facilities improved. At Sherbrooke an extension to 5 stalls was built to the locomotive house.

At John St., Toronto, a 7-stall addition was added to the locomotive house, as well as a larger machine shop; in addition, the old house was extended and partially rebuilt. At this point also the coaling station was remodelled and a new addition built to serve 4 tracks. An administrative building was erected at the west end of the present freight shed for the accommodation of the locomotive and clerical staff.

A number of terminal renewals and improvements were made on the Manitoba district at Fort William and Winnipeg. These consisted principally of general repairs, including some track work.

In the British Columbia district a transfer slip was completed at Vancouver. At Field accommodation was provided for a Y.M.C.A. building.

Western Lines Work for 1919.—D. C. Coleman, Vice President, Western Lines, gave out a statement at Winnipeg, Jan. 22, as to the betterments projected for the western lines for this year.

"The company will continue to follow the policy of making timely and prudent

provision for the continually expanding traffic in western Canada, and for the maintenance of the property in the best possible manner.

"The work to be done on bridges will be most extensive. The most interesting work of this nature to be undertaken will be the replacement of the bridge over the Assiniboine River at St. James, and the filling of the great structures over Scissors Creek and Bear Creek on the Neudorf line and the large bridge over the Battle River at Hardisty.

The usual generous provision is made for ballasting, steel replacements and improvements to the road bed.

"The programme as to new lines cannot be determined until certain surveys now being made are completed, and until certain legal formalities are complied with, but an announcement on this point will be made before spring.

"New station buildings will be erected at Harding, Marchwell, Schwitzer, Rutland and Dafoe.

"The locomotive houses at Weyburn, Moose Jaw and Cranbrook will be extended and the locomotive house at Sirdar, B.C., will be rebuilt.

"Coaling plans will be built at Raith, Ont., and North Bend, B.C.

"Additional trackage for handling train movements will be provided at High Bluff, Rosser, Fusilier, Stephen, Melita and Rosstown and extensions made to terminal trackage at Portage la Prairie, Revelstoke and Vancouver.

"Locomotive boiler washout plants of the most modern design will be installed at Medicine Hat and Revelstoke.

"To accommodate the largest type of locomotives, new turntables will be installed at Moose Jaw, Field and Revelstoke.

"A permanent concrete floor will be placed in the stock yards at Fort William, and improvements will also be made in the stock yards at Moose Jaw.

"At Winnipeg station the temporary wooden platforms in the train shed, which were put into service until the fill had reached its permanent location, will now be replaced with permanent mastic platforms.

"Very extensive improvements will be made at Winnipeg Beach with a view to giving better accommodation to bathers and picnickers. These improvements include the erection of a new power house, new bathing houses and the removal to a new site and re-erection of a number of the present buildings, and it is expected that the change will greatly promote the amenities of the pleasure resort.

"At Regina additional paving will be done in the local yards, to permit more convenient teaming of freight, and there will be improvements made in the ash pit facilities to provide for the more prompt handling of locomotives.

"The station at Moose Jaw having proved inadequate for the traffic handled there, plans are in preparation for a new building, and work will be done in the local yards to permit more convenient teaming of freight, and there will be improvements made in the ash pit facilities to provide for the more prompt handling of locomotives.

"The interior of the station at Medicine Hat will be remodelled to give better accommodation for the public.

"The lining of Connaught tunnel with concrete will be continued.

"An additional transfer barge will be

built for Okanagan Lake and an additional car slip provided.

"At Vancouver, the construction of a new ocean pier will be undertaken and the necessary studies are being made. When these are completed the work of dredging and filling will be started immediately."

A press report says that about \$6,500,000 will be spent on the betterments mentioned above, and that this appropriation does not include any for the construction department; that is, that anything spent on new lines will be additional.

Manitoba & Northwestern Ry.—The Dominion Parliament is being asked to authorize the company to build a line from its Shell River branch in Tp. 21, Range 28, west of the 1st Meridian, northerly to Tp. 23, Range 28, west of the 1st Meridian, Man.

Branch Lines in Saskatchewan and Alberta.—The company is applying to the Dominion Parliament for authority to build the following railways: From Duchess, on the Bassano easterly branch, in Tp. 20, Range 14, west 4th Meridian, northerly to Tp. 25, Ranges 14, 15 or 16, west 4th Meridian, Alta.; from Archive, on the Moose Jaw southwesterly branch, in Tp. 15, Range 27, west 2nd Meridian, southwesterly and westerly to Wymark on its Swift Current southeasterly branch, in Tp. 13, Range 13, west 3rd Meridian, Sask.; from Fortune or Rose-town, on the Moose Jaw northwesterly branch, in Tp. 30, Ranges 1 or 2, generally southerly for 50 miles, thence easterly for 30 miles to Tps. 20, 21 or 22, Range 10, west 3rd Meridian, Sask.; from the Weyburn-Sterling line in Tp. 7, Range 29, west 2nd Meridian, southerly to Tp. 5, Range 30, thence westerly to Range 7, west 3rd Meridian, Sask.; from Lanigan, on the Pheasant Hills branch, in Tp. 33, Range 22, west 2nd Meridian, generally northeasterly between the Carrot and Saskatchewan Rivers, and on to Cumberland House, Sask.; from Leader, on the Swift Current northwesterly branch, generally northwesterly for 50 miles, thence generally easterly to Big Stick Lake, in Tp. 15, Range 25, west of 3rd Meridian, Sask.; from the Manitou Lake branch in Tp. 43, Range 21, west of 3rd Meridian, northwesterly to Whitford Lake, Tp. 56, Range 11, west of 4th Meridian.

Saskatchewan Division.—A press report of Jan. 3 stated that an engineering party started work on the previous day upon a survey for a line from Wymark to Buttress, Sask. Wymark is situated at mileage 17, on the line from Swift Current to Vanguard, and Buttress is at mileage 16, on the line from Moose Jaw to Assiniboia, on the Weyburn-Lethbridge line. The distance between the two points is approximately 100 miles and the route is almost straight easterly. It is reported that the party will also survey a route for an extension of the Swift Current-Vanguard line from the present terminus, to another point on the Moose Jaw-Assiniboia line.

D. C. Coleman, Vice President, Western Lines, was in Regina Jan. 6, and is reported to have said that two surveys through the district had been made previously, and that a third survey was now being made, the terminal points being Wymark and Buttress. He was not in a position to say what line would be adopted or whether there would be any construction this year.

Yahk to Meadow Lake, B.C.—We are

officially advised that the company is building a small line from Yahk to Meadow Lake, B.C., to get out ties. The purchase by the company of an additional 17 square miles of timber area for its timber reserve in that district was mentioned in Canadian Railway and Marine World for January, pg. 18.

A press report states that the line is to be 12 miles long, and is to form part of a cut-off between Yahk and Elko, which would reduce the mileage between these two points from 85.5 miles to almost an air line of 46 miles. The suggestion is made that the line will connect up with the Waldo branch; and that it would give easier gradients than the existing Crows Nest Pass line. The press report also states that Jones and Doris, Cranbrook, B.C., are erecting the bunkhouses, etc., for the construction gangs.

Transfer Slip on Burrard Inlet.—Plans have been deposited with the Minister of Public Works at Ottawa, showing the location, etc., of a new transfer slip, on the south shore of Burrard Inlet, Vancouver. The plans show that this slip will be constructed slightly west of the prolongation of Thurlow St. The trestle leading to the apron will be 210 ft. long and 45 ft. wide, supported on creosoted piles. The apron is to be 70 ft. long, and will be composed of 6 deck trusses, with top cord and wooden posts. A contract for the work has been let and it is expected to have the slip ready for the operation of the company's barge traffic this year. (Jan., pg. 13.)

Railway Location and Terminal Question in Hamilton.

The city of Hamilton, Ont., appealed recently to the Dominion Government against two Board of Railway Commissioners' orders affecting that city. One of the orders appealed against authorizes the Toronto, Hamilton & Buffalo Ry. to expropriate some city property for the extension of its Kinnear yards, and the second authorizes the same company to lay down four additional tracks across Selby Ave. The appeal was heard Jan. 22, the City of Hamilton being represented by F. R. Waddell, city solicitor, and Wallace Nesbitt, K.C.; the Toronto, Hamilton & Buffalo Ry. by F. H. Phippen, K.C., and E. D. Cahill; Hamilton manufacturers by S. D. Biggar, K.C., and Canadian National Railways by E. W. Oliver. The government reserved its decision.

The two appeals referred to form only a part of the matter in which the City of Hamilton is interested. The city desires a thorough reconstruction and rearrangement of the railway lines, according to the Tye-Cauchon plan, described in Canadian Railway and Marine World, Sept., 1917, pg. 342, and all its efforts since that date have been directed to get this plan adopted by the railways. Some additional factors have been introduced into the situation recently, owing to the purchase of the Canadian Northern Ry. by the Dominion Government, and an application, which it is reported will be submitted to Parliament by the Hydro-Electric Power Commission of Ontario for power to build an electric railway from Toronto via Hamilton to the Niagara frontier. A suggestion is made that the Railway Act should be amended to give the Board of Railway Commissioners power to order the building of joint railway lines and terminals in any city.

F. R. Waddell, K.C., City Solicitor, is reported to have said, on his return from

Ottawa, that he got the impression that the government believes the time has arrived to take over the Grand Trunk Ry., which would make it unnecessary to build a Canadian Northern Ry. line through Hamilton.

Orders By Board of Railway Commissioners for Canada.

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

27950 to 27953. Dec. 24.—Rescinding clause 3, order 25980, Mar. 30, 1917; clause 2, order 25570, Oct. 27, 1916; order 26887, Jan. 3, 1918, and clause 2, order 27128, Apr. 17, 1918, respecting inter-switching, which conflict with general inter-switching order 252, Oct. 26, 1918.

27954. Dec. 20.—Approving agreement between Bell Telephone Co. and Tara Keady Telephone Association, operating in Bruce and Grey Counties, Ont.

27955. Dec. 20.—Authorizing C.P.R. to build spur for A. L. Florence & Son, Ottawa, Ont.

27956. Dec. 24.—Approving Canadian Northern Ry. plan showing additional details to be installed at crossing of Montreal Terminal Ry., Longue Pointe, near Montreal.

27957. Dec. 23.—Authorizing Saskatchewan Highways Department to build highway crossing over C.P.R. near Coalpole, Sask.

27958. Dec. 23.—Relieving C.P.R. from providing further protection at crossing at Pickereil Road, Scugog, Ont.

27959. Dec. 26.—Authorizing Grand Trunk Pacific Ry. to operate over C.P.R. crossings at Weyburn, Sask., until June 1, 1919, pending installation of interlocking plant.

27960, 27961. Dec. 26.—Approving Bell Telephone Co. agreements with St. Marys, Medina and Kirkton Telephone Co., Huron, Perth, Middlesex and Oxford Counties, Nov. 4; and Elmsley South Rural Telephone Co., Leeds and Lanark Counties, Ont., Dec. 7.

27962. Dec. 27.—Authorizing City of Ladysmith, B.C., to make highway crossing over Esquimalt & Nanaimo Ry. north of Ladysmith station.

27963. Dec. 27.—Extending to Mar. 27, 1919, time within which C.P.R. is required to install automatic bell at crossing of Main St., west of Morse, Sask.

27964. Dec. 28.—Amending order 28706, Oct. 30, re crossing of C.P.R. by Calgary Power Co., just east of bridge over Kananaskis River, Alta.

27965. Dec. 26.—Authorizing C.P.R. to build spur for Northwestern Milling & Export Co., Moosomin, Sask.

27966. Dec. 28.—Authorizing Town of Welland, Ont., to rebuild bridge over Welland River.

27967. Dec. 28.—Authorizing Canadian Northern Ry. to cross surveyed road between Secs. 22 and 15, Tp. 12, Range 6, west 3rd Meridian, Sask.

27968. Dec. 28.—Authorizing C.P.R. to build extra track at grade (third track) across roadway at Loreburn, Sask.

27969. Dec. 30.—Authorizing G.T.R. to build spur for Canadian Blower & Forge Co., Kitchener, Ont.

27970. Dec. 28.—Authorizing Saskatchewan Government to build highway crossing over C.P.R. station grounds, at Strongfield.

27971. Dec. 30.—Authorizing C.P.R. to cross road allowance between Lots 5 and 6, Cons. 3 and 4, Palpoonge Tp., Ont.

27972. Dec. 28.—Authorizing Canadian Northern Ontario Ry. to build spur for Spanish River Pulp & Paper Mills, Ltd., Champagne Tp., Ont.

27973. Dec. 30.—Authorizing C.P.R. to build extension to spur for Imperial Oil, Ltd., Lethbridge, Alta.

27974. Dec. 30.—Authorizing Canadian Northern Ry. to build spur for Imperial Oil, Ltd., Rosetown, Sask.

27975. Dec. 28.—Authorizing Canadian Northern Ry. to build spur for Spanish River Pulp & Paper Mills, Ltd., Dana Tp., Ont.

27976. Dec. 30.—Authorizing G.T.R. to build spur for McClary Mfg. Co., London, Ont.

27977. Dec. 30.—Authorizing Alberta Government to build highway crossing over C.P.R. in s.w. ¼ Sec. 7, Tp. 8, Range 5, west 5th Meridian.

27978. Dec. 30.—Approving Canadian Northern Ry. revised location from Lot 5, Block 48, in connection with Grand Trunk Pacific Branch Lines Co.'s track in Lot 21, Block 39, Moose Jaw, Sask.

27979. Dec. 31.—Ordering C.P.R. to install automatic bell at Dechenes crossing, near Dechenes, Que.

27980. Jan. 3.—Relieving C.P.R. from providing further protection at crossing at mileage 17.8, Aldersyde Subdivision, Alta.

27981. Jan. 2.—Authorizing C.P.R. to build spur for Crane, Ltd., Montreal Parish, Que.

27982. Jan. 2.—Approving plans and specifications of Clark award drain under C.P.R. in Harwich Tp., Ont.

27983. Jan. 3.—Authorizing Toronto, Hamilton

& Buffalo Ry. to build spur for Robert Laidlaw and Oakland Sand & Gravel Co., near Brantford, Ont.

27984. Jan. 3.—Authorizing Canadian Northern Saskatchewan Ry. to cross and divert surveyed road in s.e. ¼ Sec. 14, Tp. 12, Range 6, west 3rd Meridian, Sask.

27985. Jan. 3.—Authorizing Canadian Railway to build spur for Roundhill Collieries Co., Round Hill, Alta.

27986. Jan. 2.—Authorizing Canadian Northern Ontario Ry. to build spur for Spanish River Pulp & Paper Mills, Ltd., Champagne Tp., Sudbury District, Ont.

27987. Jan. 7.—Relieving G.T.R. from making connection with C.P.R. at Inglewood Jct., Ont., as called for by order 27691, Sept. 16, 1918, it appearing that time table changes effective Jan. 5 will better suit the travelling public.

27988. Jan. 7.—Authorizing G.T.R. to build spur for E. Long Mfg. Co., South Orillia Tp., Ont.

27989. Jan. 7.—Authorizing G.T.R. to build spur for Dominion Oilcloth Co., Montreal

27990. Jan. 8.—Authorizing Canadian Northern Ry. to cross Moose Jaw Electric Ry. on Athabasca St., Moose Jaw, Sask.

27991. Jan. 8.—Authorizing Granby Consolidated Mining, Smelting & Power Co. to build three entries under Esquimalt & Nanaimo Ry. near Cassidy Station, B.C.

27992. Jan. 8.—Authorizing G.T.R. to build spur for Lang Tanning Co., Kitchener, Ont.

27993. Jan. 8.—Authorizing Saskatchewan Government to make crossing over Grand Trunk Pacific Ry. at Ruthilda, Sask.

27994. Jan. 8.—Authorizing C.P.R. to cross 12th St., Regina Beach, Sask.

27995. Jan. 8.—Ordering C.P.R. to pay cost of timber bents and sills supporting bridge at Washington St., Rossland, B.C., cost of stringers and other parts of superstructure and approaches to be paid by the city.

Eastern Canadian Passenger Association Officers, Etc.

The following officers and committees were elected at the association's annual meeting in Montreal, Jan. 7:—

Chairman—A. J. Parr.

Executive Committee—R. I. Fairbairn (chairman), W. S. Cookson, W. H. Snell, J. F. Pierce.

Rules Committee—Jas. Morrison (chairman), W. Maughan, C. W. Johnston, J. W. Hanley, R. F. Hill, N. J. Ferguson, S. F. Palmer, F. T. Grant, G. D. Wadsworth.

General Baggage Agents' Committee—L. L. Grabill (chairman), G. C. Allen, R. I. Fairbairn, C. C. Bonter, J. O. Apps, H. P. Dearing, W. M. Skinner, A. E. Plumer.

Secretary—G. H. Webster.

Montreal-St. Helens Island Bridge.

The project for the construction of a bridge across the St. Lawrence River, between the Harbor Commissioners' wharf, Montreal and St. Helens Island, and thence to the south shore, is being revived. The estimated cost is \$5,000,000. A delegation of south shore residents waited on the Montreal Harbor Commissioners recently and were advised as to the work which it would be necessary to have done in Montreal in order that such a bridge could be built. The commissioners said the same support would be given the project as was promised formerly. On the invitation of the Mayor of Longueuil, a conference of municipalities was called to be held there Jan. 13, to appoint a delegation to go to Ottawa and discuss the project with the Dominion Government. The proposed bridge would provide accommodation for steam and electric railway, as well as for pedestrian and vehicular traffic.

New Railway Construction.—Hon. Arthur Meighen, Minister of the Interior, is reported to have announced, at a board of trade dinner in Winnipeg, on Jan. 22, that the Dominion Government would expend \$60,000,000 on new railway work during this year.

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

The Canadian Railway Troops' operations in the field on the western front, during the British advance just prior to the armistice, were of the utmost importance in connection with the advance, and a summary of the work received by the Militia Department deals with this feature up to the signing of the armistice.

During November the Canadian Railway Troops laid 308 miles of track which was in the area evacuated by the enemy and necessary to aid in the advance, for the forwarding of food and other supplies. It was necessary in that time to repair 300 miles of grade. To perform this work there was a force of 6,783 men of the C.R.T., aided by 9,980 men attached from other units, a daily working force of 16,763 being employed on railway work under Canadian direction. In addition to this force, there were employed for maintenance duties 1,309. The care of narrow gauge lines required 1,231 men for construction and 1,358 for

and then relay ties and steel and reballast. The second method employed was to blow out every other joint on each track. In this way one end of each rail was damaged, and before it could be used again it was necessary to cut and redrill the damaged end. The third method was to place mines in the grade about 100 yards apart. These mines, which sometimes took the form of heavy trench mortar or aeroplane bombs, caused large craters in the grade and the track and ties surrounding the crater were absolutely demolished.

"In some instances the enemy used all three methods, while in others apparently there was only time to use one method. Continual difficulty was experienced with delay-action mines. These had been placed in important places, such as road crossings, bridge abutments, culverts, etc., and the repairing of the track, clearing away the debris and rebuilding the bridges, entailed very heavy work. A considerable amount of time and expense was saved

Chief Engineer of the Seventh Army Corps, and in charge of the repair and reconstruction of canals in Belgium and France. He also saw service in South Africa.

Lieut. L. H. Biggar, 42nd Battalion, C.E.F., who has been awarded the Military Cross, is son of W. H. Biggar, K.C., Vice President and General Counsel, G.T. R. and Grand Trunk Pacific Ry., Montreal. He went overseas in 1916, and was shell shocked at Passchendaele in Oct., 1917, and returned to France in Feb., 1918, as Chief Signal Officer, 42nd Battalion, and subsequently took a first class army signalling course, passing with distinction. He was a member of the party entering Mons with the advance guard, on its relief immediately prior to the signing of the armistice, and is one of the few Canadian officers who signed what is known as the Gold Book there. His brother, Capt. W. H. Biggar, is also overseas.

Corporal W. Holohan, Railway Construction Corps, has been awarded the Distinguished Conduct Medal. He and another corporal were responsible for work in connection with the mounting of 7.5 guns in an area continually subjected to heavy bombardment. He displayed great courage, during an arduous time, and although slightly gassed on several occasions, remained at work with his unit, and worthily upheld the fine traditions established by the overseas troops.

Serg. A. E. Lang, Canadian Railway Troops, has been awarded the Distinguished Conduct Medal, for conspicuous gallantry and devotion to duty, in supervising the construction of standard gauge railway in the forward area. On one occasion nine men of his platoon were killed and nine wounded. He assisted his company commander, under very heavy shell fire, in removing the wounded to a place of safety. Perfect discipline was always shown by his platoon, while under shell fire, and during bombing raids, which were very frequent.

Com. Sergt.-Major J. J. McDonald, Canadian Railway Troops, has been awarded the Distinguished Conduct Medal. While engaged on light railway work the enemy suddenly opened an intense bombardment, which wounded five of his men and cut off two trains. He first rescued the wounded and got them under cover from the shell fire, then returned and repaired the broken track, but the two tractors of the train were so badly damaged that they could not work, so he and his party pushed the trains out of the shelled area. He then went on repairing the line, getting up material, etc., under constant shelling, with the utmost perseverance and determination.

Major H. R. Phipps, Canadian Railway Troops, has been awarded the Military Cross. During an advance, he made a difficult reconnaissance of the forward railway line, and supervised the repairing of breaks in the line, under heavy shell fire. He later salvaged a tank, with a party of men, under heavy fire, and throughout the operations he set a splendid example to his company.

Lieut. E. F. Roberts, Canadian Railway Troops, has been awarded the Military Cross. While the track were repeatedly being blown up by shell fire, he, by his courage and untiring efforts, succeeded in repairing the breaks, and in evacuating a large quantity of valuable rolling stock, which the enemy was endeavoring to de-



A mule tram drawing ammunition, on a light railway, behind the Canadian lines at Vimy Ridge. Canadian Official War Photograph. Copyright reserved.

maintenance. In all a force of 20,661 men were required to further the Canadian Railway Troops' activities.

The report on the work for November says that at the beginning of the month, while the enemy was retiring very rapidly and was being hard pressed by our advancing troops he yet managed to carry out a very systematic demolition of railway lines and bridges. In order to cope with this, all the battalions of the C.R.T. with the exception of a few small detachments, were concentrated on standard gauge reconstruction work, for the most part in the area between Le Cateau and Turcoing.

Dealing with the action of the enemy, the report says:—"The enemy, in his retirement, used three methods in the demolition of railways: first, by the use of a track destroyer, which tore up the rails and bunched the ties together in such a manner that to relay the track it was necessary to remove the rails from the ties, lift the ties, take out the ballast,

by salvaging material from damaged steel bridges and using it for reconstruction. Broken girders were taken out by the use of oxy-acetylene welders. Temporary abutments were placed, and trestle piers made to receive the shortened girders, the remaining part of the spans being made up of timber."

The report mentioned that all the gaps in the required standard gauge lines had been completed up to undestroyed lines in the territory recently occupied by the Germans.

PERSONAL NOTES.

Brig.-Gen. C. J. Armstrong, C.M.G., has been created a Companion of the Bath. He volunteered on the outbreak of war, and went over with the first contingent as colonel in command of the Canadian Engineers. He was promoted brigadier-general and after receiving severe injuries in a railway accident which kept him in hospital 19 months, he was attached to the Imperial forces. He is now

stroy. His skill and daring were entirely responsible for the work being completed.

Lieut. A. W. H. Smith, Canadian Railway Troops, has been awarded the Military Cross. He worked with his party for half an hour, under heavy machine gun fire, repairing a break on the line of his light railway, enabling the gas trains to reach their destinations and make the attack a complete success.

Capt. J. Balfour Thom, M.C., who returned to Canada during January, is a son of the late Jas. Thom, Manager of the Dominion and White Star Steamship Lines at Montreal. He went overseas in March, 1916, as a lieutenant in the 12th Field Co., Canadian Engineers, and served with that unit throughout.

Sergt. J. E. Walsh, Canadian Railway Troops, has been awarded the Distinguished Conduct Medal. On one occasion, when 200 ft. of light railway track was blown out by shell fire, and it was necessary to get it repaired at once, to allow ammunition trains to proceed, he volunteered to take a party to do the work, and although it was three times driven from the track by gas and high explosive shell fire, he succeeded in getting the line in running order in an incredibly short space of time.

Pte. H. C. Woodley, who was among the British prisoners released from German prison camps recently, is a son of R. H. Woodley, Travelling Passenger Agent, C.P.R., London, Eng.

Canadian Railway War Board's Work.

Embargoes Against Overseas Shipments.—The board issued the following statement Jan. 11:—A decrease of approximately 80% in the volume of overseas supplies, to be exported via Canadian ports during February, will militate against maintenance of the unexcelled record which the Canadian railways have made in the handling of freight for Europe during the past four years. On account of conditions existing on the other side of the Atlantic, it has been necessary for the government shipping authorities to ask the railways to make a heavy reduction in the deliveries of ocean freight at the Atlantic seaboard, and in order to avoid congestion and the tying up of thousands of freight cars, the board has been compelled to place embargoes against the general acceptance of overseas shipments. How long this embargo will continue depends entirely upon the rate of recovery from congestion at the European ports and authorization from the government to resume the normal movement. The board's reports show that there is now sufficient freight at the seaboard and in transit to meet all requirements of vessels arriving during January."

Joint Rail and Ocean Bills of Lading.—A number of enquiries have been received by the board with respect to the resumption of issuance of through joint rail and ocean bills of lading. The matter has been receiving the board's attention, and on account of the unsettled state of allotment of ocean space and sailings which will continue for some little time, it is considered that the present is an inopportune time to resume the practice. Member lines are requested, therefore, to refrain from resumption of issuance of through ocean bills of lading pending receipt of further notice from the board.

Opening and Closing Hours for Freight Sheds.—The board's circular 83, Oct. 1, 1918, indicated that, on account of the insistent demand of labor, including practically all classes of railway workers, for the 8-hour day, it became necessary, in the various processes of readjustment, to reduce the number of working hours per day for employes engaged in railway freight sheds. It was proposed, therefore, to establish standard opening and closing hours for railway freight sheds in Canada, 7.30 a.m. and 5 p.m. respectively, Mondays to Fridays, inclusive, and 7.30 a.m. and 1 p.m. respectively on Saturdays, thus making the total working hours per week 48, equivalent to 8 per day. Protests were received from a number of points to the effect that 5 p.m. closing is

too early to enable merchants, in some instances, to fill orders received during the afternoon, and after a number of conferences of representatives of shippers and members of the board, it was agreed that in such circumstances the opening hour would be made 8 a.m., closing 5.30 p.m., Mondays to Fridays, and on Saturdays, 8 a.m. to 1.30 p.m. It is directed, therefore, that, effective Feb. 1, 1919, and until further notice, the following hours shall be observed for the receipt and delivery of shipments at railway freight sheds in Canada:—

General: Monday to Friday, inclusive, opening 7.30 a.m., closing 5 p.m.; Saturday, opening 7.30 a.m., closing 1 p.m.

At points where local business conditions are such as to make closing later than 5 p.m. essential: Monday to Friday, inclusive, opening 8 a.m., closing 5.30 p.m.; Saturday, opening 8 a.m., closing 1.30 p.m.

Investigations which have been conducted by the board at various points throughout the country indicate that, while the inauguration of the new hours may cause home slight temporary inconvenience to shipper or carrier, or both, at certain points, any such difficulties can be disposed of through the co-operation of the interested parties. It is hoped, therefore, that all concerned will lend their efforts to the successful operation of the revised arrangement.

Paper towels and drinking cups have as a general thing been substituted for the permanent articles in the principal passenger trains and stations. It has come to the board's notice, however, that the use of permanent towels and cups continues in many places, such as the smaller stations, railway offices, bunk rooms, etc. It is suggested to member lines that, in the general interests of safeguarding the health of both their employes and the public, the use of these articles on railway trains and premises be discontinued entirely and that paper towels and cups be substituted.

Patriotic and Relief Societies' Shipments.—On account of hostilities having ceased, a question has been raised as to whether the railways should continue to handle, free of charge, goods shipped on account of the several patriotic and relief societies enumerated in circular 67 of May 1, 1918. As the work of the several bodies in question continues, the Board recommends that the present arrangement remain in effect until April 1, 1919, when the matter will be presented for further consideration.

Return of Canadian Cars from the

United States.—Arrangements having been made with the U.S. Railroad Administration, whereby cars of Canadian ownership forwarded to the U.S. will be returned promptly to Canada, instead of being placed in "pool" service in U.S. lines, instructions embodied in the board's circular 73, June 25, 1918, and supplement 1, July 18, 1918, are cancelled. Details of revised regulations to govern the interchange of freight cars as between Canada and the U.S., and the handling of cars of each country while on the railways of the other, are being worked out and will be issued in the near future.

Unauthorized Changes in Waybills.—Investigations which have been made indicate that delays, and, at times, misrouting of cars occur as a result of unauthorized changes being made in waybills. With a view of avoiding such defects in the service, it is desired that member lines place in effect and take steps to secure compliance with the following regulation:—"Alterations must not be made in car numbers and initials, nor in names of destinations, on waybills without first obtaining the sanction of superintendent of division, superintendent of car service, or other duly authorized officer, for such alteration. When change is made, name of station at which change is made, initials of officer authorizing, and initials of party making change must be noted on waybill."

Specifications for Railway Mail Cars.

The Board of Railway Commissioners passed general order 259, Jan. 13, as follows:—Re specifications for railway mail cars and the application by the Canadian Railway Mail Service Branch of the Post Office Department, for an order approving the same: Upon hearing the application at Ottawa, Jan. 7, in the presence of counsel for the Canadian Pacific, Grand Trunk, and Canadian Northern Railways, and the Michigan Central and the New York Central Railroads, the Controller of the Canadian Railway Mail Service representing the Post Office Department in person; and upon reading the representations filed on behalf of the department and the railway companies affected; and upon the report and recommendation of the board's Mechanical Expert, concurred in by its Chief Operating Officer, and its appearing that all interests have agreed to the adoption of the specifications filed as amended, it is ordered that the "Specifications for Mail Cars," dated Ottawa, May 22, 1918, submitted by the Canadian Railway Mail Service Branch, as amended and corrected and on file with the board under file 3083, be approved and adopted as the standard to be used by railway companies operating in Canada and within the legislative authority of the Parliament of Canada.

Mount Royal Incline Ry.—The Montreal Trades and Labor Council favors the municipal ownership of this incline railway and urges that the opportunity offered by the company's liquidation be taken advantage of for its purchase. Under the franchise the city has the option of taking it over on a fair value to be fixed by arbitration, and the city commission on Aug. 4, began enquiring into the matter.

Sir Eric Geddes has been appointed Minister without portfolio in the new British cabinet, and not Minister of Transportation as at first reported.

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

Alberta & Great Waterways Ry.—When tracklaying ceased at the end of 1916, steel had been laid to mileage 275, or about 18 miles short of the objective at McMurray. From the end of steel to the bank of the Clearwater River there is a drop of 300 ft. The right of way was graded along the side of the hill to the river's bank during 1917, and has since been allowed to settle. During 1918 there were some slides on the right of way, owing to asphalt beds, but these have been filled in, and in some cases trestle work has been put in. Tracklaying is now reported to be in progress, and it was expected to have rails laid to the river bank early in January. A Y is to be laid at this point for shunting freight cars, so as to permit of loading direct on to river steamboats on the opening of navigation. A press report further states that it is expected to have track laid into McMurray at any early date. The grading, it is reported, does not show any difficulties of construction, and only some small bridges will be required. At McMurray, the Clearwater joins the Athabasca River, on which there is clear navigation for 200 miles to Athabasca Lake, thence through the lake for 175 miles to the Peace River, and via the Slave River, Great Slave Lake and the Mackenzie River to the Arctic Ocean. (Jan., pg. 26.)

Athabasca & Grande Prairie Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway from the junction of the Solomon and Athabasca Rivers, northwesterly to the junction of the Smoky and Muskeg Rivers, thence by Bear Lake in the Grande Prairie district to Dunvegan, Alta. The company also desires to obtain power to operate steam and other vessels on navigable waters reached by its line, and various other powers incidental to the development of trade in the country through which it will pass. Barnard & McKeown, Montreal, solicitors for applicants.

Brunner, Mond, Canada, Limited.—Application is being made to the Ontario Legislature by Brunner, Mond, Canada, Limited, for power to construct and operate a tramway line across the 2nd concession road in Anderdon Tp.; a tramway line from the company's property on the 1st concession of Anderdon Tp. to the Detroit River; and also, subject to the consent of the Michigan Central Rd., to use as part of such tramway certain N.C.R. ways and tracks.

Calgary & Southwestern Ry.—We are officially advised that the directors are: President, P. Burns, Calgary, Alta.; Secretary, W. E. Corlet, Calgary; other directors: W. J. Wilson, Vancouver, B.C.; C. J. Duggan, Calgary; John Burns, Calgary. The company proposes to build a line from Calgary to the coal mining areas owned by P. Burns Coal Mine, Ltd., in Sheep Creek, Alta., about 60 miles southwest of Calgary. The line has been located and it is expected that approval of the location plans will be asked for shortly. In the meantime, the clearing of the right of way has been commenced in order to save the danger of forest fires in the summer. It is expected that grading will be started in the spring. A contract for the building of the line has been let to the Southwestern Construction Co., which is the title of the concern formerly known as the Great West Construction. Both these companies were incorporated

under the Alberta Companies' Act in 1918. The directors are: P. Burns, J. Burns and W. E. Corlet, the first named being President, and the last named Secretary. (Jan., pg. 26.)

Canada & Gulf Terminal Ry.—The Quebec Legislature is being asked to extend the time within which the company may construct the proposed extension of its line at present in operation from Mont Joli to Matane, Que., 59 miles, to Gaspé Basin, 223 miles. The line has been in operation between Mont Joli, on the Intercolonial Ry., and Matane, since 1912.

Central Ry. of Canada.—Application is being made to the Dominion Parliament for an extension of time for the construction of this projected railway from near Grenville, Que., to Montreal, with a branch from St. Andrews to St. Clome, up the Rivière Rouge to Lake Rouge, and also a branch to connect with the Canada Atlantic Ry. at Hawkesbury, Ont. This line was authorized to be built in 1903 by the Ottawa River Ry., the powers of which, after an unfortunate financial career, has been undergoing a dispersion of its assets.

Esquimalt & Nanaimo Ry.—The Dominion Parliament is being asked to authorize the company to build a line from between Port Alberni and Bainbridge, on the existing Parksville Jct.-Alberni line, northwesterly via Great Central Lake and the Ash River valley to Comox Lake, with a branch line from near Sproat Lake, via Sproat Lake and the Taylor River, to Long Beach on the west coast of Vancouver Island, B.C. (June, 1918, pg. 240.)

Grand Trunk Pacific Ry.—In reply to a question in the Saskatchewan Legislature Jan. 8, Hon. C. Dunning said:—"The time for construction lines authorized by guarantee of the province for the Grand Trunk Pacific Saskatchewan Ry. has been extended on application of the company to permit of construction during 1919. The government has no assurance that the lines will be built, the policy of the company being dependent upon whatever policy may be pursued by the Dominion Government respecting railway matters generally." (Jan., pg. 26.)

Hudson Bay Ry.—J. D. McArthur, the general contractor, is reported to have said in Winnipeg recently that he is ready to go on and complete the line from the Kettle Rapids of the Nelson River to Nelson on Hudson Bay, 90 miles, whenever the Dominion Government orders him to do so. He estimates that it would cost about \$1,000,000 to complete the line. Grading has been practically completed, but there is still some bridge work to be done between the Kettle Rapids and Nelson. Track has been laid to the Kettle Rapids. (Jan., pg. 26.)

Kettle Valley Ry.—A press report states that it is expected to have the line from Princeton to the Copper Mountain, B.C., mining area completed by June. It was hoped to have track laid on the first three miles to Allenby early in December, but the influenza epidemic held up the construction of the bridge across the Similkameen River, a mile outside Princeton. It is reported that the bridge construction is now in progress and that the tracklaying will be gone on with as speedily as possible. Considerable progress is reported to have been made with grading between Allenby and Copper Mountain.

(Oct., 1918, pg. 438.)

Lake Huron & Northern Ry.—The Ontario Legislature is being asked to extend the time within which this projected railway from Rock Lake, the northerly terminus of the old Bruce Mines & Algoma Ry., may be built further north, and also to extend the time within which it may place settlers on the land grant voted by the legislature in aid of construction.

The company was voted a grant of 200,000 acres on certain conditions, set out in an act passed by the Ontario Legislature in 1913. The right of way of the old Bruce Mines & Algoma Ry. was cleared up in 1914, and some clearing was done on the right of way for the extension from Rock Lake towards the National Transcontinental Ry. in 1914. During the winter of 1915 some attention was called to the company's affairs owing to its financial advertising, and in April, 1917, a motion was made in the legislature to end the contract, but was withdrawn on the government's assurance that the company's act would expire within a few months and that there need be no worry about any extension of it. The act referred to was assented to May 6, 1913, and the time within which the company could acquire the lands was four years.

A United States press report credits the company with having laid 68 miles of track during 1918, but we have been unable to verify this. (May, 1916, pg. 182.)

London, Ont., Yards.—London press dispatch, Jan. 23:—It is reported that the G.T.R. is about to undertake the reconstruction of London yards, the work to include the removal of the principal shunting area to the extreme east end, where a large territory is available with no street intersections. Plans have been prepared for the laying of 25 miles of tracks. It is said that the virtual abandonment of shunting over Egerton St. crossing, where many fatal accidents have occurred, will be one of the results of the new arrangement.

Magdalen River Ry.—The Quebec Legislature is being asked to authorize the company to change the location of a portion of its projected railway, as follows:—Starting from lot no. 37 of Saint-Maxime-du-Mont Louis for about 4,000 ft., about 2,500 ft. being in the Magdalen River Seignior, but not approaching the east bank of the Magdalen River nearer than 350 ft. The company is authorized to build a line along the Magdalen River valley to Little Falls, thence southerly and westerly to connect with the Atlantic, Quebec and Western Ry., and the Canada and Gulf Terminal Ry. at Gaspé, or any other point on either or both railways, and also has the power, if the railway is built to Gaspé, to build wharves, docks and other deep water terminals. F. Murphy, New Carlisle, Que., and Quebec, is Secretary. (Mar., 1918, pg. 98.)

Pacific Great Eastern Ry.—Speaking at a recent dinner given in his honor at Vancouver, the Premier of British Columbia is reported to have said the P.G.E.R. had been extended 30 miles during 1918, and it was the government's expectation and desire to extend it 130 miles further during 1919. The future of the line would not be assured until connection was made with the lines from the prairie provinces, and this would be obtained through construction into the Peace River country.

In a recent article on the Peace River Valley, the Vancouver World referred to the probable route of the extension of the

P.G.E. Ry. to a junction with the Edmonton, Dunvegan & British Columbia Ry., at a point on the boundary between British Columbia and Alberta, a few miles north of the northeast boundary of the Peace River block. It said:—"There is every probability that, instead of leaving the valley of the Parsnip River, about 100 miles north of Prince George, the new road will follow on down the Parsnip to Finlay Forks, where the two big streams become the Peace, thence down the Peace through wonderfully rich mineral country to a point about 12 miles above the Rocky Mountain Canyon. At this point it would no doubt swing north to the forks of the Halfway River and thence east to the interprovincial boundary, connecting with the E.D. & B.C. Ry."

Quebec & Ungava Ry.—The Quebec Legislature is being asked to incorporate a company with this title to build a line, with such branches as may be necessary, from near Seven Islands in Saguenay County, northerly to Lake Menikek, thence westerly or northwesterly to Manitounuk Sound, or other harbor on the eastern shores of Hudson Bay, Que. Demers & Demers, Que., are solicitors for applicants.

River Rouge Ry.—The Quebec Legislature is being asked to amend this company's act of incorporation, by changing the name in the English version of its charter; to extend the time for construction of the authorized line from Amherst Tp., Labelle County, southerly to the Ottawa River between Montebello and Grenville; to authorize the extension of the projected railway from Arundel or Amherst Townships northerly to a junction with the C.P.R. in Labelle County, and for other purposes. The company was incorporated by the Quebec Legislature Feb. 9, 1918, with A. Orsali, J. R. Meadowcroft, A. H. Ross, D. E. Parker, and A. G. Spencer, Montreal, as provisional directors. The line is projected to open up timber limits in the townships lying between the Ottawa River and the C.P.R., along the Rouge River valley.

St. John & Quebec Ry.—The New Brunswick Government has issued a statement showing the receipts and expenditure on construction account in connection with the St. John & Quebec Ry. for the year ended Oct. 31, 1918. The total receipts were \$491,835.18, made up as follows:—Prudential Trust Co., \$208,177.63; subsidy from Dominion Government, \$278,716.81; interest, \$1,015.63; miscellaneous refunds, \$3,926.11. The construction charges were \$784,558.12, which, with the adverse balance of \$615,675.80 at Oct. 31, 1917, made a total of \$1,400,233.92. The debit balance carried forward to the 1918-1919 account is \$908,397.74.

Western Dominion Ry.—The Dominion Parliament is being asked to extend the time within which the company may build its projected railway from the International Boundary in Range 23, west 4th Meridian, northerly via Cardston and Pincher Creek to Lundbreck, on the C.P.R. Crows Nest line, thence to Calgary and Edmonton, Alta., and Fort St. John, B.C., with a branch from Pincher Creek via the south fork of the Old Man River to the Alberta-British Columbia boundary; and has extended for five years the building of a branch line along the north fork of the Old Man River to the Alberta-British Columbia boundary; a branch line along the Highwood River to the Alberta-British Columbia boundary, and another branch along the south branch of the Sheep River to the Alberta-British Columbia boundary. (Sept., 1917, pg. 356.)

Railway Rolling Stock Orders and Deliveries.

The Canadian National Rys. management, as stated in Canadian Railway and Marine World for January, had then given several orders for rolling stock, had asked for tenders for more and was preparing to ask for further tenders. Orders then placed were as follows:

Canadian Car & Foundry Co., Montreal, 100 colonist cars and 20 baggage cars.

Pullman Co., Chicago, Ill., 50 colonist cars.

The Canadian National Rys. management has since given the following orders:

Canadian Car & Foundry Co., Montreal, 10 baggage cars additional, making 30 in all; 150 refrigerator cars, 500 stock cars and 250 ballast cars.

Eastern Car Co., New Glasgow, N.S., 500 general service (coal) cars and 500 flat cars.

National Steel Car Co., Hamilton, Ont., 759 box cars.

The Canadian National Rys. management is asking tenders for 50 locomotives, 25 Pacifics and 25 switchers.

The Canadian National Rys. orders for rolling stock, placed recently and to be placed in the near future, will amount to about \$20,000,000, and it is possible that a further \$10,000,000 will be expended during the year.

Canadian National Railways have received 306 cars from National Steel Car Co., and 11 Mikado locomotives from Canadian Locomotive Co.

The C.P.R. has ordered 13 steel baggage and express cars and 140 steel ore cars, 50 tons capacity, from its Angus shops, Montreal, and 10 vans from its Winnipeg shops.

The National Steel Car Co. has shipped 306 cars for Canadian National Railways; and 5 coal hopper cars and 40 ore hopper cars, in knocked down shape, for the Bengal-Nagpur Ry. of India.

The C.P.R. received the following additions to rolling stock, between Dec. 19 and Jan. 25:—1 express refrigerator car, 1 steel mail car, 244 steel underframe box cars, 3 baggage and express cars, and 1 decapod locomotive, from its Angus shops, Montreal, and 1 van from its Winnipeg shops.

Canadian Government Railways, during December, received the following additions to rolling stock:—13 coal cars, 50 tons capacity, and 239 flat cars, 40 tons capacity, from Eastern Car Co.; 23 box cars converted to heater cars, from Canadian Car & Foundry Co.; 8 general service tank cars, 8,000 gal. capacity, from Pressed Steel Car Co.; 16 Pacific locomotives from Montreal Locomotive Works, and 13 Mikado locomotives from Canadian Locomotive Co.

The Canadian Northern Ry., during December, received the following additions to rolling stock:—181 steel frame box cars, 40 tons capacity, 6 refrigerator cars, 40 tons capacity, from Canadian Car & Foundry Co.; 99 ballast cars, 50 tons capacity, from Hart-Otis Co.; 96 flat cars, 40 tons capacity, from Eastern Car Co.; 273 steel frame box cars, 40 tons capacity, from National Steel Car Co.; 15 water service tank cars, 8,000 gal. capacity, from Pressed Steel Car Co.; 6 consolidation locomotives from Montreal Locomotive Works.

The 20 baggage cars, which Canadian National Railways have ordered from the Canadian Car & Foundry Co., in addition to the details given in our last issue, will be equipped with drop letterboard,

straight electric lighting with axle equipment, vapor heating system with additional emergency heating stove, 5 Mudge peerless ventilators, etc. There will be two 6 ft. door openings and four 28½ in. windows on each side, and the trucks will be of the 6-wheel cast steel type with clasp brakes. Ten of these cars are to be delivered by June 15, and the balance by July 15.

The 100 colonist cars, which Canadian National Railways have ordered from the Canadian Car & Foundry Co., in addition to the details given in our last issue, will be equipped with drop letterboard, 14 sleeping sections in main body and 4 sleeping sections in smoking room, all with curved front upper berths; kitchen equipped with range, sink and running water from gravity overhead tanks. At the smoking room end there will be a wash room equipped with a 3-bowl washstand; straight electric lighting system with axle equipment; vapor heating system with emergency stove at the men's end; 13 Mudge peerless ventilators. The floors will be covered with composition flooring throughout, and the trucks will be of the 6-wheel cast steel type, with clasp brakes. Fifty of these cars are to be delivered by June 15, and the balance by July 15.

Dominion Government to Spend Immense Amounts.

Speaking on reconstruction at the Winnipeg Board of Trade's dinner, Jan. 21, Hon. Arthur Meighen, Minister of the Interior, stated the Dominion Government expected to spend \$20,000,000 during the fiscal year on public works, a branch of governmental activity that had been pretty well dropped into disuetude during the last four years. Of that \$12,000,000 would be expended in buildings and about \$6,000,000 on rivers and harbors, leaving about \$2,000,000 for minor work such as roads, bridges and monuments. Of the \$12,000,000, some \$7,000,000 would be for repairs and maintenance, leaving \$5,000,000 for new construction; and \$5,000,000 would be expended on the canals.

In regard to the railways, the government felt itself compelled to enter upon an expenditure for improvements and betterment, new construction and equipment, which would not only bring a very considerable amount of business to allied interests all over the Dominion, but would put the railways abreast of conditions before the war. They would have to spend \$30,000,000 in the building and purchase of equipment, including over 4,000 freight cars. About the same amount would be expended in betterments and new construction. The latter would be confined almost wholly to such branches as were already almost constructed; so far as the grading, etc., was concerned. That was to say, there would be absolutely no new ventures. This expenditure was in addition to the expenditure that would be incurred out of the Canadian National Railways earnings.

The Great North Western Telegraph Co. has opened offices at Milneke, Que., Smiths Falls and Thamesville, Ont., and has closed its offices at Beamsville and Brucefield, Ont., and Brooking, Sask.

The Canadian Northern Ex. Co. has opened regular offices at Hodgson, Man., and Prince, Sask. The office at Rosseau, Ont., has been closed.

Mainly About Railway People Throughout Canada.

Canadian Railway and Marine World readers who are returning to civil life from military, naval or other government service are strongly urged to send in items about themselves and about their friends who are in a similar situation. Items should give former position, describe character of military or other service and state the civil work to which the transportation official, etc., in question is going. In the case of those with service abroad, information regarding the activities of the units to which they were assigned is especially desired.

E. W. Beatty, President C.P.R., was the principal speaker at the Sunday Meeting Association, Montreal, Jan. 12. The association is composed largely of railway men, who meet weekly on Sunday evenings to hear addresses on public matters. Mr. Beatty discussed the question of the nationalization of railways from the viewpoint mainly that it is one in which all the citizens of Canada are concerned.

E. W. Beatty, President C.P.R., addressed the employed boys of the evening educational classes at the Y.M.C.A., Montreal, Jan. 9. In the course of his address he related a number of his school-boy experiences.

E. W. Beatty, President, C.P.R., has been elected an honorary vice president of the Albatross Club, Montreal, an organization of men associated with the Royal Air Force.

George McLaren Brown, European Manager, C.P.R. London, Eng., has been made a Knight Commander of the Order of the British Empire, for services during the war. He has been actively associated with many matters concerning transportation, especially those connected with overseas traffic, from the commencement of the war, and has been of considerable service to the authorities. For the past three years he has acted as Assistant Director General of Railway Operations. He was born at Hamilton, Ont., Jan. 29, 1865, and entered railway service in 1882, since when he has been, to 1885, in Freight Department, Northern & Northwestern Ry.; 1885 to 1887, in Superintendent's office and other departments, G.T.R.; Sept., 1887, to 1902, ticket agent, District Passenger Agent and Executive Agent, successively, G.T.R., Vancouver, B.C.; July, 1902, to Nov., 1905, Superintendent, Dining, Sleeping and Parlor Cars and News Service C.P.R., Montreal; Nov., 1905, to Dec., 1908, General Passenger Agent, Atlantic Steamship Lines, C.P.R., Montreal; Dec., 1908, to Jan., 1910, General Traffic Agent, C.P.R., London, Eng.; and from the latter date, European Manager, C.P.R., London, Eng.

J. R. Cameron, Assistant General Manager, Western Lines, Canadian Northern Ry., Winnipeg, whose jurisdiction has been extended over all Canadian Government Railways west of O'Brien, Que., was born at Truro, N.S., Nov. 5, 1865, and entered railway service, May, 1882, since when he has been, to Apr., 1883, brakeman and baggage man, C.P.R., Winnipeg; Apr., 1883, to Mar., 1886, conductor, C.P.R., Winnipeg; Apr., 1886, to Apr., 1887, conductor, Manitoba and North Western Ry., Winnipeg; Apr., 1887, to Oct., 1898, conductor, Northern Pacific Ry. in Montana; Oct., 1898, to June, 1901, Trainmaster, Northern Pacific Ry., Grand Forks, B.C., with jurisdiction over the company's lines in Manitoba; June, 1901,

to Aug., 1904, conductor, Canadian Northern Ry., Winnipeg; Aug., 1904, to Dec., 1905, Superintendent, Canadian Northern Ry., Kamsack, Sask.; Dec., 1905, to Jan., 1908, Superintendent, District 1, Canadian Northern Ry., Port Arthur, Ont.; Jan., 1908, to Nov., 1911, General Superintendent, Canadian Northern Ry., Winnipeg; and since the last mentioned date, Assistant General Manager, Western Lines, Canadian Northern Ry.

A. W. Campbell, Deputy Minister of Railways and Canals, who was granted leave of absence in June, 1918, for a year, pending his retirement from that position, has been appointed by the Dominion Government to investigate the question of improved highways in Canada. This matter will come under the Reconstruction and Development Committee, which reported recently that the problem of transportation necessarily begins at the farm



Sir George McLaren Brown,
European General Manager, Canadian Pacific Railway.

or other point of production, and involves the consideration of improved highways, which, it is considered, should be taken up in consultation with the various provincial governments. It was also considered that the duty of investigating the matter should be placed in the hands of one with experience and knowledge of transportation problems in general, and of highways in particular. Mr. Campbell was born at Wardville, Ont., in 1863, was appointed City Engineer, St. Thomas, Ont., in 1891, and was, for some years, one of the editors of the Municipal World. From 1896 to 1902, he was Ontario Commissioner for Highways, and in the latter year was appointed Deputy Minister of Public Works for Ontario, and for a time was Supervising Engineer, Timiskaming & Northern Ontario Ry. He was appointed Deputy Minister of Railways and Canals for the Dominion in Jan., 1910, retiring from that position in June, 1918, with leave of absence for a year.

Thos. Cantley, Chairman of the Board,

Nova Scotia Steel & Coal Co., and one of the Canadian National Rys. directors, has left New Glasgow on a business trip to Great Britain.

E. J. Chamberlin, formerly President, G.T.R. and Grand Trunk Pacific Ry., is spending the winter in California.

A. F. Chapman, a conductor on the C.P.R. Montreal-Ottawa trains, has retired under the pension rules after 30 years service. On behalf of the company, A. D. MacTier, Vice President, Eastern Lines, presented him with a watch and an annual pass over the system for himself and wife, on Jan. 9. E. W. Beatty, President, wrote him a letter stating that for the past 30 years he had occupied the position of conductor in a manner which reflected credit on himself and the road.

B. T. Chappell, who has been appointed General Superintendent, Prairie District, Canadian National Railways, Saskatoon, Sask., was born at Charlottetown, P.E.I., May 1, 1878, and entered railway service in Sept., 1895, since when he has been, to 1897, clerk in Freight Department, Northern Pacific Ry., Winnipeg; 1897 to 1901, in train service, same road; 1901, on the taking over of the Northern Pacific lines in Manitoba by the Canadian Northern Ry., to 1903, in train service, C.N.R.; 1903 to 1905, Yardmaster, same road, Port Arthur, Ont.; 1905 to 1907, Trainmaster, District 1, Western Division, same road; 1907 to Jan. 1, 1913, Trainmaster, District 4, Western Division, same road; Jan. 1, 1913, to Nov. 22, 1915, Superintendent, District 2, Western Division, same road, Saskatoon, Sask.; Nov. 22, 1915, to Dec. 30, 1918, Superintendent, Pacific Division, same road, Vancouver, B.C.

H. R. Charlton, General Advertising Agent, G.T.R., has been awarded a gold medal, by the Canadian National Exhibition's awards committee, for the excellence of the G.T.R. exhibit at the exhibition in Toronto in 1917.

Frank Clark, whose appointment as Locomotive Foreman, Grand Trunk Pacific Ry., Melville, Sask., was announced in our last issue, was born at Cowes, Isle of Wight, England, Mar. 20, 1884, and entered railway service in Mar., 1898, since when he has been, to Mar., 1905, apprentice and fitter, Isle of Wight Central Ry., Newport, I.O.W.; Mar., 1905, to Nov., 1906, Locomotive Inspector, London & South Western Ry., Guildford, Eng.; Nov., 1906, to Mar., 1907, fitter, C.P.R., Chislehurst, Ont.; Mar., 1907, to Feb., 1911, machinist, Canadian Northern Ry., Edmonton, Alta., and Dauphin, Man.; Feb., 1911, to Jan., 1913, assistant foreman, same road, Dauphin, Man.; Jan., 1913, to Jan., 1914, Locomotive Foreman, same road, Radville, Sask.; Feb., 1914, to Apr., 1918, Locomotive Foreman, same road, Calgary, Alta.; May to Oct., 1918, machinist, C.P.R., Calgary, Alta.; Oct. to Nov., 1918, Shop Foreman, Grand Trunk Pacific Ry., Regina, Sask.

Lieut. O. D. Cochrane, youngest son of Hon. Frank Cochrane, formerly Minister of Railways and Canals, died at Ottawa, Jan. 23, from an illness resulting from an injury received in England last year, when on active service. The funeral, which took place at Toronto, Jan. 25, was attended by Hon. J. D. Reid, Minister of Railways and Canals; D. B. Hanna, President, Canadian National Railways; M. H. MacLeod, Vice President, Canadian National Railways, and many other railway officials.

A. E. Cox, who has been appointed General Storekeeper, Western Lines, Canadian National Railways, Winnipeg, was born at Huddersfield, Eng., Mar. 12, 1863, and entered railway service in 1883, since when he has been, 1883 to 1887, timekeeper on Western Division, C.P.R., Moose Jaw, Sask., and other points; Mar., 1887, to Mar., 1893, chief clerk, Stores Department, Manitoba & Northwestern Ry.; Mar., 1893, to May, 1900, when the M. & N.W. Ry. was absorbed by the C.P.R., storekeeper; July, 1900, to Jan., 1902, Assistant to Superintendent of Construction, Ontario and Rainy River section, Canadian Northern Ry.; Jan., 1902, to Jan., 1903, chief clerk, Stores Department, same road, Winnipeg; Jan., 1903, to Oct., 1912, Storekeeper, same road, Winnipeg; Oct., 1912, to Jan., 1919, General Storekeeper, Western Lines, same road, Winnipeg.

R. Creelman, who has been appointed Assistant Passenger Traffic Manager, Canadian National Railways, Winnipeg, entered railway service Sept., 1891, since when he has been, to 1893, messenger, City Freight Agent's office, G.T.R., Toronto; 1893 to 1897, ticket clerk, G.T.R. city office, Toronto; 1897 to 1900, chief clerk, District Passenger Agent's office, G.T.R., Toronto; Jan. 1, 1900, to Aug., 1901, in General Passenger Agent's office, C.P.R., Winnipeg; Aug., 1901, to Sept. 1, 1903, in Passenger Traffic Department, Canadian Northern Ry., Winnipeg; Sept. 1, 1903, to July 1, 1906, City Ticket Agent, Northern Pacific Ry., Winnipeg; July 1, 1906, to July 1, 1909, Travelling Passenger Agent, Canadian Northern Ry., St. Paul, Minn.; July 1 to Oct., 1909, Commercial Agent, Canadian Northern Ry., St. Paul, Minn.; Oct., 1909, to Mar. 1, 1911, Assistant General Passenger Agent, Canadian Northern Ry., Winnipeg; Mar. 1, 1911, to Dec. 31, 1918, General Passenger Agent, Western Lines, Canadian Northern Ry., Winnipeg.

Waldo B. Cronk, Vice President and General Manager, Carquet & Gulf Shore Ry., and Vice President and Manager, Kent Northern Ry., Bathurst, N.B. died at the home of his son, E. P. Cronk, who is in Canadian National Rys. service at Toronto, Jan. 27. He was born at Footville, Wis., Nov. 11, 1862, and entered railway service in Jan., 1878, since when he was, to 1898, consecutively, operator, agent, dispatcher and chief clerk to Superintendent, Chicago & Northwestern Ry.; 1898 to 1900, dispatcher, Chicago, St. Paul, Minneapolis & Omaha Ry.; 1900 to 1902, chief clerk to General Superintendent and Divisional Dispatcher, Baltimore & Ohio Rd.; 1902 to 1903, chief clerk to General Superintendent, Chicago, Rock Island & Pacific Ry.; 1903 to 1906, in private business; 1906 to 1911, consecutively, dispatcher, Assistant Superintendent and Superintendent, C.P.R.; 1911 to Sept. 1, 1912, Superintendent, Grand Trunk Pacific Ry.; Sept. 1 to Nov., 1912, Superintendent of Transportation, National Transcontinental Ry., Winnipeg; Nov., 1912, to May, 1913, General Superintendent, N.T.R. He was subsequently appointed Vice President and General Manager, Carquet & Gulf Shore Ry., and Vice President and Manager, Kent Northern Ry., Bathurst, N.B.

J. E. Dalrymple, Vice President, in charge of traffic, G.T.R., who celebrated his 50th birthday, Jan. 1, completed at the same time 35½ years service with the company.

K. J. Dunstan, Manager, Ontario Division, Bell Telephone Co., Toronto, has been elected President of the Toronto

Board of Trade.

J. E. Duval, who has been appointed General Superintendent of Car Service, G.T.R., Montreal, entered transportation service in Nov., 1884, as agent and operator, Canada Atlantic Ry., now part of the G.T.R., at Coteau Landing, Que., and from May, 1885, to 1902, was train dispatcher; 1902 to 1904, Chief Inspector, Board of Railway Commissioners; and in 1906 he organized the Canadian Car Service Bureau, of which he was appointed Manager, holding that position until Aug. 1, 1913, when he was appointed General Superintendent of Car Service, G.T.R., and in Feb., 1917, General Superintendent of Transportation, G.T.R., Montreal.

Anthony C. Egan, who has been appointed Assistant Comptroller, Canadian



G. E. Smart,
General Master Car Builder, Canadian National Railways.

Northern Ry., Toronto, was born at Winnipeg, Oct. 6, 1883, and entered railway service in 1901, since when he has been, to 1904, accountant, C.P.R., Winnipeg; 1904 to 1909, in accounting department, Canadian Northern Ry., Winnipeg; 1909 to 1911, Chief Travelling Auditor, same road, Winnipeg; 1911 to Dec., 31, 1918, Auditor of Agencies, Western Lines, same road, Winnipeg; Jan. 1 to Jan. 13, 1919, Auditor of Agencies, same road, Toronto.

J. W. Farrell, Superintendent, G.T.R. Lines in New England, under the U.S. Railroad Administration, Island Pond, Vt. has been granted leave of absence.

Paul Hazelton Fox, whose appointment as Assistant Superintendent, Ottawa Division, Canadian National Rys., Trenton, Ont., was announced in our last issue, was born at Medicine Hat, Alta., May 6, 1888, and entered railway service Nov. 1, 1904, since when he has been, to Mar. 1, 1905, car checker, C.P.R., West St. John, N.B.; Mar. 1, 1905, to May 1, 1906, fireman and yardman, C.P.R., West St. John, N.B.; May 1, 1906, to Jan. 10, 1907, telegraph operator, C.P.R., West St. John, N.B.; Jan. 10, 1907, to July 6, 1908, agent and operator, Canadian Northern Ry.,

Rosedale, Ont.; July 6 to Aug. 1, 1913, track dispatcher, same road, Toronto; Aug. 1, 1913, to Dec. 26, 1914, Chief Dispatcher, same road, Rosedale, Ont.; Dec. 26, 1914, to Sept. 1, 1915, Chief Dispatcher, same road, Trenton, Ont.; Sept. 1 to Nov. 28, 1918, Chief Dispatcher, same road, Rosedale, Ont.; Nov. 28, 1915, to May 1, 1917, Chief Dispatcher, same road, Capreol, Ont.; May 1, 1917, to Dec. 23, 1918, Chief Dispatcher, same road, Rosedale, Ont.

Alan Travers Fraser, whose appointment as Chief Engineer, Western Lines, Canadian National Railways, Winnipeg, was announced in our last issue, was born at Pembroke, Ont., Jan. 13, 1872, and entered railway service in July, 1892, since when he has been, to 1893, chainman, Gatineau Valley Ry., Wakefield, Que.; 1893 to 1895, chainman, rodman and leveller, C.P.R., and Lake Timiskaming Ry., Mattawa, Ont.; 1895 to 1896, timekeeper, Ottawa-Montreal Short Line, Van-kleek Hill, Ont.; 1897 to 1900, transitman and Resident Engineer, Crows Nest Pass Ry., Fort McLeod; 1900 to 1901, Assistant Engineer, Pipestone extension and surveys on other branches, C.P.R., Winnipeg; 1901 to 1903, Resident Engineer, Ontario & Rainy River Ry., Port Arthur, Ont.; 1903 to 1905, Locating and Division Engineer, Canadian Northern Ry., Winnipeg; 1905 to 1910, mining and prospecting in Northern Ontario; 1910 to 1911, Locating and Division Engineer, Canadian Northern Ry., Edmonton, Alta.; 1911 to 1915, District Engineer, location and construction of main line and branches in Alberta, same road, Edmonton; 1915 to Dec., 1918, District Engineer, Western District, same road, Edmonton. On leaving Edmonton recently to take up his new duties at Winnipeg, he was presented with a club bag by the local staff.

Frank J. Gascoigne, who has been appointed Assistant Auditor of passenger receipts, Canadian Northern Ry., Toronto, was born at Brockville, Ont., Nov. 5, 1871, and entered railway service in Feb., 1896, since when he has been, to Feb., 1904, clerk in passenger audit office, G.T.R., Montreal; Feb., 1904, to Nov. 22, 1918, chief clerk, Passenger Audit Department, Canadian Northern Ry., Winnipeg.

Richard Selby Gossett, Auditor of Disbursements, Canadian Northern Ry., Toronto, was born there, Sept. 28, 1879, and entered transportation service in Jan., 1893, since when he has been, to 1899, stenographer to President, Toronto Ry.; 1899 to June, 1901, secretary, Construction Department, Mackenzie, Mann & Co., Ltd., Winnipeg; June, 1901, to Dec., 1902, secretary to General Superintendent, Canadian Northern Ry., Winnipeg; Dec., 1902, to 1904, secretary to Third Vice President, same road, Toronto; 1904 to 1907, in charge of disbursements, same road, Toronto; 1907 to 1910, accountant same road, Toronto; and from 1910, Auditor of Disbursements, same road, Toronto.

W. H. Grant, General Tie and Limber Agent, and acting General Storekeeper, Eastern Lines, Canadian Northern Ry., left Toronto Jan. 6 for Prince Rupert, B.C., to arrange the affairs of his brother, Robt. A. Grant, Manager for the P. Burns Co. there, who died suddenly Jan. 1, after having been in that company's service for some 20 years.

"D. B. Hanna, Esq., K.C., Chairman, Canadian National Railways," is the way the St. John, N.B., Board of Trade addressed a memorial recently.

C. A. Hayes, Vice President, Traffic, Canadian National Railways, and Mrs.

Hayes, who removed from Moncton, N.B., to Toronto recently, are living at the King Edward Hotel for the winter.

George Sherwood Hodgins, Editor, Railway and Locomotive Engineering, New York, died there, Jan. 19, of pneumonia, aged 59. He was born at Toronto and educated at Upper Canada College and the School of Practical Science, there. He began work with the Canadian Locomotive Co., Kingston, Ont., in 1881, passing through various grades to chief draftsman. He entered railway service in 1884 in the Master Mechanic's office, Ontario and Quebec Division, C.P.R., Toronto, and in 1886 was transferred to the Pacific Division as Locomotive Foreman at Vancouver, B.C., returning to the Ontario and Quebec Division in 1890. From 1898 to 1900 he was Locomotive Inspector for the C.P.R. system, and superintended the construction of locomotives and cars which were built for the company in the U.S. He also tested locomotive performance on the road over the various divisions and did other mechanical engineering work for the company. In 1900 he re-entered Canadian Locomotive Co.'s service as Mechanical Engineer, subsequently going into technical journalism in New York, and relinquishing that in 1910, after which he spent a short time abroad. In 1912 he was appointed consulting Mechanical Engineer, National Transcontinental Ry., Ottawa, Ont., to make a special report concerning the shops and equipment of the various roundhouses, terminal shops, etc., either built or under construction on the line. On the conclusion of this work he returned to technical journalism in New York.

James Houston, who died at London, Ont., Dec. 20, was formerly District Freight Agent, C.P.R., there, and retired from active service about two years ago, removing to Glendale, Ont.

H. G. Kelley, President, G.T.R. and Grand Trunk Pacific Ry., Montreal, has been elected a director of the Royal Trust Co., in succession to E. J. Chamberlin, who has retired owing to his prolonged absence from Canada.

W. Kennedy, who has been appointed General Mechanical Inspector, G.T.R., Montreal, was born at Belleville, Ont., Dec. 23, 1869, and entered G.T.R. service in 1883, his record being: 1883 to 1886, apprentice, Belleville shops; 1886 to 1891, apprentice and journeyman, Point St. Charles shops, Montreal; 1891 to Sept., 1897, in charge of waterworks between Montreal and Toronto, under Master Mechanic, with headquarters at Belleville; Sept., 1897, to June, 1901, locomotive foreman, Sarnia tunnel; June, 1901, to Nov., 1907, Master Mechanic, Middle and Southern Divisions, Toronto. In Nov., 1907, he was appointed Superintendent of Motive Power, Central Vermont Ry., St. Albans, Vt., and in Jan., 1908, Superintendent of Motive Power and Car Department. He left that company's service in 1908, and was engaged in private business subsequently.

Lt.-Col. R. W. Leonard, St. Catharines, Ont., a former National Transcontinental Ry. Commissioner, has been elected President, Engineering Institute of Canada. He is a graduate of the Royal Military College, Kingston, Ont., and Lt.-Col. of the Corps of Guides, Military District 2.

A. McCowan, who has been appointed Master Car Builder, Western Lines, Canadian National Railways, Winnipeg, was born at Perth, Scotland, Dec. 5, 1868, and entered railway service in May, 1888,

since when he has been, to Mar., 1890, carpenter, C.P.R.; Mar., 1890, to 1897, charge hand, C.P.R.; 1897 to 1903, foreman, C.P.R., Farnham, Que.; 1903 to Apr., 1910, foreman, C.P.R., Cranbrook, B.C.; Apr., 1910, to Sept., 1915, General Car Foreman, Canadian Northern Ry., Winnipeg; Oct., 1915, to Dec. 27, 1918, Supervisor of Car Work, Western Lines, Canadian Northern Ry., Winnipeg.

A. B. McNaughton, whose appointment as Superintendent, G.T.R. Lines in New England, under the U.S. Railroad Administration, at Island Pond, Vt., was announced in our last issue, was born at Arnprior, Ont., Nov. 10, 1877, and entered transportation service in 1893 in the telegraph department, Canada Atlantic Ry., and was, from 1894 to 1907, brakeman and freight and passenger conductor, same road; Nov. 1, 1907, to Dec. 3, 1918, General Yardmaster, G.T.R., Ottawa, Ont.

M. H. MacLeod, Vice President, Operation, Construction and Maintenance, Canadian National Rys., who removed from Winnipeg to Toronto recently, has taken an apartment at the Alexandra Palace, University Ave.

Reginald Egerton Perry, who has been appointed Assistant General Freight Agent, Canadian National Railways, east of Fort William and Armstrong, Ont., at Montreal, was born at Drayton, Ont., July 5, 1876, and entered railway service, Oct. 2, 1891, since when he has been, to Feb. 28, 1898, clerk, General Freight Department, C.P.R., Toronto; Mar. 1, 1898, to June 30, 1907, clerk, General Freight Department, Intercolonial Ry., Montreal; July 1, 1907, to July 31, 1909, Chief of Tariff Bureau, I.R.C., Montreal; Aug. 1, 1909, to Feb. 1, 1914, Assistant General Freight Agent, I.R.C., Montreal; Feb. 2, 1914, to Jan. 9, 1919, Assistant General Freight Agent, Intercolonial and Prince Edward Island Rys. (Canadian Government Railways), Moncton, N.B.

Claude W. Price, station agent, Canadian National Railways, Moncton, N.B., died there, Jan. 15, after a few days illness from pleuro-pneumonia. He was born at Petitcodiac, N.B., July 26, 1867, and entered Intercolonial Ry. service in 1883, as telegraph operator.

John Raper, who died at Ottawa, Ont., Jan. 17, aged 82, was formerly in C.P.R. service as an accountant, and retired from active service about 20 years ago.

Herbert Gates Reid, who has been appointed General Master Mechanic, Western Lines, Canadian National Railways, Winnipeg, Man., was born at Pembroke, Ont., Oct. 27, 1863, and entered railway service in Mar., 1884, since when he has been, to Nov., 1884, wiper, C.P.R., North Bay, Ont.; Nov., 1884, to Nov., 1887, fireman, C.P.R., North Bay, Ont.; Nov., 1887, to Dec., 1905, locomotive man, C.P.R., North Bay, Ont.; Dec., 1905, to June, 1906, relieving Road Foreman of Locomotives, C.P.R., North Bay, Ont.; June, 1906, to Feb., 1907, locomotive man, C.P.R., North Bay, Ont.; Feb. to April, 1907, Locomotive Foreman, C.P.R., Chapleau, Ont.; Sept., 1907, to Oct., 1908, District Master Mechanic, District 1, Lake Superior Division, C.P.R., North Bay, Ont.; Oct., 1908, to April, 1915, Master Mechanic, Lake Superior Division, C.P.R., North Bay, Ont.; April, 1915, to May, 1916, Master Mechanic, Saskatchewan Division, C.P.R., Moose Jaw; May to Sept. 30, 1916, Master Mechanic, District 3, National Transcontinental Ry., Transcona, Man.; Sept. 30, 1916, to Jan. 6, 1919, Assistant Superintendent of Rolling Stock, Canadian Government Railways, Transcona, Man.

Willie Frank Sawyer, whose appointment as Assistant Superintendent, Division 5, Quebec District, Canadian National Rys., Edmundston, N.B., was announced in our last issue, was born at Drummondville, Que., June 13, 1883, and entered Canadian Government railway service in Mar., 1899, since when he has been, to Jan., 1900, station porter, Intercolonial Ry., Drummondville, Que.; Jan., 1900, to July, 1901, relieving agent, Drummondville Division; July, 1901, to July, 1907, night operator, Bagot, Que.; July, 1907, to June, 1916, day operator and assistant agent, Montmagny, Que.; June, 1916, to Dec. 31, 1918, agent, Levis, Que.

Mrs. W. Harold Sim, daughter of Jas. Black, Claim Agent, British Columbia District, C.P.R., died at Vancouver recently, from influenza.

Angus Sinclair, proprietor, Railway and Locomotive Engineering, New York, N.Y., died Jan. 1, aged 77. He was for several years Treasurer of the American Railway Master Mechanics' Association.

A. W. Smithers, Chairman of the Board, G.T.R. and Grand Trunk Pacific Ry., London, Eng., has been elected a member of the British Parliament for the Chislehurst division of Kent County, as a coalition-unionist.

Geo. Stephen, Freight Traffic Manager, Canadian National Rys., who removed from Winnipeg to Toronto recently, on his promotion to his new position, has taken an apartment at the Alexandra Palace, University Ave.

J. G. Sullivan, formerly Chief Engineer, Western Lines, C.P.R., has been appointed chairman of the Manitoba Drainage Commission, which has been created by the Manitoba Government, to investigate the question of drainage throughout the province and assessment therefor.

I. G. Trudel, Storekeeper, C.P.R., Moose Jaw, Sask., was entertained to dinner by his associates, Jan. 7, on leaving for Vancouver, B.C., where he has been transferred in a similar capacity.

Walter V. Turner, Manager, Air Brake Department, Westinghouse Air Brake Co., Pittsburg, Pa., died there Jan. 9.

Thomas Turnbull, who has been appointed Engineer, Maintenance of Way, Western Lines, Canadian National Railways, Winnipeg, was, from 1881 to 1889, transitman on location and Resident Engineer on construction on various parts of the C.P.R.; 1889 to 1891, with Newfoundland Government, in charge of location party and construction work on Halls Bay railway; 1891 to 1897, Assistant Engineer Maintenance and Construction, Western Division, C.P.R.; 1897 to 1900, Chief Engineer, west of Winnipeg, Canadian Northern Ry.; 1900 to 1901, on contract work bridging on C.N.R.; 1901 to 1902, reconnaissance work for Dominion Government; 1902 to 1904, inspecting surveyor for Dominion Government; 1904 to 1910, Assistant Chief Engineer, C.N.R.; 1910 to 1912, Assistant Chief Engineer, Hudson Bay Railway; 1912 to 1913, Chief Engineer, Hudson Bay Railway; 1912 to 1913, Chief Engineer, Edmonton, Dunvegan & British Columbia Ry.; 1913 to Jan. 6, 1919, Assistant Chief Engineer, Canadian Northern Ry., Winnipeg.

W. A. Whyte, District Freight Agent, Canadian National Railways, Regina, Sask., was presented with a travelling bag, and a cut glass set for Mrs. Whyte, by the local staff on Jan. 4, on his removal to Calgary, Alta., in a similar capacity.

Canadian National Railways Construction, Betterments, Etc.

Equipment, Betterments, Extensions, etc.—Practically ever since the Canadian National Rys.' management was appointed recently, the directors and heads of departments have been busily engaged on the programme for the year's work, and it is said that it has been submitted to the Dominion Government in the following form:—

A list of the rolling stock required to place the Canadian Northern, Intercolonial and National Transcontinental Rys. in first class condition. This largely consists of passenger and freight cars and some locomotives.

Betterments to existing lines, such as grading, new culverts, bridges, etc.

The construction and completion of certain branch lines in the west.

The completion of terminals at Montreal, Toronto, St. John, Vancouver and other points.

These works have been classified into three parts:

1. Those which are absolutely necessary and must be proceeded with this year.

2. Those which are necessary, but could be postponed if it felt cost of construction is too high at present.

3. Works not immediately necessary, but which could be started if needed to give employment.

It is said that the government has consented, subject to parliament's approval, to an expenditure of about \$50,000,000, and possibly \$60,000,000, this year. Of this, \$20,000,000 will be required for rolling stock already ordered, and about to be ordered, and the expenditure under this head may be increased to \$30,000,000. Betterments, extensions of lines, etc., will probably require about \$20,000,000. In addition to betterments to be carried over the whole system, some partially constructed lines in the west will probably be completed, and there will also probably be some new lines built, both in the east and in the west.

Halifax, N.S., Temporary Station.—The temporary station at the ocean terminals was opened for public use at the end of Dec., 1918. The North St. station has been handed over to the military authorities for making up military trains.

York & Carleton Ry. Extension.—The Stanley, N.B., Board of Trade has invited the Fredericton Board of Trade to cooperate in asking the Dominion Government to extend the Y. & C. Ry. from Stanley to a junction with the National Transcontinental Ry. at Nappadogan. It is claimed that this would give a shorter and better connection between St. John and the N. T. Ry. than that proposed recently via McGivney Jct.

Intercolonial Ry. Second Track.—It is probable that the building of some short stretches of second track between Halifax and Moncton will be considered in the near future.

National Transcontinental Ry., St. Malo Shops, Quebec.—The question of equipping and operating these shops is under consideration, and F. Knight is preparing a report, under the direction of W. S. Appleton, Mechanical Superintendent, Eastern Lines, Moncton, N.B.

Levis Station.—The question of the accommodation at the Levis, Que., station is being raised, and on Jan. 10, it was suggested that the Levis public health authorities should intervene. The present buildings are declared to be not only "most disreputable in appearance," but

inadequate in accommodation and "unhealthy and dangerous." (Jan., pg. 28.)

St. Malo, Quebec, Shops.—In connection with the recent discussion as to the opening of the National Transcontinental Ry. St. Malo car shops, the Quebec City Council has passed a resolution consenting to the leasing of the shops to the Canada Car & General Machinery Co., on condition that at least 1,500 men be employed, and that all construction and repair work for the rolling stock on the eastern section of the N.T.R. be done in the shops. Subsequently the mayor telegraphed D. B. Hanna, President Canadian National Railways, Toronto, asking what it was proposed to do with the shops, to which Mr. Hanna replied: "It is our intention to equip and operate the St. Malo shops ourselves at an early date."

St. Charles River Bridge.—Work on the superstructure of the new St. Anne bridge across the St. Charles River, Quebec, was reported to have been started Jan. 2. One half of the superstructure is being put in at present, and it is said that as soon as this is completed the Quebec & Lake St. John Ry. and the Canadian Northern Ry. trains will be diverted from the old bridge to the section of the new bridge; that the old bridge will then be demolished and the second section of the new bridge built. The work is being done by the Dominion Bridge Co., Montreal, under contract with the Dominion Public Works Department, as part of the work for the improvement of the St. Charles River.

Branch to Perth, Lanark and Arnprior.—A deputation of residents of Lanark County, Ont., waited on J. A. Stewart, M.P., at Perth, Jan. 6, to enlist his support for a projected branch of the Canadian Northern Ry. through Perth and Lanark to Arnprior. The project is claimed to have been approved by Sir William Mackenzie in 1914, and the people are desirous that the line should be built now that the Dominion Government has acquired the C.N.R. The starting point of the proposed branch would be at Perth Road, mileage 176 from Toronto, and the route would be through the center of Lanark County, opening up, it is claimed, a country with large lumber and mineral resources, and a large area of gravel deposits for railway ballasting, etc.

Little Madawaska River Bridge.—We are officially advised that the contract for the construction of the abutments for the bridge over the Little Madawaska River, mileage 147.4, Pembroke Subdivision, Canadian Northern Ry., has been let to the Hyland Construction Co., Toronto. The steel superstructure is to be supplied from another point on the Canadian Government Railways.

Toronto-Niagara Falls Line.—In connection with the reports current to the effect that the Canadian National Rys. will at an early date start construction on a line from Toronto to Niagara Falls, it may be mentioned that the Canadian Northern Ry., within recent years, secured right of way from Toronto to beyond Hamilton, and also bought considerable property in Hamilton for terminal purposes, etc., the total expenditure being about \$1,750,000. It would appear to be reasonable to assume that the new management of the amalgamated lines will seek to make use of this property.

Saskatchewan Branch Line Construction.—Replying to a question in the Saskatchewan Legislature, Jan. 8, as to the

probability of the resumption of construction upon branch lines in the province for which the legislature had authorized the government to guarantee bonds, Hon. C. Dunning said:—"Since the Canadian Northern Ry. passed under the control of the Dominion Government no application has been made for an extension of the lines guaranteed by the province. Hence provincial government guarantees with respect to the C.N.R. have lapsed."

Moose Jaw Union Station.—A press report, referring to the projected union station in Moose Jaw, Sask., to be built by the C.N.R., says it will be on Stadacona St. E., between Third and Fourth Avenues. This would necessitate the closing up of Stadacona St., and the construction of subways on Fairford and Athabasca Sts. The plans for the station are reported to have been completed. A temporary station building is reported to be being built on Athabasca St., at the corner of Fourth Ave. and Caribou St. Temporary freight shed accommodation is being provided, and some miles of yard trackage is being laid. The permanent freight accommodation will consist of two large sheds. A later press report of Jan. 11, stated that considerable progress had been made with the erection of the temporary station building, and that the temporary platform had been laid.

Calgary Union Station.—Discussion has been revived in Calgary, Alta., with respect to the building of a union station with the Grand Trunk Pacific Ry. there. The site suggested is on C.N.R. property in the neighborhood of Seventeenth Ave. and First St. West.

Oliver-St. Paul de Metis Line.—A press report states that work is in progress on the Canadian Northern St. Paul de Metis line, from Radway Center, at the crossing of Sucker Creek, mileage 44 from Oliver, Alta., easterly, preparing for tracklaying on the remaining 56 miles of grading completed in 1917. This 100 miles would bring the line to Vilette post office, Sec. 20, Tp. 59, Range 13, west of 4th Meridian. The objective of this branch is the boundary between Alberta and Saskatchewan, about 90 miles southeasterly from Vilette, there to connect with a branch form Battleford, of which 56 miles, from North Battleford to Turtleford, are already in operation. It is claimed that the whole area through which the line will run in Alberta is well settled, and steps are reported to have been taken to press the Dominion and Provincial Governments to have the construction of the line carried on.

Kamloops-Vernon Branch.—We are officially advised that the bridge across the Thompson River at Kamloops, B.C., has been built, but that some right of way has to be acquired, and grading completed into Kamloops. It is expected that this work will be completed during this year.

Several delegations from the Okanagan district waited on the British Columbia Government recently to urge the construction of the projected line from Kamloops via Vernon to Kelowna, and it was arranged subsequently to send a deputation to Ottawa to interview the Minister of Railways. A press report from Vernon, Jan. 10, stated that the idea of sending a deputation had been abandoned. D. B. Hanna, President Canadian National Railways, having advised the local authorities that construction on the line and the spur to Lumby would be gone on with this year. (Jan., pg. 15.)

Electric Railway Department

Increases in Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry.—Following the granting of higher commutation fares on the company's Burnaby Lake line by the Board of Railway Commissioners, the company applied for similar increases on the Central Park line. This line being under the B.C. Government's jurisdiction, application was made to the Provincial Premier, in his capacity of Minister of Railways. The municipalities of Burnaby and South Vancouver opposed the application. The result was a refusal to permit the increase, but it was referred to the proposed public service commission for investigation. This commission is expected to be appointed at the next session of the legislature. The Premier wrote Geo. Kidd, General Manager, B.C.E.R., as follows:—"At a meeting between myself and representatives of the municipalities of Burnaby and South Vancouver, it was urged on behalf of the municipalities that the present rate was sufficiently high; that the company's system of accounting did not show the revenue on the interurban line as separate and distinct from other portions of the company's system, and that an attempt was being made to recoup for losses on other parts of the company's system by increasing the rates on this interurban line; that as far as Burnaby was concerned, the present rates are a substantial part of a consideration which the municipality is receiving in return for a franchise covering a period of 38 years, only five of which have expired; that any increase in rates is a violation of an existing agreement under which the present franchise was secured; that residents of both municipalities invested their money, erected homes and engaged in business, relying upon the effectiveness of the existing agreement; that the statute under which the railway company was incorporated gave the company power to enter into agreements with municipalities; that the present rates are part of an agreement so entered into, and that the General Railway Act only applies so far as it is consistent with the act under which incorporation was secured, and that the Minister of Railways has no jurisdiction. With the evidence which at present is before me I am unable to approve of the schedule of rates submitted to me, and in view of the announced policy of the government to create a public utilities commission, having jurisdiction over the matter of this application, I am inclined to the view that this question may well be left for the adjudication of the proposed commission."

The Vancouver City Council for 1918, at its last meeting, decided to take no action towards appealing against the decision of the court refusing the city an injunction against the charging of a 6c car fare in Vancouver. Whether further action in this line will be taken will rest with the new council, which took office early in January. For several weeks negotiations had been going on between the company and the city for the abandonment of these injunction proceedings, in return for which the company offered 6c light. On these negotiations coming to nothing, the company announced a reduction in the lighting charge within the City of Vancouver on Dec. 24 as a Christmas gift. The new lighting rate went into effect Jan. 1.

As a result of the necessity to increase revenue, to meet the increased wages schedule which went into effect July, 1918, the company abolished school children's tickets on its Vancouver Island lines. It has since made a special arrangement with Esquimalt Municipality, under which school children's tickets are sold within the limits of the municipality at 8 for 25c. No school children's tickets are sold on any other portion of the lines, a straight 5c fare being charged for all passengers.

Calgary Municipal Ry.—The deficit for 1918 on Calgary, Alta., Municipal Ry. is reported as estimated by the Superintendent at \$25,000, and the commissioners were reported, Jan. 9, to have under consideration a proposition for charging increased fares.

Vancouver, Fraser Valley & Southern Ry. tariff order 28044, Jan. 22, as follows, passed:—Re application of British Columbia Electric Ry., on behalf of Vancouver & Lulu Island Ry. and Vancouver, Fraser Valley & Southern Ry., for approval of its Standard Freight Mileage Tariff: The said tariff having been filed on the basis prescribed by order in council 1863, July 27, 1918, it is ordered that the said Tariff C.R.C. 132 issued to become effective Feb. 1, 1919, be approved; the said tariff, with a reference to this order, to be published in at least two consecutive weekly issues of the Canada Gazette.

Cape Breton Electric Co.—At a recent meeting of the Sydney, N.S., City Council, the city clerk reported that no report had been received from the Nova Scotia Public Utilities Commission upon the enquiry made on the Cape Breton Electric Co.'s application for authority to increase fares on its electric railway. The investigation was concluded Aug. 16, when the commissioners reserved judgment.

Fort William Municipal Ry.—The Port Arthur and Fort William City Councils passed bylaws on Nov., 1918, setting forth that the operating expenses had increased largely and that it was necessary to increase the passenger fares then in effect, and which had been approved by the Ontario Railway and Municipal Board, as follows:—

- (a) One fare in each city.
- (b) Regular fare 5c, or 6 tickets for 25c, good from 5.30 a.m. until 12 p.m.
- Workmen's fare 5c, or 8 tickets for 25c, good from 5.30 to 8 a.m. and from 5.30 to 7 p.m., from Monday to Saturday, inclusive. Sunday tickets, 8 for 25c, good from 5.30 a.m. to 12 p.m.
- (d) Children's tickets, up to 14 years of age, 10 for 25c, good all hours, every day of the week. Sunday included. All bona fide students above 14 years privileged to use children's tickets between 8 a.m. and 5 p.m. on school days.
- (e) Fares from 12 p.m. to 5.30 a.m., 10c each, good for a through ride.
- (f) Children under 14 years of age may use school children's tickets on Sunday and be good for through ride.

The bylaws repealed the fares above mentioned and enacted new ones as follows, to go in effect Jan. 1, 1919:—

Adults: 5c cash, or one ticket at the rate of 5 for 25c.

Children: 5 to 12 years, inclusive, 5c cash, or one ticket at the rate of 8 for 25c. Children under 5 years of age, free.

The above good between 5.30 a.m. and 12 p.m., and double the above fares between 12 p.m. and 5.30 a.m.

The Ontario Railway and Municipal Board, early in December, made certain objections to the new tariff, pointing out that the Ontario Railway Act, sec. 210, fixes the maximum limit of fares to be charged on electric railways, and that the double fare to be charged for night service must be within that limit. Towards the end of December the two city councils passed similar bylaws providing for the following new rates of fare, to go in effect Feb. 1, 1919:—

Regular fare, 5c cash or 5 tickets for 25c.

Child's fare, ten years and under, 3c cash or 10 tickets for 25c. Good at all times. Children in arms free.

Pupils' fare, under 17 years, 5c cash or 8 tickets for 25c. Tickets sold only at office. Pupils must present certificate that they are bona fide pupils, signed by their principal teacher. Pupils' tickets good only between 8 and 9.30 a.m., also 3.30 and 5 p.m., and then only for the purpose of going to and returning from school.

The Ontario Railway and Municipal Board approved the new schedule on Jan. 6. It raises the price of regular tickets from 6 to 5 for 25c, changes children's fares, abolishes workmen's tickets, and does away with night fares.

London & Port Stanley Ry.—The directors of this municipally owned line met in London, Ont., Jan. 3, and approved of the amended agreement as to Wednesday and Saturday fares on the line during the summer. One clause was amended by substituting the words "children from 5 to 12 years shall be charged 25c," for the words, "25c current funds for each child under the age of 12 years." The city council is applying to the Dominion Parliament for an amendment to chap. 96 of the statutes of 1914, to strike out the clauses in the agreement dealing with the Wednesday and Saturday fares, and to insert in place thereof words necessary to authorize the new fares, and to alter the time within which such fares may be charged from between May 15 and Sept. 15, to between May 24 and Sept. 10.

London St. Ry.—London, Ont., press dispatch, Jan. 19:—A semi-official intimation has been received at the city hall that the London St. Ry. is soon to resume its endeavors to obtain an increase in fares. The mayor, in his inaugural speech, recommended action to secure better service, but meanwhile the company is preparing for its annual meeting, and, according to reliable information, it will again pass its dividend. Receipts have increased, but expenditure is disproportionate. The company will tell the city council, it is reported, that it is prepared and anxious to improve the service, but that it is unable to obtain additional capital for the purpose, while the road is held down to an unfairly low rate of fares. The new Chamber of Commerce has called a general meeting to launch an independent investigation of the street railway situation. A committee of citizens will be appointed to examine different classes of franchise agreements, and possibly to report on the advisability or otherwise of

municipal ownership. E. P. Fredericks, Publicity Manager of the Ontario Association of Holders of Public Utility Securities, has been asked to appear to explain the service-at-cost method adopted by the Massachusetts Legislature.

Moose Jaw Electric Ry.—See "Moose Jaw Electric Ry.'s Financial Position," on another page of this issue.

Port Arthur Civic Ry.—See Fort William Municipal Ry.

Employment of Women Conductors by Nova Scotia Tramways & Power Co.

The Nova Scotia Tramways & Power Co., which operates the street railway in Halifax, N.S., has employed women conductors since Oct., 1917, the number employed varying from time to time, the maximum number being 35. The pay given women is the same in every respect as that given the men and their working conditions are identical in every respect. The management has not experienced any unusual difficulty through the employment of women as conductors, and considers that the results from their employment have been quite as satisfactory as those obtained from the men; in fact, the records show that the fare collections registered by the women have been, if anything, better than those registered by the men.

The company did not discharge any male conductors, in order to make room for women, for the reason that it did not attempt to employ women until the scarcity of male help made it imperative to do so. Since adopting the plan of employing women, the management has given employment to any satisfactory man or woman who applied for positions which were vacant, and has made no discrimination whatever. At present practically half of the total number of conductors employed are women.

Public Utilities Commission for British Columbia.

A Victoria press report states that the British Columbia Government has completed a draft of a bill which it is proposed to introduce at the legislature's next session, to authorize the establishment of a public utilities commission for the province.

The bill, it is stated, will provide for the creation of a commission of three members to be appointed during good behavior for 10 years, with a provision for reappointment, at salaries to be fixed, and payable out of the consolidated revenue. The commissioners are to be given the powers of the Supreme Court in many respects, and also power to take possession of and manage businesses for the purpose of enforcing their orders; and of dissolving companies in default of there being any other means of enforcing its orders. Provision is made for appeals against the commissioners' decisions. The duties of the commissioners and of all public utilities in regard to the commission are set out in detail, together with numerous penalty clauses.

Service at Cost for Ontario.—It is said that a bill will be introduced at the Ontario Legislature's ensuing session, to provide for a service at cost system on any electric railways in the province, if agreed on between the company and the municipality in which it operates.

E. F. Seixas Goes to Monterey Railway, Light and Power Co.

Lewis Lukes, heretofore Vice President and General Manager, Monterey Railway, Light & Power Co., with office at Toronto, having resigned, Edward Fairgreve Seixas has been appointed General Manager and Official Representative at Monterey, Neuvo Leon, Mexico.

The Monterey Ry., Light & Power Co. operates about 25 miles of city and inter-urban railway lines in and around the city of Monterey, and connects Monterey with Tope Chico, where it owns the hot springs. It also has concessions for the whole of the electric light, power, gas, water works and sewerage system in the city of Monterey. The following are the company's officers at Toronto: President, Sir Wm. Mackenzie; Vice President, Sir Donald Mann; Secretary, R. P. Ormsby; Comptroller, R. G. O. Thomson.

Mr. Seixas was born at New York, N.Y., Oct. 26, 1870. From Mar., 1888, to Apr., 1892, he was a student in the electrical department of the Edison Machine



Edward F. Seixas,
General Manager and Official Representative,
Monterey Ry., Light & Power Company.

Works, now the General Electric Co., Schenectady, N.Y., since when he has been, from Apr., 1892, to Jan., 1894, in electrical department, World's Fair, Chicago, Ill.; Feb., 1896, to Feb., 1901, General Manager, Amsterdam Ry., Light, Heat & Power Co., Amsterdam, N.Y.; Feb., 1901, to Jan., 1919, General Manager, Niagara, St. Catharines & Toronto Ry., St. Catharines, Ont. During his service with the General Electric Co., a part of the time was spent in France, England, Italy and Austria, more or less in connection with electrical research, and he was also engaged in the installation of electric lighting plants in Toronto, Ont., and Minneapolis, Minn. During his residence in St. Catharines, he identified himself with various local organizations, and is President of the St. Catharines Rowing and Canoe Club, and was primarily instrumental, with Toronto members of the C.A.A.O., in establishing the permanent Canadian Henley course at St. Catharines. He is also a member of the advisory board

of the St. Catharines Y.M.C.A., and of the Protestant Orphans' Home, and has been connected officially with every patriotic organization in St. Catharines during the war, as well as being vice president of the 1918 Victory Loan campaign for St. Catharines and Lincoln County. He is a Freemason and member of the following clubs:—St. Catharines, Niagara Falls, Transportation (Buffalo), and Argonaut Rowing, Royal Canadian Yacht, Albany, and National, Toronto.

Mr. Seixas expects to leave early in February for Monterey, but Mrs. Seixas and their children will probably remain at St. Catharines, until the late summer, or early autumn.

It is expected that Sir Wm. Mackenzie and Mr. Lukes will also leave at an early date to spend a short time in Monterey.

Winnipeg Electric Railway Aids Collections.

On Dec. 9, 1918, a committee consisting of leading citizens of Winnipeg inaugurated a campaign to obtain contributions to a fund to provide a citizens' Christmas gift to soldiers' families in Winnipeg. They wished to raise \$60,000 by voluntary contribution to be divided among the soldiers' families in the city in accordance with the number of persons in each family, to provide Christmas presents for the children, and Christmas cheer generally. A. W. McLimont, General Manager, Winnipeg Electric Ry., took an active interest in the campaign from its inception and the company's donation to the fund took the form of an expenditure of \$1,000 in advertising for donations. Mr. McLimont originated the plan of asking the public to "Drop a bill in the fare box" for the Christmas fund. Advertisements were run in the daily newspapers and posters were placed on the street car windows. One of these posters was signed jointly by the Mayor of Winnipeg and Mr. McLimont. The company issues a paper each fortnight, 40,000 copies of which are distributed free on the street cars, and the leading article of Dec. 16 issue was devoted to the campaign and urged everyone to "drop a bill in the fare box" as you left the cars.

All members of the general committee, comprising 200 leading citizens, were sent copies of this issue of the Public Service News by the secretary of the committee.

The Winnipeg street cars are equipped with protruding fenders, and a large banner requesting citizens to "Drop a bill in the fare box" was placed on each fender. A full sized billboard was erected on each side of a street car and this car was operated during the rush hours through the principal streets.

It was not expected that any substantial amount would be realized from fare box collections, owing to the fact that the principal source of revenue for the fund was big contributions from the business men of the city. The rank and file of the general public, however, responded very generously to the appeal to place their money in the fare boxes and over \$1,000 was realized from this source in addition to an order for a load of wood, Victory Bond coupons, etc. The company's employes contributed \$400 to the fund.

The city newspapers and the thousands of soldiers' families affected, commented very favorably on Mr. McLimont's action in getting behind the Christmas gift fund. He feels that the company's employes have greatly benefitted from being privileged to participate in the campaign

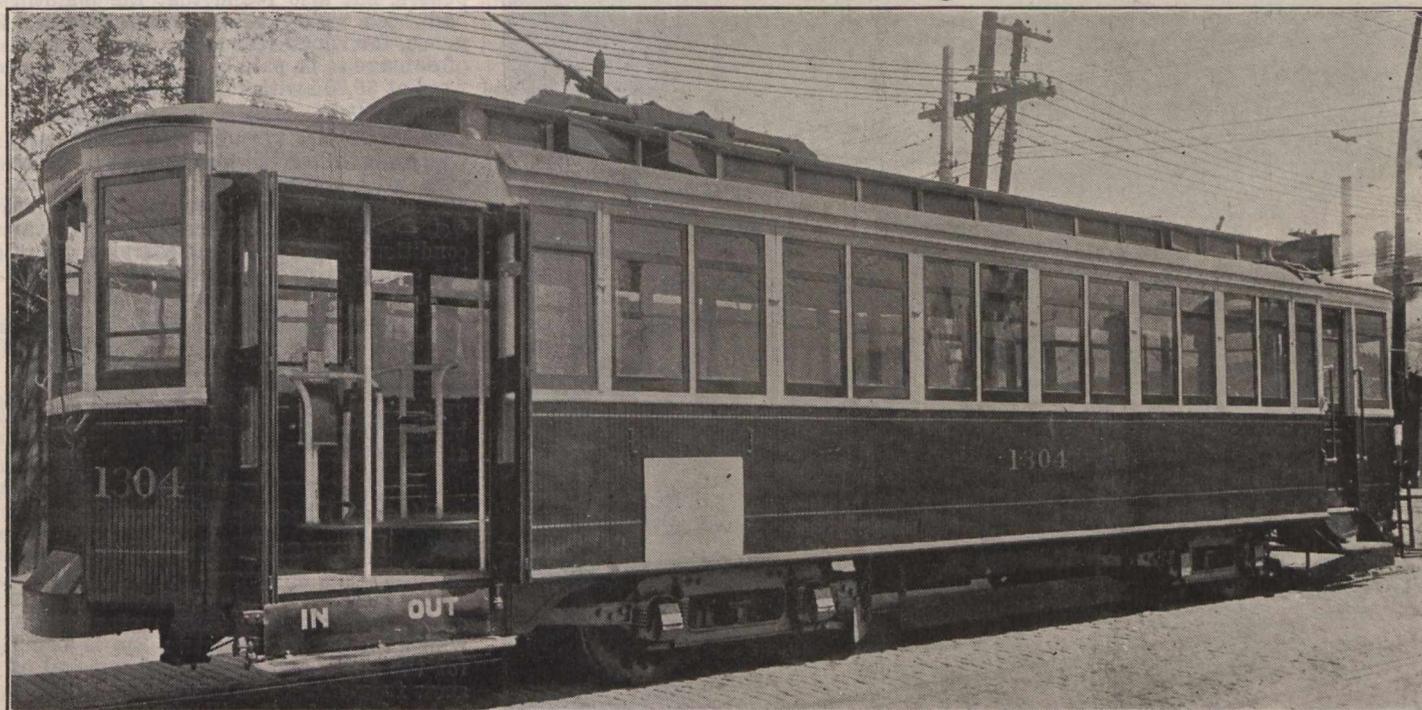
Prepayment Cars on the Toronto Railway.

Twenty-five p.a.y.e. cars were placed in operation on the Toronto Ry.'s College St. route during the first week in January. Although these are not actually the first p.a.y.e. cars which the company has

control eliminates any possible strain on the conductor in continually opening and closing doors, and also relieves him of giving the starting signal, thus leaving him entirely at liberty to attend to the

as possible. It is expected that an additional 25 will be ready early in March.

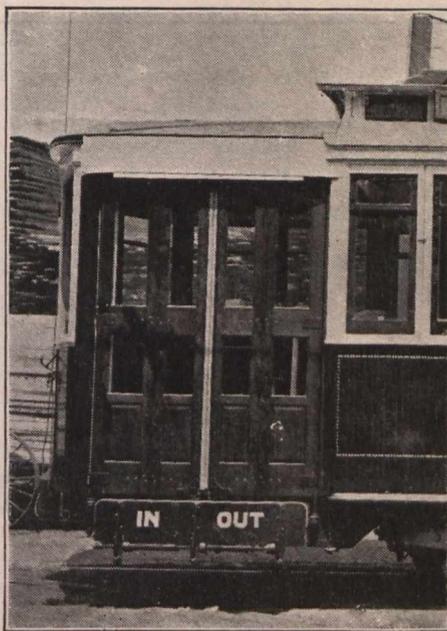
Edmonton, Alta., city commissioners have let a contract for 110 uniforms for



Toronto Railway Prepayment Car, with doors open and step down.

operated, they are the first of a modern type. The first p.a.y.e. cars tried on the Toronto Ry. were merely the ordinary cars, on which passengers paid their fares on entering. There were none of the devices on the car which tend to make the operation of prepayment cars easy and sure, and their use was abandoned.

In the present case, a number of the company's existing palace type of cars were taken off their routes and remodelled, the chief change being made with the rear vestibule. The rear bulkhead was removed and the main floor of the car projected into the vestibule, in order to accommodate a seat for the conductor, and a stationary fare box. By this arrangement, the seating capacity of the car is not interfered with, and there is ample room on either side of the conductor for the entrance and exit of passengers. The rear vestibule is fitted with folding doors and steps, operated by a small pneumatic engine located over the doors, air for its operation being taken from the air brake supply. The folding of the step and the closing of the doors automatically signals the motorman by means of a light, to proceed, and this signal cannot be given until the doors are closed. The space occupied by the conductor projects about 3 ft. into the vestibule, and is 2 ft. wide, the vestibule measuring 6½ ft. from the original car floor line. On entering the car, passengers pass in front and to the right of the conductor, place their fares in the box and go into the car. When all passengers are on, the conductor turns the air to the pneumatic engine, which then closes the doors, folds the step and gives the motorman the signal to proceed, all in one operation. The use of the pneumatic



Toronto Railway Prepayment Car, rear vestibule, showing doors closed and step up.

collection of fares and the selling of tickets. The door opening is 5 ft. wide and the folding step, when down to allow passengers to enter the car, is 15 in. from the street level, with a rise of 12½ in. to the vestibule floor, which is 9½ in. below the car floor. Exit can be made either at the front or the rear. The door and step operating equipment is supplied by the National Pneumatic Co., New York, N.Y.

Additional cars are being remodelled, and these will be placed in service as soon

Edmonton Radial Ry. employes at \$65 a suit.

Nova Scotia Tramways and Power Co's Operation.

The Nova Scotia Public Utilities Commission issued an order recently, after an investigation of certain matters relating to the Nova Scotia Tramways & Power Co., which operates a street railway in Halifax. It directs the company as follows:—

Operate the Gottingen St. extension of its tram lines with through cars, not less frequently than a 20 minute schedule.

On week days between 12 noon and 2 p.m., and between 5 and 8.30 p.m., to operate a car from Buckingham St. via Barrington to Oxford St.

Operate regularly not less than 8 cars on the main line.

Operate regularly not less than 16 cars on the Belt line.

Operate regularly not less than 4 cars on the Gottingen St.-Armdale line.

Not to permit any car to be operated on Buckingham and Jacob Sts. carrying passengers on the rear platform, and it shall be the conductor's duty to stand on the rear platform while the car is being operated on those streets.

With all reasonable expedition to procure and add to its equipment 12 new cars, each equipped with 4 motors, double trucks, air brakes and adequate safety appliances. The type of such safety appliances to be submitted to the board for approval.

To provide at the earliest possible date additional cars to be used as reserve equipment.

To report to the board within 15 days from the date of the order the action

taken by the company to comply with the two preceding sections.

Provision is also made in the order for the filing by the company with the board of reports as to cars operated behind

At the Winnipeg Board of Trade's dinner to the Minister of the Interior, Jan. 21, a special table for reserved for officers and employes of the Winnipeg Electric Ry. and there were 30 representatives of

sustaining injuries resulting in the amputation of his left arm at the shoulder. He brought an action in the Quebec Supreme Court for the recovery of damages assessed at \$20,998. After a two days hearing the jury, on Jan. 17, awarded \$10,000 for damages and \$206 for expenses, but also found that the plaintiff had been guilty of contributory negligence, for which reason the total amount of damage to be paid by the company was fixed at \$6,804 with costs.

The Winnipeg Electric Ry. expects to place in service very soon, 10 steel cars, which are being built at Ottawa. These cars were contracted for in June, last, and delivery should have been made on Oct. 31, but in Ottawa, as elsewhere, war conditions interrupted the carrying out of the contract, and the cars will probably be delivered about three months after the specified time. Inability to secure material and labor was directly responsible for the delay. The company is also proceeding rapidly with a rehabilitation programme and has 40 reconstructed cars in commission. Cars are reconstructed at the rate of 10 a month.

Ottawa Electric Railway Snow Dumping Motor Truck.

The accompanying illustration shows one of 25 snow, box, dump motor trucks, which the Ottawa Electric Ry. is using for the rapid and economical removal of snow from streets on which it operates.

As shown in the illustration, special plank driveways are built, so that the snow can be dumped without being shovelled out. The system has proved very



Prepayment Car, Toronto Railway, Interior, looking toward rear end.

schedule, causes for extras, noisy cars, interruptions of service, etc. The time for the round trips of the Belt line between noon and 2 p.m. and between 5 and 7 p.m. on week days is to be 45½ minutes.

Electric Railway Notes.

Toronto Ry. directors met in Montreal, where several of them live, on Jan. 27, to consider the annual report, etc.

H. Holgate, C.E., and Professor Ritchie have been appointed by the New Brunswick Public Utilities Commission to value the property of the New Brunswick Power Co., which owns the St. John Ry. They began their investigation at St. John, Jan. 13.

J. H. Moir, Superintendent, Edmonton Radial Ry., and the city commissioners are considering making certain improvements in the electric railway service in the city. Their recommendations are expected to be laid before the city council at an early date.

Sandwich, Windsor & Amherstburg Ry. employes threatened to strike early in January, unless the company would dismiss its Superintendent, F. E. Hayes, and reinstate a dismissed conductor. Subsequently the men applied for a board of conciliation.

London, Ont., ratepayers, on Jan. 6, by a majority of 2,283, voted in favor of permitting the London St. Ry. to operate cars to Springbank on Sundays. Application will have to be made to the Ontario Legislature for the necessary authority to run cars on Sundays outside the city.

W. Dickson was delivering ice in Lachine, Aug. 28, 1917, when he was knocked down by a Montreal Tramways Co.'s car,



Snow Dumping Motor Truck, Ottawa Electric Railway.

the company in attendance. Of these, 12 were members, and it was announced that A. W. McLimont, General Manager, had ordered that membership cards be taken out for the remaining 18.

successful this winter up to date, and promises great efficiency in both expedition and economy. The truck was designed by the company's Assistant Superintendent, J. M. Ahearn.

Mainly About Electric Railway People.

W. H. Armstrong, heretofore Chief Car Inspector, has been appointed Master Mechanic British Columbia Electric Ry., Victoria, B.C., vice W. S. Fraser, who has been appointed City Electrical Engineer, Kamloops, B.C., as reported in our last issue. The position of Chief Car Inspector is held in abeyance, a redistribution of the work having been made.

Sir Adam Beck has been re-elected chairman of the London Railway Commission, which operates the London & Port Stanley Ry. It is proposed to ask the Dominion Parliament to alter the Incorporation Act so that the directors will be elected by the people in future, instead of being appointed by the city council.

F. J. Calbeck has been elected Chairman, Brantford, Ont., Municipal Railway Commission.

A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry., and President, Canadian Electric Railway Association, who was not at all well when he attended a meeting of the association's executive committee in Ottawa, Jan. 14, returned home at once to Kingsville, Ont., where he became worse and suffered from a slight attack of pneumonia. He is now convalescent.

C. H. Hartman was re-elected a member of the Brantford, Ont., Municipal Ry. Commission, at the municipal elections, Jan. 6.

H. McKay, electrical engineer, Pictou County Electric Co., was instantly killed in the company's power house at New Glasgow, N.S., Dec. 31, while locating some wire trouble.

Wm. A. Martin, who is spoken of by a local paper as agent of the Delaware, Lackawanna & Western Rd., has been appointed a member by the London, Ont., City Council as a member of the London, Ont., Railway Commission which operates the London & Port Stanley Ry., in place of Wm. Spittal, who has been a commissioner and honorary secretary of the board.

E. W. Oliver, heretofore Assistant Engineer, Canadian Northern Ry., Toronto, has, consequent on the appointment of E. F. Seixas, heretofore Manager, Niagara, St. Catharines & Toronto Ry., as General Manager and Official Representative of the Monterey Ry., Light & Power Co., been appointed General Superintendent, N., St. C. & T. R., reporting to S. J. Hungerford, Assistant Vice President, Canadian National Rys. Office, Toronto. Mr. Oliver will also be in charge of the Toronto Suburban Ry. and Toronto Eastern Ry.

G. L. Snelling, heretofore accountant, Ottawa Electric Ry., has been appointed acting Secretary-Treasurer, consequent on the death of Jas. D. Fraser, Secretary-Treasurer.

W. J. Weir has been appointed acting Secretary, Saskatoon Municipal Ry., Saskatoon, Sask., vice L. H. Hardy, Secretary, deceased.

Electric Locomotives Ordered.—The Hydro-Electric Power Commission of Ontario has ordered six 50-ton steel locomotives for its Queenston-Chippawa construction railway. The bodies and trucks will be built by Canadian Car & Foundry Co., and the electrical equipment has been bought second hand from the Schenectady Ry., Schenectady, N.Y.

Proposed Purchase of Ottawa Electric Railway by City.

The three questions submitted by Ottawa City Council to the ratepayers, at the municipal elections Jan. 5, as to the Ottawa Electric Ry., were answered in the affirmative by large majorities. Following are the questions with the vote on each:—

If not earlier acquired, are you in favor of the City of Ottawa acquiring the property and assets of the Ottawa Electric Ry. at the expiration of its franchise in 1923, by arbitration, as provided by the agreement between the city and the railway? Yes, 8,174. No, 2,700. Majority, 5,474.

Are you in favor of the City of Ottawa acquiring the property and assets of the Ottawa Electric Ry. by arbitration, as provided by the agreement between the city and the railway, at such date prior to 1923, as may be mutually agreed upon? Yes, 8,770. No, 2,309. Majority, 6,461.

Should the Ottawa Electric Ry. be acquired by the corporation, are you in favor of it being managed by an appointed commission? Yes, 8,943. No, 2,008. Majority, 6,935.

The Hamilton Radial Electric Railway Situation.

The situation which has developed out of the Hamilton Radial Electric Ry.'s application to the Board of Railway Commissioners in July last, continues to be as obscure as ever, and a settlement as remote as ever. The Board of Railway Commissioners granted the application for increased fares, subject to the approval of the municipalities which had bylaws fixing certain fares. The Village of Burlington led the way in refusing to suspend the operation of the bylaw, and finally the company suspended its service. Some temporary expedients were made to provide accommodation, while negotiations were initiated between various interests with a view of bringing the parties together, but without effect.

The Hamilton Radial Electric Ry., on Jan. 2, filed with the Exchequer Court of Canada a scheme of arrangement with its creditors, but containing no provision for settling and defining the rights of shareholders among themselves. The statement of facts contained in the petition showed that the company was incorporated by an Ontario charter in 1893, and has operated a railway between Hamilton and Oakville for a number of years, and in the operation has lost a large sum, and is now unable to continue operating owing to lack of funds. The company has a bonded indebtedness of \$160,000, and other liabilities of \$570,300, none of which is secured by bonds. The directors propose that the company's assets be sold, believing that at the present high price of materials a considerable portion of the creditors' claims can be paid, which would not be the case if the railway continued to operate under existing conditions. The directors therefore ask for the court's authority to sell the company's assets as a whole, or piecemeal or in parcels, as may be most expedient. The petition states that the following are the officers and directors of the company:—President, Sir John Gibson; Vice President, James Dixon; acting Secretary, Wm. C. Hawkins; other directors: J. R. Moodie, W. E. Phin, A. Bruce, and J. M. MacDonnell.

After a number of meetings, the Burlington council passed a resolution favoring the suspension of its fare bylaw for a year, but it was reported that the company declined to accept this as a settlement. Meanwhile advocates of the system of electric railways to be built by the Hydro Electric Power Commission of Ontario were active, and as a result Sir Adam Beck attended a meeting of the Burlington council Jan. 17. Bylaws for building lines under the commission's plans were defeated in Hamilton city, Saltfleet and Nelson Townships in 1917, and it was urged that these be re-submitted as speedily as possible, so that advantage could be taken of the present situation to take over the Hamilton Radial Electric Ry. and incorporate it either in its entirety or in part into the commission's projected Toronto-Niagara line.

The whole situation was still in the air at the time of writing, Jan. 20.

Moose Jaw Electric Railway's Financial Position.

The Moose Jaw Electric Ry. submitted alternative propositions to the Moose Jaw, Sask., City Council Jan. 13. The directors stated their willingness to advise the shareholders to offer the company's railway and other property, franchises, etc., to the city on a basis to be determined, and to accept therefor the city's 5% debentures. As an alternative, the company asks for assistance from the city as follows:—Cancellation of the company's present indebtedness to the city for materials and labor in the matter of extra cost of pavements; the company to have immunity from taxation and mileage charges until the maturing of the present bond issue in 1930, together with a release from all claims for such as have accrued under the present franchise; an increase of passenger rates to 7c, tickets to be sold at six for 40c or 16 for \$1; the city to support application to the Saskatchewan Legislature in favor of the operation of one-man cars; exemption of the company from street maintenance until 1930; and that the city bear the expense of repairing pavements between tracks and 18 in. on either side thereof. The company is favorable to continuing the former belt line service on the repairing of the Fourth Ave. bridge, but is opposed to the proposed South Hill extension; the directors will consider the completing and connecting up of the Hall St. extension. The directors point out that by the exercise of the strictest economy they have been able to provide a street car service during the past seven years at a cheap rate, the receipts having barely covered the cost of operation. The company is not in a position, after having met the losses of the past seven years, to meet the expenses of renewals, etc. Unless assistance is given at once, the company will be forced to abandon the enterprise.

After some discussion, it was decided to refer the communication to a special committee to be appointed by the mayor.

The Montreal Tramways Employees Union was reported recently to have under consideration the question of asking for higher wages, pay for spare hands, allowance for clothing, holidays, and for a 9-hour day. The president is reported to have stated that it would be some time before the union decided whether to present the demands to the company or not.

Electric Railway Finance, Meetings, Etc.

Brantford Municipal Ry.—W. R. Turnbull, who was chairman of the commission in charge of the Brantford Municipal Ry. for 1918, reported at the commission's inaugural meeting for 1919, on Jan. 17, that the receipts for 1918 were \$115,000, and that 2,500,000 passengers had been carried without a single accident. F. J. Calbeck was elected chairman of the commission for this year.

British Columbia Electric Ry. and allied companies.—

	5 months to		5 months to	
	Nov. 1918	Nov. 1917	Nov. 30, 1918	Nov. 30, 1917
Gross	\$612,893	\$525,629	\$2,727,030	\$2,368,105
Expenses	440,756	384,320	2,192,418	1,935,641
Net	172,137	141,309	534,612	141,309

London & Port Stanley Ry.—A proposal was made at a recent meeting of directors of this municipally owned line to have the clauses providing for the increase of yearly rental to the city of London to \$30,000, \$40,000 and \$50,000 at certain intervals repealed, and to insert a provision that at no time should the rental payable to the city exceed \$20,000, but it was decided to leave the matter over for the consideration of the 1919 directors.

Moncton Tramways, Electricity & Gas Co.—Under the terms of the trust deed of Jan. 16, 1912, the company received tenders to Jan. 20 for the sale to it at a price not exceeding 5% above par and accrued interest of a sufficient number of bonds to exhaust \$15,000 held in the sinking fund for the redemption of bonds.

Mount McKay & Kakabeka Falls Ry.—The annual meeting called to be held in Fort William, Ont., Jan. 15, was adjourned on account of the absence from the city of several of the directors.

Niagara, St. Catharines & Toronto Ry.—Niagara Falls, Ont., ratepayers, on Jan. 1, voted in favor of the bylaw providing for the purchase of the company's subsidiary, the Niagara Falls, Wesley Park & Clifton Tramway Co., with all its real and personal property, on payment of the actual value, to be determined by the Ontario Railway and Municipal Board. The vote was: "Yes," 682; "No," 193. The line is 4.56 miles long, and is operated under franchises which expire in March and April, 1920.

Regina Municipal Ry.—

Estimated revenue, Dec., 1918.....	\$21,800
Estimated passengers carried, Dec., 1918	454,000
Estimated total revenue, 1918.....	\$230,582.25
Total revenue, 1917	\$215,074.05
Passengers carried, 1918	4,923,752
Passengers carried, 1917	5,112,460

Toronto Civic Ry.—The revenue for Dec., 1918, was \$32,075.47; passengers carried, 1,922,409, against \$26,971.02 revenue, and 1,605,611 passengers carried in Dec., 1917. The total revenue for 1918 was \$331,896.73; passengers carried, 19,755,162. against \$278,147.15 total revenue and 16,478,391 passengers carried in 1917.

Toronto Railway.—The gross railway earnings for 1918 were \$6,528,800, against \$6,193,562 for 1917. The percentage paid to the city in 1918, was \$1,046,495, against \$970,512 in 1917.

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

	11 months to		11 months to	
	Nov. 1918	Nov. 1917	Nov. 30, 1918	Nov. 30, 1917
Gross	\$1,071,106	\$1,052,000	\$11,716,181	\$10,986,998
Exp.	585,064	623,444	6,344,925	5,954,822
Net	486,042	428,556	5,371,256	5,032,176

Winnipeg Electric Ry. and subsidiary

companies.—

	11 months to		11 months to	
	Nov. 1918	Nov. 1917	Nov. 30, 1918	Nov. 30, 1917
Gross	\$283,721	\$305,881	\$3,252,863	\$3,039,397
Expenses	260,601	218,993	2,550,492	2,290,421
Net	23,120	86,888	702,371	748,976

The deficit, after allowing for fixed charges, for November, was \$33,814.

Elimination of Unnecessary Stops in Winnipeg.

One of the first things A. W. McLimont, General Manager, Winnipeg Electric Ry., did when he first went to Winnipeg in Oct., 1917, was to have a careful survey of the stop situation in the city made. At that time very few of the stops were designated and it was the practice for the cars to stop at the far side of street intersections. He had the various routes taken one by one, unnecessary stops eliminated, and plans submitted to the civic authorities in each case showing the stops it was proposed to designate as permanent. The general public and the authorities recognized the improvement in service that would result from eliminating unnecessary stops and co-operated. The permanent stopping places were designated by painting the lower portions of street poles adjacent to the stopping place, white, and lettering the words "Car Stop" in black on the white surface. The telephone, telegraph and electric lighting companies, as well as the city street lighting system, gladly granted permission to use their poles for this service without charge.

Before stops were eliminated on any route, the public was notified by window posters pasted on the windows of the street cars or by large advertisements in the daily newspapers. The net result is that within a year Mr. McLimont eliminated at least one-third of the stopping places in the city. The service has been speeded up and the general public is much better satisfied. No reason other than that it resulted in faster service was given to the citizens or authorities when stops were eliminated. Mr. McLimont has eliminated the stops and faster service is being supplied and everybody seems to be satisfied. Although minor adjustments in the location of stops will inevitably have to be made from time to time as local conditions change, no one has even suggested that the old system be reverted to.

The Winnipeg Electric Railway's Franchise, Value, Etc.

Winnipeg's city solicitor, in a recent report to the city council on the Winnipeg Electric Ry.'s contract, pointed out that the company's franchise does not expire in 1927, as generally understood, but that in that year the city will have, on giving six months notice of its intentions, the right to take over the line at a valuation. If the city does not exercise its option, the company's franchise would continue, but the city has the right, on giving one year notice, to take over the line at the end of any five year period. If the company secures a variation of the contract as to fares, it might be argued that a restriction of the period of the franchise would be a proper concession for the city to ask from the company. Then there is the question that might arise when the time for taking over the line arrived, viz.: whether the city transportation could not be conducted in a more efficient manner than by an electric railway as at present laid out, in which event the city might

have to purchase an obsolete system in order to rid itself of a franchise incubus on its streets. The letter was filed without discussion.

In the report referred to, mention is made of the fact that the city may take over the line at certain fixed periods on a valuation basis. An appraisal is being made of the company's property by engineers and accountants for the Manitoba Public Utilities Commission, and by representatives of the company, in connection with the company's application for authority to charge an increased fare on its electric railway. It is pointed out that the investigation will show the reproduction value of the company's electric railway property, and that to have the value of the electric railway thus independently determined should completely eliminate any question about the company's capitalization.

At a meeting of the Winnipeg board of control on Dec. 31, it was reported that the amount of taxes, percentages and arrears due by the company totalled \$407,499.47, made up as follows:—1916, \$4,012.77 taxes and \$722.30 in percentages; 1917, \$185,139.03, with \$16,662.51 in percentages; and 1918, \$200,918.86. The percentage for 1918 had not been ascertained.

Regret at Jas. D. Fraser's Death.

The following resolution was unanimously adopted at Ottawa Jan. 14:—"The members of the Canadian Electric Railway Association's executive committee, at their first meeting after the death of Jas. D. Fraser, and at the scene of his activities for over a quarter of a century, desire to place on record their deep regret at his death, and their appreciation of him as a trusted advisor, a true friend and a most lovable character. As a member of the association's executive committee for many years, and as Vice President and President, he rendered most valuable services to electric railways throughout Canada. The members of the committee also desire to express their deep sympathy for Mr. Fraser's relatives and with Messrs. Thos. Ahearn and Warren Y. Soper, with whom he was associated in business, and of whom he was a trusted friend for very many years."

Montreal Tramways Co.'s Franchise.—

A Quebec press dispatch of Jan. 22 stated that G. Mayrand, M.L.A. for Dorion, would give notice that afternoon, in the Legislative Assembly, of a bill to abolish the Montreal Administrative Commission and annul the Montreal Tramways Co.'s franchise, and that the bill would provide that no franchise be granted hereafter by the Quebec Legislature without being ratified by a referendum. In this connection it should be borne in mind that the act respecting the city of Montreal, which included among other things the Montreal Tramways Co.'s new franchise, was a government measure. It seems hardly likely that Mr. Mayrand's bill will be seriously considered.

The Quebec Ry., Light & Power Co. is about to place "Cars stop here" signs at all points where its cars stop to let off and take up passengers. The signs have been ordered from Acton Burrows, Limited, Toronto.

R. S. Bauer, Lynn, Mass., advocates a free street car service, by cities, on the same principle that free elevator service is provided in public buildings, and free bridges and highways are maintained at the cost of the taxpayers.

Toronto Suburban and Toronto Eastern Railways Acquired by Canadian Northern Railway.

As stated in Canadian Railway and Marine World for January, the Canadian Northern Ry. is taking over the Toronto Suburban Ry. Co.'s property, including 69.53 miles of line under operation, and is also taking over the Toronto Eastern Ry. Co.'s charter, partially constructed railway, etc. Both are electric lines. It is said that the C.N.R. Co. has acquired the common stock of both companies in consideration of assuming their liabilities, including bonds, etc.

The Toronto Suburban Ry. Co. was incorporated by the Ontario Legislature in 1894, with authorized capital of \$250,000, and with power to issue bonds for \$20,000 a mile, mainly for the purpose of taking over and amalgamating two separate pieces of electric railway in municipalities north and west of Toronto, but terminating at the city boundary. These lines were built under franchises granted to the Davenport Street Ry. Co., dated Apr. 20 and June 8, 1891, and to the City & Suburban Electric Ry. Co., granted Oct. 5, 1891, and amendments to the same. The municipalities concerned were the township of York, the town of Toronto Junction, the franchises being for 20 years, with certain renewal privileges. A subsequent agreement was made with the village of Weston. The City & Suburban Electric Ry. Co. was the successor of the Weston, High Park & Toronto St. Ry. Co., incorporated under the Ontario Joint Stock Companies Act, Nov. 12, 1890, the title of the company being changed in the following year by the Ontario Legislature. The lines built and operated under these franchises were as follows:

The City and Suburban Electric Ry. built on Keele St., from St. Clair Ave. to Dundas St.; Dundas St., from Humber-side Ave. to Lansdowne Ave.; Humber-side Ave., from Dundas St. to Glendonwynne Road; Glendonwynne Road to Glenholme Drive, along Glenholme Drive to Fairview Ave., on to Louisa St., along Louisa St., to Lansdowne Ave., and along this avenue to Dundas St.

The Davenport St. Ry. built from the crossing of Bathurst St., by the C.P.R., to St. Clair Ave., thence westerly along Davenport Road to St. Clair Ave., and along that avenue to Toronto Junction.

When consolidated as the Toronto Suburban Ry. Co., there were 9.89 miles of line, extending from Humber-side Ave., on Dundas St., the then boundary of the City of Toronto, along Dundas St. to Lambton Park, with a branch southerly to Evelyn Crescent, a line to Weston, branching from Dundas St. at Keele St., and the Davenport Road line, branching from the Weston Road line, and terminating just north of the C.P.R. tracks on Bathurst St. The gauge of these lines was 4 ft. 10 1/4 in. On the extension of the Toronto city boundaries in 1899, an arrangement was made by which the Toronto Ry. operated its cars over the T. S. Ry. line from Humber-side Ave. to Keele St., that piece of line being relaid to the Toronto city gauge. The corner of Keele St. and Dundas St. thus became the meeting place of the two lines.

In 1901, the company obtained legislative authority to extend its line from Lambton to Hamilton, and in subsequent years the legislature granted further powers for the construction of lines from Hamilton to Niagara Falls, from Weston to Woodbridge, from Lambton to Bramp-

ton; branch lines in the Niagara Peninsula; Lambton to Guelph, Berlin, etc., a branch from Cooksville, and a line from near Brampton to connect with the existing Davenport Road line. Some of these lines were authorized to be built, subject to agreements with the local municipalities, along the public highways, and as late as 1916, surveys were made along the highways in certain parts of Peel County by the company's engineers.

It was not until 1911, however, that steps were taken to undertake any construction, following the passing of the control of the company to Sir William Mackenzie and associates in June of that year. This was followed by an issue of \$540,000 of 4 1/2% debenture stock in England. The first line built was that from Weston to Woodbridge, of which 0.6 of a mile was built on the highway between the northern boundary of the Village of Weston to the boundary of York Tp., the rest of the route being along the Humber River valley on private right of way. Construction was started in the spring of 1912, and the line was put in operation Oct. 10, 1914.

Construction was started on the Lambton-Guelph line in 1913, and tracklaying was completed in 1915; but it was not until the autumn of 1917 that the line was put in operation. Some grading has been done between Guelph and Berlin, but work was suspended owing to the war.

Both the Woodbridge and Guelph extensions are standard gauge, and in order to operate cars to the Keele-Dundas St. junction with the Toronto Ry., the company, in 1916, applied for power to connect the Guelph extension with the old line at Lambton Park, and to change the gauge of the line. The City of Toronto objected, but the Ontario Railway and Municipal Board gave the necessary powers.

The company built a large car barn, etc., at Lambton, a full description of which was given in Canadian Railway and Marine World for May, 1916.

The statistics for the year ended June 30, 1917, show that the company had outstanding \$1,500,000 common stock, and \$2,628,000 of bonds. It then owned 15 closed and 3 open passenger cars, 1 freight car, 1 mail, express and baggage car, 2 work cars and 2 sweepers; but this equipment has been added to considerably since then, by the addition of the 10 center entrance cars, built for the Lambton-Guelph line, described and illustrated in Canadian Railway and Marine World for Mar., 1916. Other cars have also been added on both the Guelph and the Woodbridge lines.

The earnings for the year ended June 13, 1917, covering the operation of 18.79 miles of track, were:—Passenger, \$168,895.15; freight, \$1,076.43; mail and express, \$1,994.41; miscellaneous earnings, \$35,351.90; gross earnings, \$207,317.50. Operating expenses absorbed \$104,406.02, leaving \$102,911.48 as net earnings from operation. The company received \$1,863.70 from miscellaneous sources, which gave a total of \$104,775.18, out of which taxes absorbed \$2,628.39; interest on funded debt \$29,999.72; interest on floating debt, \$6,255.83; all other deductions from income, \$19,661.07, making a total of \$58,545.01, and a net income of \$46,230.17.

The officers of the Toronto Suburban Ry. Co. are: President, Sir Wm. Mackenzie; Secretary-Treasurer and General Manager, G. C. Royce. Allan H. Royce was Vice President, up to the time of his death some months ago. The officials are: Assistant Manager, W. J. Radford; Purchasing Agent, R. Gilbert; Superintendent of Rolling Stock and Substations, J. W. Walker; Electrical Engineer, S. Rosevear; Roadmaster, F. Lindsay; Assistant Road Master, B. Sharpe.

The management of both the Toronto Suburban Ry. and the Toronto Eastern Ry. will, it is said, be given to E. W. Oliver, heretofore Assistant Engineer, Canadian Northern Ry., Toronto, who has been appointed General Superintendent, Niagara, St. Catharines & Toronto Ry., to succeed E. F. Seixas, heretofore Manager, who has been appointed General Manager and Official Representative, Monterey Ry., Light & Power Co.

The Toronto Eastern Ry. Co. was incorporated by the Dominion Parliament, April 12, 1910, to build and operate a railway from Toronto easterly through Whitby, Oshawa and Bowmanville to Cobourg, Ont., with the following branches:—From Cobourg or Port Hope northerly to Peterborough; from Scarborough Tp. northerly to Markham, Stouffville and Uxbridge; from Oshawa northerly via Scugog to Lindsay; from Oshawa southerly to Lake Ontario. Extension of time for construction was granted in 1915, the time for starting construction being limited to 2 years, and for completion of the lines to 5 years.

In July, 1910, the main line was located from Bowmanville to Cherrywood, 23.5 miles; the route map being approved by the Minister of Railways Oct. 14, 1910, and the location plans by the Board of Railway Commissioners Feb. 24, 1911. On Sept. 12, 1912, a route map was submitted to the Minister of Railways and approved by him for the route from Pickering westerly. This line was to cross the Kingston Road just west of Pickering Village and pass through the territory adjacent to the lake, and recross the Kingston Road close to the G.T.R. crossing near the Scarborough Golf Club; the location plans for which were approved May 29, 1913. The location of the line through Bowmanville is along Wellington St., one of the main thoroughfares; through Oshawa, the line passes along Bond St., and through Whitby, along Mary St. In general, the location is as close to the Kingston Road as possible.

A contract was let and work was started in the spring of 1912, and grading has been completed from the eastern end of Wellington St., Bowmanville, westerly to Pickering Village, 19.5 miles. Track was laid and ballasted from Bowmanville to the western limits of Whitby, 14.5 miles. The rails used were 60 lb. with continuous angle bars, except along the streets through towns, where 80 lb. rails were laid. No overhead or other electrical work was done, and all operations came to a standstill after war broke out. A suit over the right of way through the Ruddy property at Pickering, the site of the old Pickering College, is reported to have also affected the progress of construction.

The Winnipeg Electric Ry. has organized a welfare bureau for its employees.

Montreal Tramways Co's Finances.

The Montreal Tramways Co. was reported at the Montreal City Council, Jan. 13, to be indebted to the city to approximately \$800,000, and instructions were given to the legal department to take steps to collect it.

In this connection there have been reports for some time as to negotiations for the placing of \$7,300,000 of 6½% five year notes of the Montreal Light, Heat & Power Co., in which notes the Montreal Tramways Co. was interested. It was reported Jan. 13 that the notes had been placed with a Montreal syndicate, but on the following day it was stated that the matter had not been finally concluded. The object of the issue is to provide for the retirement of \$5,350,000 two year 6% notes falling due in New York in April, and to provide some additional capital. The nature of the arrangement between the two companies is reported to be such as will concentrate all power business in the Montreal Light, Heat & Power Co. control, leaving the electric railways only to the Montreal Tramways Co.

Electric Railway Employees' Wages Arbitrations.

Grand Valley Ry. and Lake Erie & Northern Ry.—As stated in Canadian Railway and Marine World for January, the Minister of Labor appointed a board of conciliation to deal with the question of wages, etc., for this company's employes, F. H. McGuigan, Toronto, representing the companies, J. G. O'Donoghue, the men, and County Judge McGibbon, of Brampton, being chairman. As a result of the award, an agreement was signed Jan. 14 between the company and its employes, who are members of the Amalgamated Association of Street and Electric Railway Employes of America, Division 833. Following is a comparison of the old rates per hour, the rates asked by the men, and the rates awarded by the arbitrators, the new rates being effective from Dec. 16, 1918, to Oct. 31, 1919.

	Old rates	Rates asked	New rates
Conductors and motormen, passenger:			
First 6 months.....	...	36c	...
Second 6 months.....	...	37c	...
First year	34c	...	36c
Third 6 months.....	...	38c	...
Thereafter .....	...	40c	...
Second year	35c	...	37c
Third year	36c	...	38c
Fourth year and after	37c	...	39c
Conductors and motormen, freight.			
.....	40c	...	42c
Junior brakemen:			
First 6 months.....	34c	36c	36c
Second 6 months.....	34c	40c	36c
Thereafter	34c	43c	36c
Senior brakemen, freight	37c	...	39c

The Toronto Ry. made an agreement with its employes in Aug., 1917, granting an increase in wages from June 16, 1919, based not only on the then increase in the cost of living, but also to some extent on the increased cost of living anticipated thereafter, and until the expiration of the agreement on June 30, 1919. Towards the end of 1918, the men decided to ignore the agreement and asked further advances, by way of bonus, commensurate with the increased cost of living, which they claimed should be an average of a percentage varying from 29.7 to 53.3%. They applied for a board of conciliation, which was opposed by the company on the ground of the existing agreement, but the Labor Minister decided to appoint a board, which was constituted as follows: F. H. Phippen, K.C., representing the

company; H. W. Harper, representing the men, and County Judge Barron, of Stratford, as chairman. On Jan. 3, Judge Barron and F. H. Phippen signed a majority report, stating that, for the reasons given fully in their respective judgments, they awarded as follows, That the employes affected by the reference, whose wages under the existing schedule are 30c an hour, be given an increase of 2½c; that all other employes affected by the reference be given an increase of 2c; all increases to date from November 1, 1918. They decided that no change be made in the payment of overtime, and no change in the length of time to elapse before employes go on a higher scale of wages. The men's representative, H. W. Harper, made a minority report, to the effect that the men were entitled to their full demands. The following table shows conductors and motormen's wages per hour under the agreement to June 30, 1919, the increased rates they asked and the rates granted by the majority of the board,—

	Old rate	Asked by men	Rate granted
First 6 months.....	30c	...	32½c
First 3 months.....	...	43c	...
Next 3 months.....	...	43c	...
Second 6 months.....	32c	...	34c
After 6 months.....	...	48c	...
Second year	35c	...	37c
Third year and after..	37c	...	39c

The following table shows the motor and truck repair and shedmen's wages, under the agreement to June 30, 1919, and the increases awarded by the majority of the board.—

	Old rate	New rate
Motor and truck repair men:		
First 6 months.....	30c	32½c
Second 6 months.....	32c	34c
Second year	35c	37c
Third and subsequent years.	37c	39c
Shedmen:		
Foremen.	37c	39c
Operating shedmen, who operate and do general shed work	33c	35c
Shedmen doing general work, but not operating cars	32c	34c
Car cleaners	31c	33c

It is said that the additional outlay for the company for the period for which increases are granted, viz., to June 30, 1919, will be between \$75,000 and \$85,000.

The company has intimated its willingness to accept the award, and the men were to meet on Feb. 1 to decide whether they would accept it or appeal to the Dominion Appeal Board.

Electric Railway Projects, Construction, Betterments, Etc.

Berlin & Northern Ry. Co.—The Ontario Legislature is being asked to authorize the company to change its name to the Waterloo-Wellington Ry. Co., and to extend for three years the time within which it may extend its line from Bridgeport to Elora and Fergus, Ont. (Sept., 1914, pg. 431.)

Brantford Municipal Ry.—The ratepayers of Brantford, Ont., on Jan. 6, by a majority of 838, approved of a bylaw authorizing the extension of the line into the Terrace Hill district, and the provision of extra rolling stock at a total estimated cost of \$125,000. (Jan., pg. 40.)

Calgary Municipal Ry.—The commissioners were asked by a deputation on Jan. 11, to extend the line up Centre St. on the north hill to North Balmoral, Calgary, Alta. It was stated in the course of the discussion that the commissioners had practically decided to extend the Centre St. line as a single track to Six-

teenth St., for which rails are on hand. One objection to the extension to North Balmoral is the estimated cost of \$10,000 for the double intersection at Sixteenth St. The matter will be considered further. (Oct., 1918, pg. 453.)

Cape Breton Electric Co.—At a recent meeting of the Sydney, N.S., City Council the extension of the company's lines was advocated, and Alderman Steel asked for the promotion of a line from Sydney to Low Point and New Waterford.

London & Lake Erie Ry. & Transportation Co.—A St. Thomas, Ont., press report Jan. 15 stated that the estate of the late James Duffield, of London, Ont., had arranged to take over a controlling interest in the company's holdings and to reopen the line; that Grand Trunk Ry. and Wabash Rd. interests were associated with the new undertaking, and that the electric railway would be connected up with the G.T.R. in St. Thomas. (Dec., 1918, pg. 557.)

We are officially advised that the reports are without any foundation. (Dec., 1918, pg. 557.)

London St. Ry.—We are officially advised that the company may relay some small sections of its line in London, Ont., if the city council decides upon paving the same during this year. The company is also considering making some alterations and slight extensions to its shops. It may therefore be in the market a little later for rails, ties, and shop material. C. B. King, London, Ont., is Manager. (Feb., 1918, pg. 77.)

Toronto Ry.—At a meeting of the Toronto City Council's works committee, Jan. 16, the Works Commissioner was instructed to report as to the possibility of the completion of construction of the line on Pape Ave.

Edmonton Radial Railway's Future.

In the course of a review of the Edmonton Radial Ry.'s operations published Jan. 14, Superintendent Moir is reported to have said that the influenza epidemic hit the system at a most critical time. Receipts fell away alarmingly, and expenses took a new spurt. Despite all the unexpected setbacks, the system is regaining its strength rapidly and the worst is over. The present average fare is 5.02c, and although the operating surplus for 1918 was \$125,000, the deficit is constantly mounting up. The total operating costs and capital charges amount to about \$636,000 a year. The present number of passengers carried is 10,300,000, and conceding that there will be a drop to 10,000,000 with the 6c fare, the revenue would be \$600,000. The one-man cars are giving good satisfaction, and have resulted in a saving of \$245 a day. With a full service of one-man cars and a 6c fare, the railway should break approximately even. When the population of the city reaches 100,000 it will be necessary to operate two-man cars and to have a zone system of fares.

Superintendent Moir estimated that it would take about three months to catch up on the repair work of the cars. New wheels, with ample gearing for 20 cars, are in stock. During the past two years 50 cars have been remodelled, at a cost varying from \$50 to \$400 each.

The Nipissing Central Ry. has 2 motor passenger cars on order with the Preston Car & Coach Co., and will shortly be in the market for 2 more cars of similar type.

Marine Department

Trawler and Drifter Construction in Canada for British Government, Through the Canadian Naval Service Department.

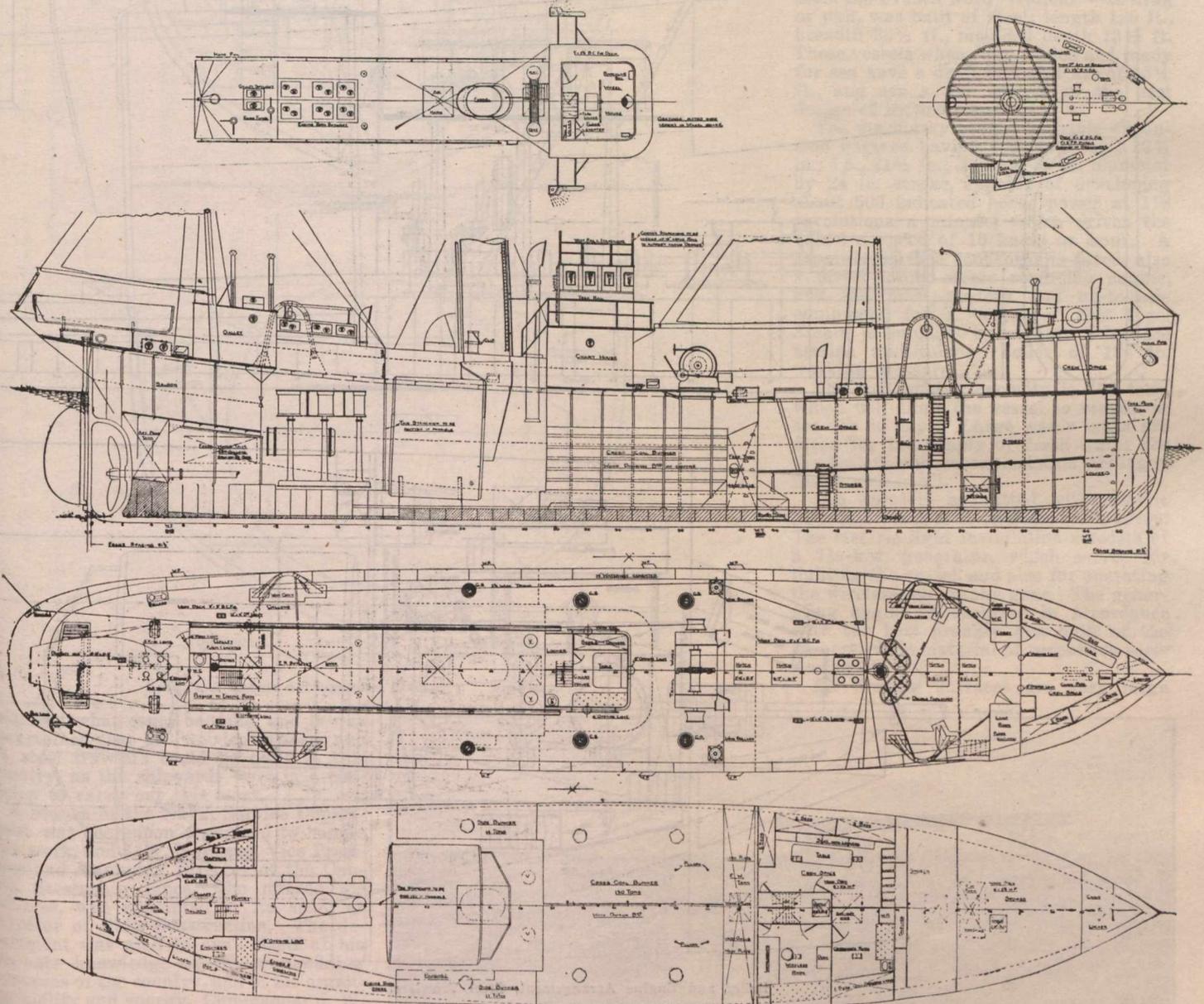
A few years previous to the outbreak of war, the British Admiralty realized that the ordinary steam trawler, on account of the arrangement of the fishing gear and the general design of the vessel, would be particularly adapted for the purpose of mine sweeping. A very large number of these vessels are always in operation from the great fishing centers

were made that the vessels enrolled in the R.N.R.(T.) could be called upon at any time and used for naval service.

In order to provide crews, recruiting officers were sent to the large fishing centers, and the fishermen and engineers (who largely constitute the crews of the steam trawlers), were recruited and enrolled in the R.N.R.(T.) section. These

efficient in the proper use of mine sweeping gear.

On the outbreak of hostilities the R.N.R.(T.) mine sweeping flotilla was immediately mobilized and commenced its duties in the North Sea on the second day of the war. Mines had been laid off the east coast of England on the first day of the war by a German mine layer, which



General arrangement, Steel Screw Trawlers.

of the British Isles, and in case of necessity can immediately be called upon for naval duties.

It was decided, after consultation with the large trawler owners, to establish a trawler reserve, and the conditions of hire and payment were provisionally arranged. This branch of the navy came under the Royal Navy Reserve, and was called the Royal Navy Reserve, Trawler Division—known as R.N.R.(T.). It consisted of about 100 steam trawlers owned by fishing companies in various ports around the British Isles. Arrangements

were made that they carried out certain drills every year. In order that proper instruction could be given to this new branch of the service, the Admiralty purchased four modern trawlers, which were fitted in exactly the same way as the ordinary steam trawler, but in addition, mine sweeping kites and arrangements were introduced. These vessels operated at stated periods from the large fishing centers in the British Isles, so that the men resident in each district could carry out their training and become fully pro-

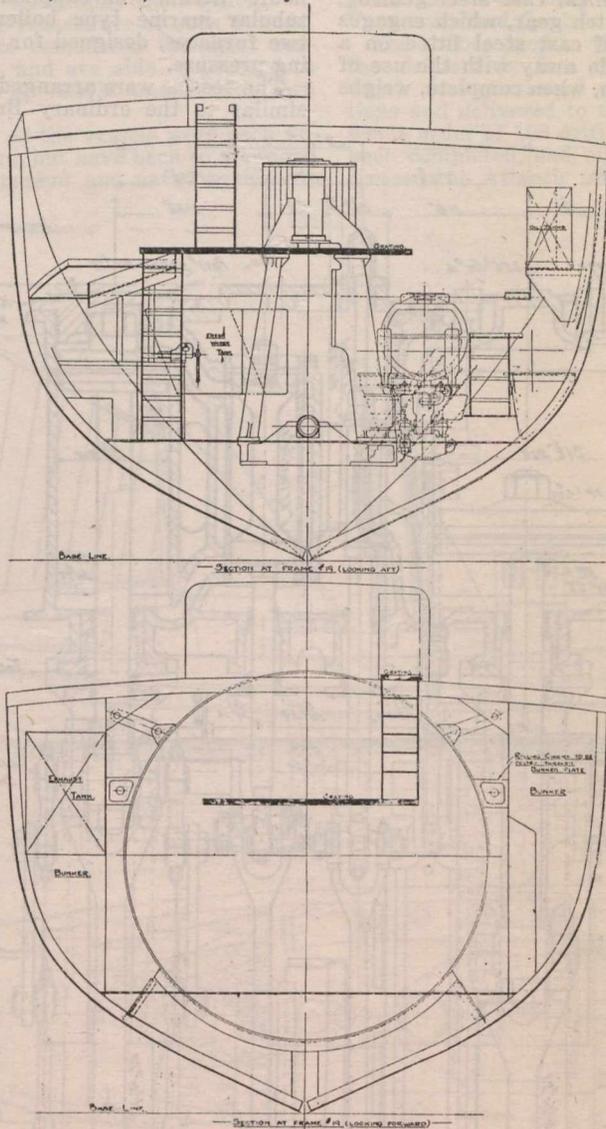
men were paid a yearly retaining fee, on condition that they carried out certain drills every year. In order that proper instruction could be given to this new branch of the service, the Admiralty purchased four modern trawlers, which were fitted in exactly the same way as the ordinary steam trawler, but in addition, mine sweeping kites and arrangements were introduced. These vessels operated at stated periods from the large fishing centers in the British Isles, so that the men resident in each district could carry out their training and become fully pro-

no doubt in readiness to commence operations before war was declared, and it was the duty of the R.N.R.(T.) mine sweepers to keep a clear course around the coast, so that the coastal traffic could be carried on without interruption. The expected naval battle of the Grand Fleet and the German High Sea Fleet did not take place. The German fleet was kept in port, and it was immediately seen that their policy was one of attrition, attacking our vessels singly, by submarines and mines, until the numbers had become so reduced that they could risk

drifters to meet this urgent need. The then Minister of Naval Service, the Hon. J. D. Hazen, and the Deputy Minister, Geo. J. Desbarats, C.M.G., immediately

Dominion Government Shipyard, Sorel, Que.	3
Jas. Sheppard & Sons, Sorel, Que.	3
Davie Shipbuilding & Repairing Co.	50
	100

Thor Iron Works	2
Collingwood Shipbuilding Co.	8
Port Arthur Shipbuilding Co.	6
	36



Boiler and Engine Arrangement, Steel Trawlers.

In July a further order for 24 trawlers was placed as follows:—

Port Arthur Shipbuilding Co.	8
Davie Shipbuilding & Repairing Co.	6
Dominion Government Shipyard, Sorel, Que.	3
Kingston Shipbuilding Co.	4
Tidewater Shipbuilders, Ltd.	3
	24

The entire work of making out plans and ordering material was placed in the hands of the Canadian Vickers, Limited, which supplied full detailed drawings to all firms.

The trawler, which obtains its name from the French word "traleur"—to drag or pull, was built of steel; length 125 ft., breadth 23½ ft., moulded depth 13½ ft. These vessels when fully loaded and ready for sea have a draft of water aft of 15¼ ft., and are a fine sample of the best design of British trawler.

The machinery consist of triple expansion engines having cylinders h.p., 12¾ in.; i.p., 21½ in.; and l.p. 35 in. diameter by 24 in. stroke, capable of developing about 500 indicated horse power at 118 revolutions a minute, which drives the vessel a speed of 10 knots an hour. A separate surface condenser is fitted, also a direct-acting steam reversing engine, and the most modern and up-to-date equipment for a vessel of this type. Steam is supplied by a large 3-furnace marine multitubular boiler of 180 lb. working pressure.

The coal bunker capacity is 160 tons, which will allow the vessel to remain at sea for 30 days. Large water tanks are fitted for the supply of fresh water for the boilers and accommodation arranged for 14 men in all.

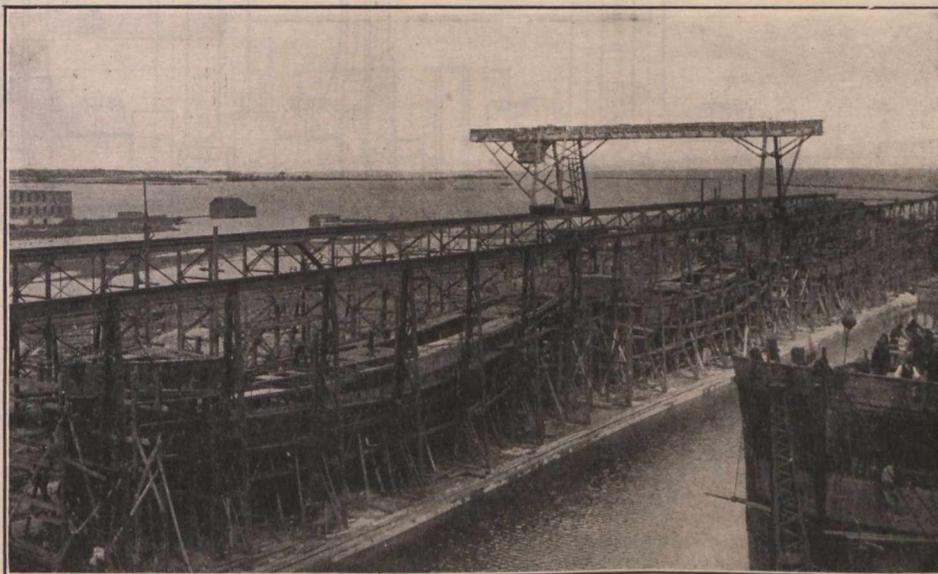
The trawlers are fitted with electric light and wireless telegraphy installation: The electric light installation consists of a 7½-k.w. generator, which serves for lighting the vessel, and also for operating the wireless telegraphy gear. The generating engine is designed in accordance with the best practice and built of the highest grade material of respective sorts procurable.

All bearing surfaces are very large

enquired what could be done, and it was ascertained that 100 wooden drifters and 36 steel trawlers could be built in this country, as the shipyards were in a condition to carry out this work.

A branch of the Naval Service Department was thereupon organized to handle this work, and J. W. Norcross, Vice President and Managing Director of the Canada Steamship Lines, who offered his services, was appointed at its head, as Director of Ship Construction. The department was glad to avail itself of his intimate knowledge of the shipbuilding resources of the country, and of his organizing ability and energy. Commander J. W. Skentelbery, R.N.V.R., was lent by the British Admiralty as expert adviser for the whole of work. The task was a great undertaking, considering that vessels of this kind had not been constructed in Canada, and that the supply of labor and facilities were of a very limited order. The shipbuilders and engineers were immediately called together and after careful consideration, orders for the vessels were allocated to the various firms, and the work was placed as follows:

Drifters.	
Canadian Vickers Limited	26
Montreal Harbor Commissioners	4
Leclair & Sons, Sorel, Que.	6
Sorel Shipbuilding & Coal Co.	8



Steel steam trawlers being built at Collingwood Shipbuilding Co.'s yard.

Trawlers.	
Canadian Vickers Limited	11
Dominion Government Shipyard, Sorel, Que.	3
Kingston Shipbuilding Co.	2
Polson Iron Works	4

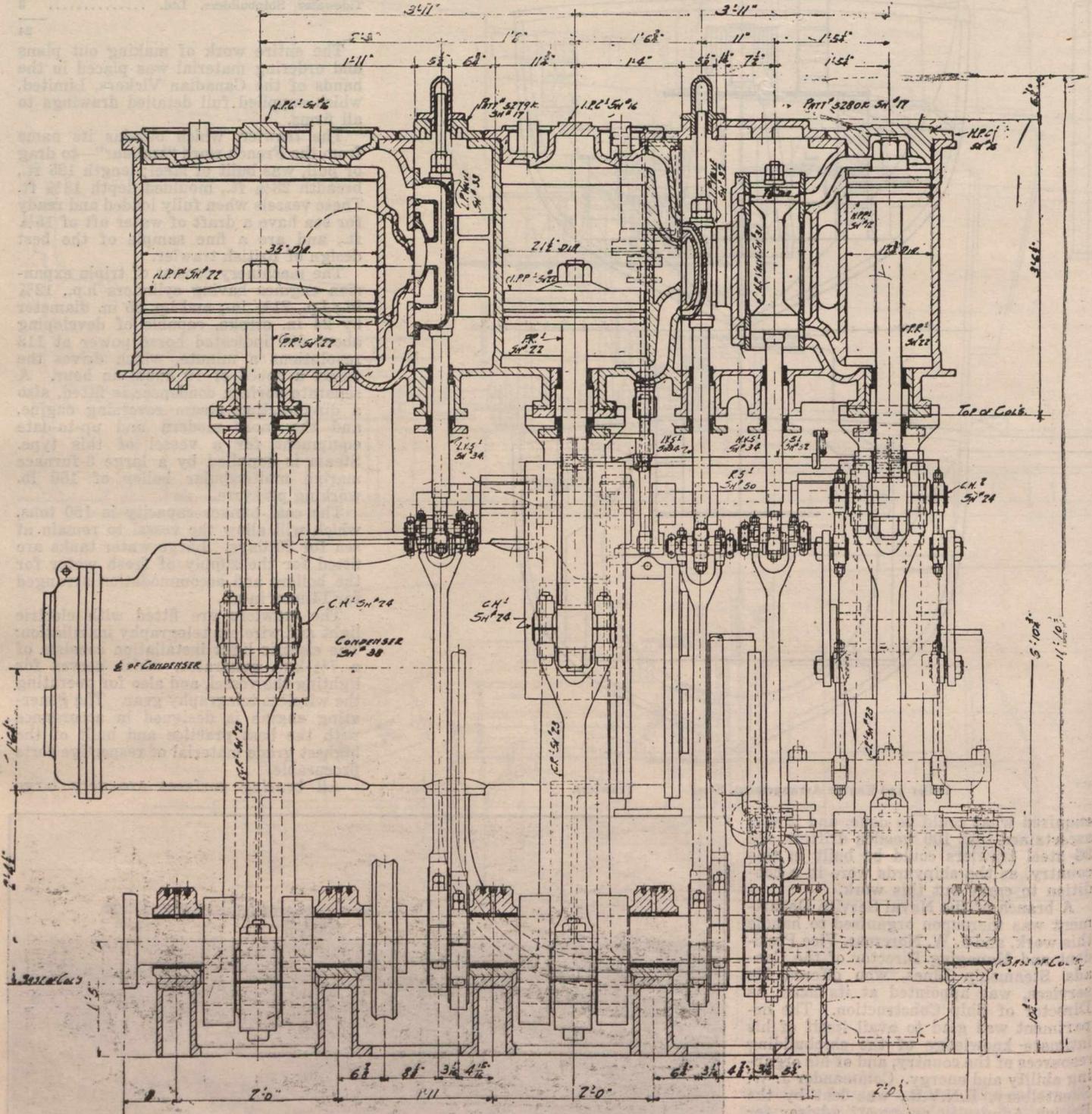
and all the work highly finished, which is necessary for high-speed engines of this type. The crank shafts and connecting rods are of forged steel, the crosshead

being forged solid on the end of the piston rod. All surfaces are lubricated by forced lubrication under an oil pressure of 20 lb. a square inch. The governor is of the centrifugal type, mounted direct on the crank shaft, and is so adjusted that a full load could be thrown on and off without affecting the speed of the engine. Owing to the limited space, these

with heavy brass bushings and steel sides, each barrel being capable of winding 1,000 fathoms of steel cable. The main driving wheels are of helical cast steel gearing, and the main clutch gear, which engages the barrels, is of cast steel fitted on a square so as to do away with the use of keys. This winch, when complete, weighs over 9 tons.

in., designed to indicate about 200 h.p. at 140 revolutions a minute, which would give the vessels a speed of 8½ knots an hour. Steam was supplied by a multi-tubular marine type boiler, fitted with two furnaces, designed for 140 lb. working pressure.

The vessels were arranged in every way similar to the ordinary British herring



Triple expansion engines for steam trawlers, 12¼-21½-35 x 24 in. stroke, 180 lb. w.p.

machines are of a very compact design, and are so arranged that they will run for long periods practically without attention.

The whole of the fishing machinery is fitted on deck, arranged identically with the best type of British steam trawler. The trawl winch, which plays an important part both in fishing and mine sweeping, has cylinders 9 in. diameter by 14 in. stroke, and works at full boiler pressure. The main shaft is of forged steel, 7 in. diameter, and carries 2 cast-steel barrels

Full detailed drawings were supplied for all machinery, boilers, winches, deck fittings, and in fact, every part of the vessel was specially designed to withstand the arduous duties which it has to perform.

The drifter, which obtained its name from the mode of fishing with drift nets, was built of wood, length 84 ft., breadth 19¼ ft., draft of water aft 9 ft.

These vessels were fitted with compound surface condensing engines having cylinders h.p. 12 in., l.p. 24 in., stroke 16

drifters, a very large number of which are continually operating around the British Isles. Accommodation was arranged for a crew of 10 men, some being placed in the cabin aft, and the remainder in the forecabin. Steel casings were fitted over the engine and boiler room, the after part of which forms a galley on deck, and the forward part the wheel-house.

Coal bunker capacity was provided for 13 tons in side bunkers, and 7 tons in a cross bunker, and 2 large tanks were

fitted for supplying fresh water for the boiler. Seventeen of the vessels were fitted with accommodation for an officer and wireless telegraphy installation.

These little vessels are of such a model that they are considered the most seaworthy type, and are able to proceed to all parts of the world under their own power.

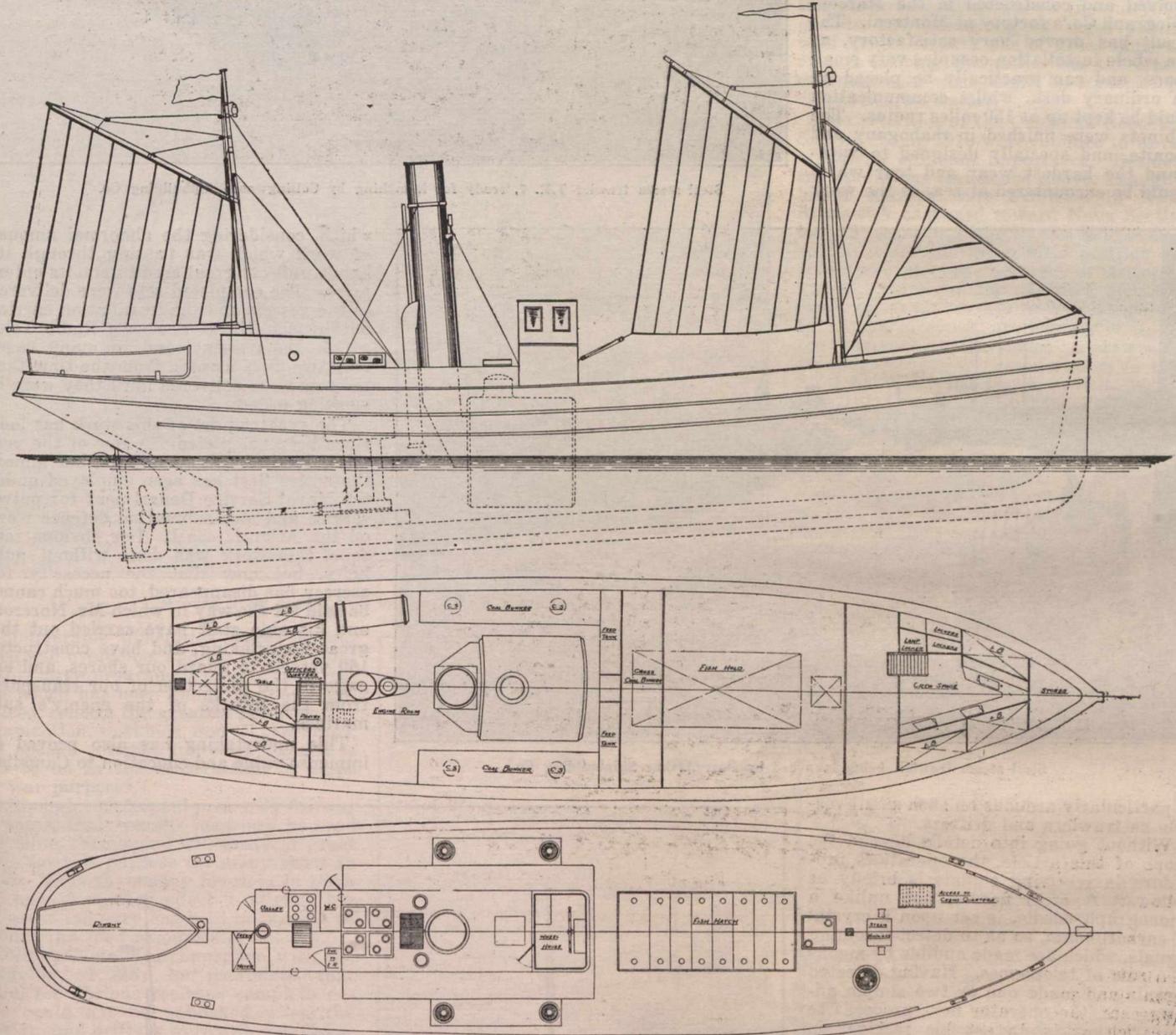
The whole of the vessels were each fitted with a gun, but have been so arranged that the armament and naval equipment

Transportation offered many difficulties, owing to the already congested state of the railways, but in spite of all this, some cars were only 10 days between Vancouver and Quebec.

The timber used in the construction of the drifters is fine clear Douglas fir, which was purchased sawn to specifications and delivered to the yards, and the whole order of 100 drifters has long since been completed, and many of them have crossed the Atlantic and done service on

gear were then laid out in sets, and fitted up into units ready to be placed in the vessels. By this means, work could be prepared and easily fitted in place, and in one week 12 drifters were completed, tried under steam and handed over for service. This department handled every vessel which passed through Quebec before proceeding to sea, and in addition to fitting the machinery to the vessels, all gun pedestals and guns were fitted.

One of the most important features of



Wood Steam Drifter, 84 ft. Between Perpendiculars.

can be easily removed and the vessels used as fishing vessels.

As these vessels were required for war purposes to be used on submarine attacks, the question of prompt delivery was of paramount importance. Even in ordinary times, when factories and labor were not engaged in munition work, the building of 160 vessels of a new type is a formidable undertaking. Mr. Norcross, however, tackled the problem in no uncertain manner. His able assistant, A. A. Wright, proceeded direct to the Pacific coast to obtain the timber to build the vessels, and although the orders to build were only placed about the middle of Feb., 1917, the timber was arranged for and delivery commenced in six weeks.

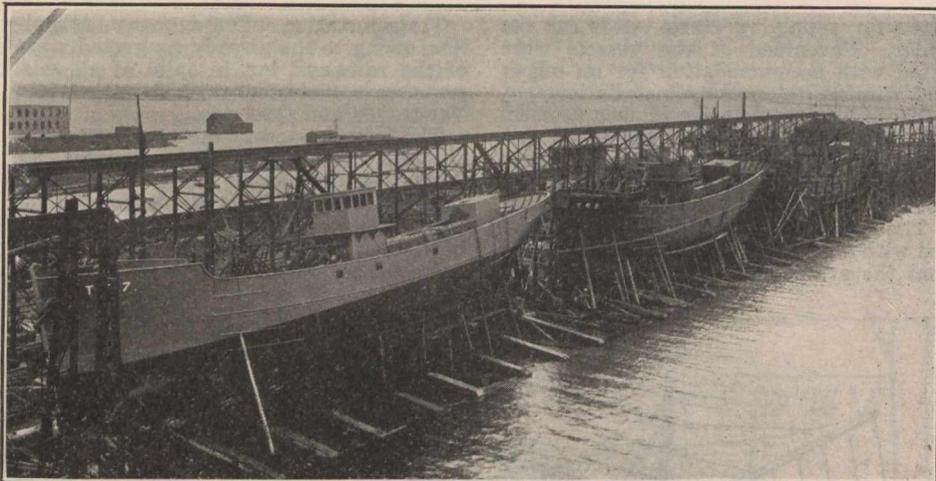
the other side, whilst the remainder have been used in naval service on the Canadian coasts. The steel plates for the trawler hulls and boilers were ordered and delivered with the greatest possible speed, and the construction of the vessels proceeded without delay.

Whilst the hulls were being built, the problem of installing the machinery and finishing the vessels was considered, and a fitting-out basin at Shed 14, Louise Basin, Quebec, was arranged. All machinery and boilers which were not installed at the builders' yards were sent to this place. A carefully considered pipe arrangement drawing was prepared, with each item and pipe numbered. All auxiliary machinery, piping, fittings and other

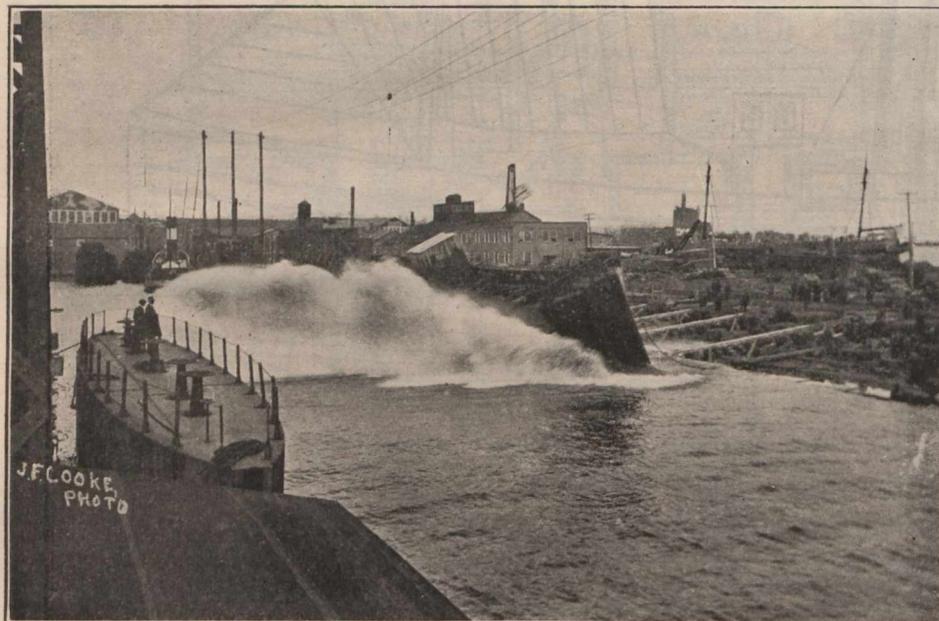
these vessels is the wireless telegraphy equipment, which was fitted to the whole of the trawlers, and as before mentioned, to seventeen of the drifters. When on patrol, the vessels are divided into units of six, and two out of this number are fitted with wireless telegraphy gear. By this means direct communication is always maintained between the base from which the vessel operates and the leaders of the patrol, and instructions are sent to each vessel which are communicated by visual signal to the remainder of the patrol which are not equipped with wireless apparatus. Some years ago the Naval Service Department organized a wireless branch, which controls all the wireless work in Canada, owns and oper-

ates the coast stations, inspects all ship stations and operates wireless installation on government ships.

The limited dimensions of these vessels presented a somewhat difficult problem in wireless equipment, but as this was indispensable, and the utility of the vessels largely dependent on their ability to maintain efficient wireless communication, it was essential that this problem should be solved, and after careful consideration and experiment the "cabinet set" was evolved and constructed in the Marconi Telegraph Co.'s factory at Montreal. The result has proved very satisfactory, as the whole installation occupies very small space, and can practically be placed on an ordinary desk, whilst communication could be kept up at 150 miles radius. The cabinets were finished in mahogany and ebonite, and specially designed to withstand the hardest wear and tear which would be encountered at sea, as the work



Steel steam trawler T.R. 7, ready for launching by Collingwood Shipbuilding Co.



Steel steam trawler, being launched by Port Arthur Shipbuilding Co.

is particularly arduous on such small vessels as trawlers and drifters.

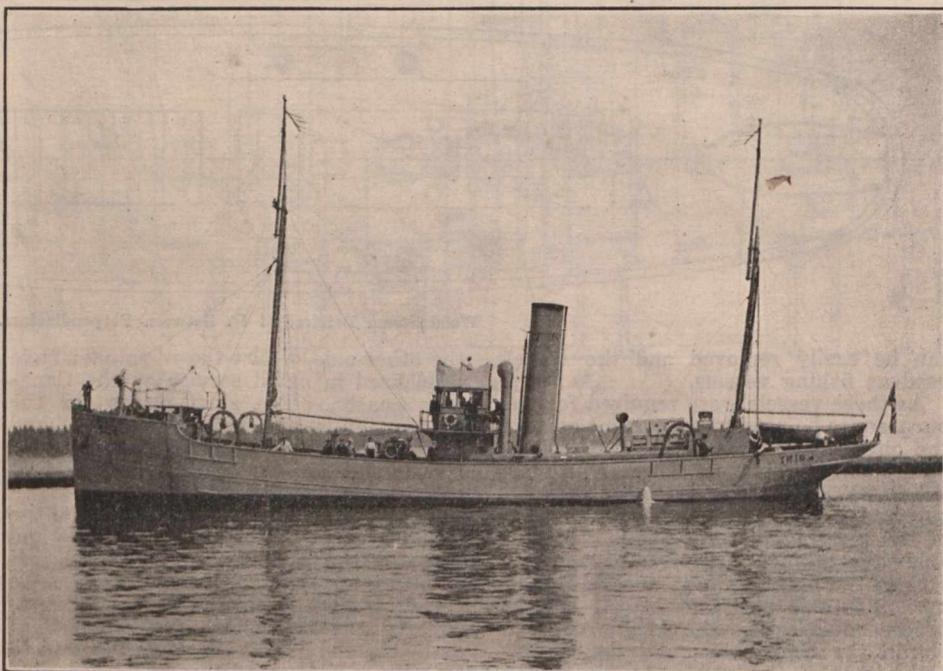
Without going into details beyond the scope of this article, the operator's procedure in receiving signals is briefly as follows: A steel needle, not unlike a phonograph needle, is set upon a crystal of carborundum, so as to detect incoming signals, which are made audible by means of a pair of telephones. Having detected signals and made one or two simple adjustments, the operator next proceeds to "tune," that is, to set his receiver in resonance with the distant transmitter, so as to obtain maximum response in his telephones, and this is accomplished by turning an ebonite knob which works a resistance and obtains the desired effect. By following this "tune" until the signal is clearly received, the interference of any other station may be subdued and communication carried on without interruption.

The main aim in designing these sets was to embrace both simplicity and efficiency, so that an ordinary operator would be able to carry out any slight adjustments and the sets be worked with practically no attention whatever. The Marconi Co. met this need in its up-to-date factory in Montreal, and turned out the whole of the instruments for this service,

which, considering the abnormal amount of work which was passing through its hands, reflects great credit upon its enterprise. The completed sets were delivered to the vessels and the installation carried out by the Naval Service's Radio Telegraph Department, and in many cases only two days elapsed from the time that the sets were delivered until they were in working order.

The greater part of this work has long since been completed. A few of the vessels have been sent overseas, but almost the entire fleet has been employed under the Naval Service Department for patrol service and anti-submarine defence work on the Atlantic coast. For obvious reasons, this work was done without publicity, but now that the necessity for secrecy has disappeared, too much cannot be said for the way in which Mr. Norcross and his able staff have carried out this great undertaking, and have constructed 160 vessels to guard our shores, and engage in the protection of our transports from the attacks of the enemy's submarines.

This undertaking has also proved of immense value and education to Canadian



Steel steam trawler, built by Polson Iron Works.

shipbuilders and engineers, as men have been trained, who before the war had no knowledge whatever of the work, and today the result is being clearly shown in the building of ships for the Dominion Government Merchant Marine.

Geodetic Survey Work During 1918.

The Interior Department's Geodetic Survey Branch had, during 1918, co-operation of an international character in war service of some importance. At the

waters available as a naval base for allied fleets, and the positions of numerous points and lighthouses to control the accuracy of this survey were furnished by the operations of the Canadian party.

At the commencement of the war, when the presence of German cruisers was feared in the North Pacific, a Geodetic Survey party in Dixon Entrance and Hecate Strait was able to render some assistance to the naval authorities at Prince Rupert. As the survey had parties on prominent points on the outlying islands, the connecting of these points with Prince Rupert was of great importance in keeping the authorities there acquainted with what might be transpiring on the nearby waters.

The activities of the Canadian Geodetic Survey during 1918 were confined to work of strictly economic importance. Besides the operations mentioned above, triangulation surveys were extended in New Brunswick eastward toward Nova Scotia to fulfil requests made by the Militia Department for the geographic position of points to control the accuracy of its topographic maps in the Halifax vicinity. Reconnaissance surveys were also extended in the direction of Sydney, N.S., at the request of the same department. Smaller surveys were undertaken in the St. John, N.B., and Moncton, N.B., vicinities, at the request of the Geological Survey's Topographic Division.

On the lower St. Lawrence River one party was engaged on primary triangulation, determining also the position of lighthouses and church spires used in connection with the mapping operations of the Naval Department's Survey.

In British Columbia there was another example of international geodetic co-operation. The Canadian Geodetic Survey's engineers continued the projection



Wooden steam drifter, built by Canadian Vickers, Limited.

Innumerable difficulties were encountered and overcome, and the carrying out of this large programme of ship construction which has been going on almost unnoticed, reflects the greatest credit on the organization, workmen, and all concerned, and speaks volumes for what Canada is able to do in the construction of ships for war purposes.

Although constructed primarily for war purposes, these vessels may now be used as fishing vessels and will prove of great value for this purpose for many years to come. Thus the money invested in them will have a marked effect in stimulating the great industry engaged in turning to account the food resources of the sea.

Editor's Note.—In connection with the foregoing, it may be mentioned that while, for obvious reasons, complete details could not be published when the trawlers and drifters were ordered, Canadian Railway and Marine World was able, in April, 1917, to publish information as to the numbers ordered and to give a pretty complete general description of their types, with illustrations. That article was the first published in connection with the orders and was very favorably received, and widely quoted.

The Gaspé Shipbuilding & Trading Co., Ltd., has been incorporated under the Dominion Companies Act, with \$75,000 capital and office at Gaspé, Que., to build, deal in, and operate steam and other vessels, and to carry on a general navigation business, and transport passengers and freight. The incorporators are: A. Lacouvee, master mariner; H. J. Hyman; T. H. Jopling; J. Baker; R. H. Gould; R. Coffin, mariner, and H. S. Leboutillier, insurance and shipping agent, all of Gaspé.



Completed steel steam trawler, being launched by Davie Shipbuilding & Repairing Co.

request of the United States Coast and Geodetic Survey a party was detailed for triangulation work on the Atlantic coast. A wire drag survey was carried on by the U.S. organization to make certain

of an arc of primary triangulation along the British Columbia coast from the Juan de Fuca Strait to Dixon Entrance. The U.S. Coast and Geodetic Survey having undertaken an extension of this work to

the head of Lynn Canal, the Canadian Geodetic Survey is contemplating the continuance of the primary triangulation along the Yukon River to the point of crossing of the 141st meridian of longi-

tude. This work, when completed, and taken in conjunction with the extension contemplated by the U.S. Coast and Geodetic Survey of their triangulation in the vicinity of Tacoma, Wash., to the Cana-

dian triangulation in the Juan de Fuca Strait, will constitute a geodetic arc of over 25 degrees of latitude and will connect Alaska, Yukon and B.C. with the adopted North American datum.

Dominion Wreck Commissioner's Judgments on Casualties, Etc.

Collision of s.s. Shrigley with Bridge on the Welland Canal.

Held at Montreal before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. F. Nash and C. Lapierre as nautical assessors, into the causes which led to the s.s. J. H. Shrigley, bound from Ashtabula, Ohio, to Montreal, with coal, striking the G.T.R. bridge over the Welland Canal, near Port Colborne, on May 11, 1918. From the evidence given, the court decided, without deeming

Collision of Barge Brookdale with Canal Bridge at Thorold, Ont.

Held at Toronto, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. J. B. Foote and Jas. McMaugh, as nautical assessors, into the cause of the collision of the barge Brookdale with bridge carrying the Niagara, St. Catharines and Toronto Ry. over the Welland Canal at Thorold, Ont. The court found that the master of the tug Escort, which had the barge Brookdale

Fire on s.s. Somali.

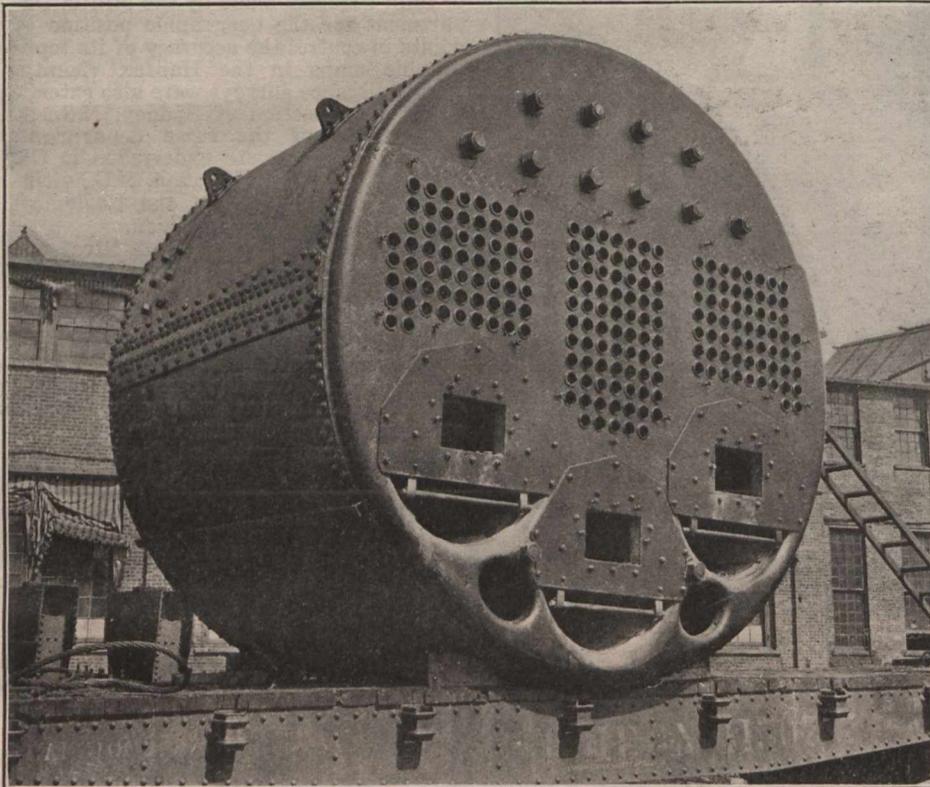
Held on board the vessel at Quebec, Que., before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Koenig and G. Houlgrave as nautical assessors, into the causes of a fire in hold no. 1 of the s.s. Somali, in Quebec harbor, Oct. 6, while en route from Montreal to a British port. After hearing the evidence, the court stated that it could come to no other conclusion than that inflammable material was willfully placed among the cases of lard stowed in the hold. A so-called supervision of cargo entering the vessel was exercised by the second officer, but this supervision relaxed into uselessness on the part of the third officer, while the chief officer frankly admitted that he witnessed smoking in the holds by laborers to an extent to justify him in complaining to the Montreal officials, who informed him that the practice could not be controlled. The court expressed its opinion that under normal conditions the nature of the cargo would not require rigid supervision from the standpoint of thievery, but as it is realized that the hand of the enemy is ever ready to strike through the treasure of our vessels, an unflinching surveillance should have been exercised of the men permitted to enter the vessel, and if the crew proved inadequate, a military picket should have been detailed to assist in this essential duty.

Pacific Transport-Dartmouth Collision.

At Halifax, N.S., Jan. 3, before Commander H. St. G. Lindsay, commissioner, assisted by Capt. F. Dodd, master s.s. War Erie, and A. J. White, master s.s. War Huron, as nautical assessors, into the cause of the collision between the steamship Pacific Transport and the Dartmouth Ferry Commission's ferry Dartmouth, in Halifax harbor, Dec. 18. The court came to the unanimous conclusion that the collision was due to the action of the Dartmouth's master, M. P. Murphy, in failing to carry out the regulations provided in the International Rules of the Road, articles 19, 22 and 23, thereby placing his vessel and her passengers in a dangerous position. It therefore found the Dartmouth entirely to blame for the collision and severely censured the master, cautioned him to be more careful in handling his vessel in future, and ordered that he pay the costs of the enquiry.

Corinthian Stranding.

Held at St. John, N.B., Dec. 19, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. J. E. Everest and A. J. Mulcahy as nautical assessors, into the cause of the stranding of the s.s. Corinthian on the northwest ledge of Briar Island in the Bay of Fundy, Dec. 14. The court came to the conclusion that the casualty was due to indifferent navigation on the part of the master and first officer, and especially when the circumstances seemed to demand the exercise of greater precaution. The vessel set out to sea under the guidance of compasses, the general susceptibility of which to unexpected agencies is well recognized,



Boiler for steel trawler, built by Dominion Bridge Co.

it necessary to obtain the bridge man's evidence, that the master, William Thompson, erred in judgment in under estimating the speed of his vessel after passing the first bridge. His duty was clear, and he should have waited until the bridge was fully opened, before attempting to steer between the center pier and the bank. It was said that the bridge men were slow in responding to his signals to open the bridge, but even if that were the case, and they had been slower still, it was still his duty to await the opening, and if any delay occurred through lack of diligence on the part of the G.T.R. employes, a complaint should have been lodged. The court therefore concluded that the master attempted to rush the bridge and miscalculated his distance, as well as the speed of the vessel, and therefore he was to blame. The evidence did not show that the bridge was damaged, but if it had been, the court was of opinion that the master and owner, William Thompson, would have been liable.

in tow, was navigated through the canal on the assumption that the bridge would be left open after midnight, as he claimed was the custom two years ago. He claims to have kept observations and a lookout on his vessel, but this must have been more than indifferent, and the master's evidence on this point was demolished by the vessel's engineer, who stated that the fact of the bridge being closed was observed on the barge Brookdale, which was 100 ft. astern, and means were taken, on board her, to fasten her to the bank. The strain caused by the Escort going ahead caused the mooring lines to part, and the Brookdale's mast came in contact with the bridge and was broken. The court found the master of the tug Escort, William Wright, at fault, that he was remiss in his duty, and suspended his certificate for two months, but as navigation closed Dec. 1, or thereabouts, and a suspension during winter months would be of no avail, the suspension is dated from Nov. 27 to Dec. 1, 1918, and from May 1 to June 27, 1919.

and the correction of which by the usual methods was precluded on the day of departure by adverse weather conditions. The court held that the master, in view of the uncertain weather conditions, should have verified the very questionable accuracy of bearings taken, before attempting to navigate so close to the reef as 2½ miles, and it declared it to be a physical impossibility for the vessel to have traversed 8 miles on the last stage within the time given in the evidence. The navigation methods adopted by the master were extremely hazardous, and his ill considered actions involved the total destruction of a costly vessel and of an equally valuable cargo, and while giving weight to this, the court was not un-

ship was so obvious, that the court found it incumbent to suspend his certificate for 6 months from Dec. 20, 1918, to June 20, 1919. The circumstances attending this disaster free the Bay of Fundy from any stigma or criticism which may be launched against it as an unsafe or dangerous channel of commerce.

Stranding of s.s. Afghan Prince.

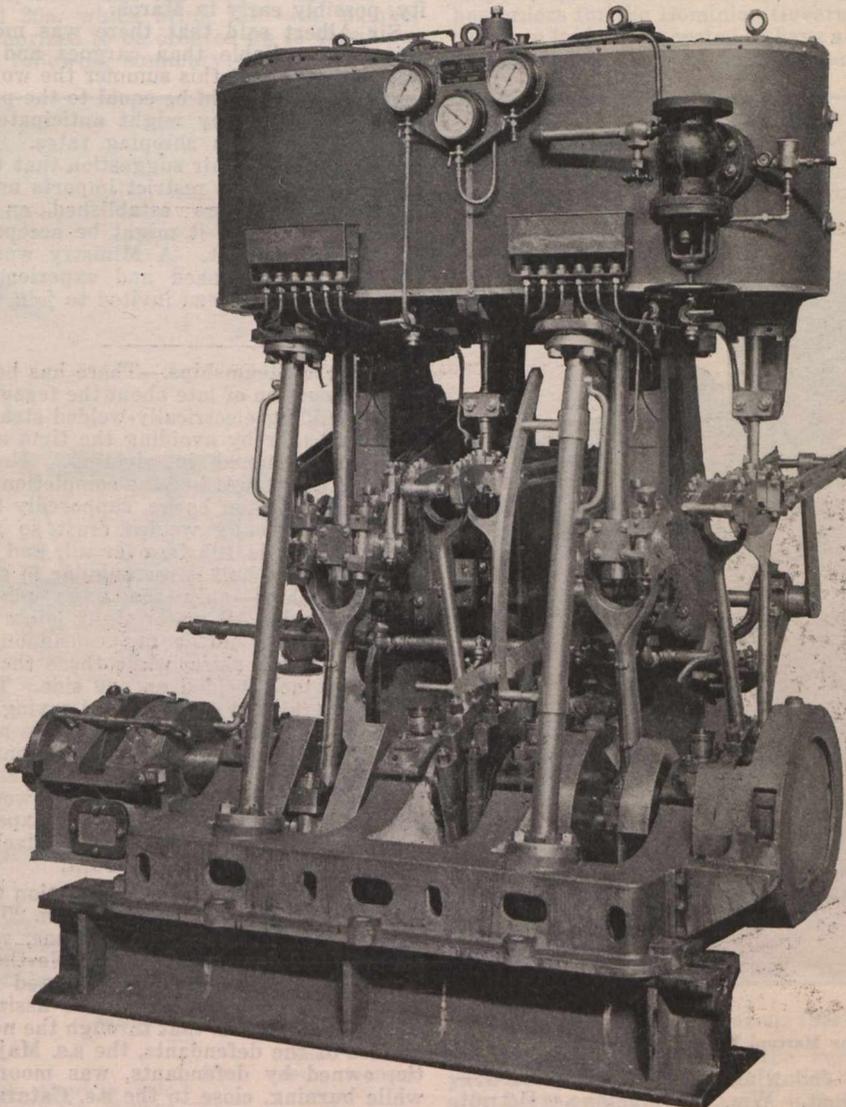
Held at Sydney, N.S., before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. A. J. Morrison and Lieut. H. C. Owens, R.N.R., as nautical assessors, into the causes of the stranding of the British s.s. Afghan Prince, on or near Guion Island, Cape Breton, N.S., on July 30. The evidence

maintained on the same course in 17 fathoms was an act of poor judgment. The chief officer's evidence gave the impression that there was some nervousness as to the presence of submarines, and that this caused the master to hug the coast. The Admiralty orders may be to the effect that masters should navigate close to the coast line, but the court is under the impression that there is a proviso, viz., consistent with safe navigation. During the evidence, it was stated that there were no buoys as indicated on the master's chart, but this statement was not considered of any value, as the intention was not to make for any whistling buoys, therefore their presence was of no consequence, and that if a buoy or aid to navigation was not seen or heard when expected, it would be foolhardy on the master's part to continue on practically half speed, and keeping the same course after finding such a depth as 17 fathoms.

The court stated that in ordinary circumstances it would deal with such a case in no lenient measure, but in view of the then existing conditions, the dread which must have existed as to meeting with an enemy vessel, it feels that, taking into consideration the care exercised in navigating up to Canso, the neat method followed in the log books and the watchfulness of the compass, it should not deal with the master's certificate, but reprimanded him severely and advised him to be more cautious in future. The court suggested that the Admiralty enclose with the folios handed to masters, some sectional charts of the coast which they are to frequent, especially those who are called upon to sail in strange waters.

The Sicilian-Canora Collision.

Held at Montreal, before Captain L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. F. Nash and C. Lappierre as nautical assessors, into the cause of the collision between Canadian Pacific Ocean Services' s.s. Sicilian and the Canadian Northern Ry. car ferry Canora in Québec harbor on Aug. 6, the latter being moored at a wharf. The evidence showed that the pilot, Jules Lamarre, placed on the s.s. Sicilian as adviser to the master, J. M. Reith, exhibited animus towards the master for effecting a landing without the pilot's counsel about a year ago. Having that in mind, and upon noticing that the master reluctantly listened to his advice, he abstained, without formal instructions, from continuing his work as pilot. This was wrong, and his whole conduct was based on assumption in concluding that the master intended taking matters into his own hands. In standing aloof, he showed a spirit of unwarrantable sulkiness, which the court condemned as childish. His statement to the master as to the tide was given in good faith, and therefore his suggestion to berth the vessel with the starboard side to the pier was justified. Yet the court was of opinion that the only seamanlike method of berthing the vessel, especially a single screw vessel, is by heading the tide. The court therefore held that the pilot purposely forgot his role as adviser, and was in default for this, but not for the casualty. The master amply demonstrated that he voluntarily ignored the pilot, and took upon himself the making of the landing, and his reference to the pilot's manner is regarded by the court as simply an attempt to trifle with words. The pilot's suggestion to diminish speed was equivalent to advice and should have been carried out without that seeming reluctance which was apparent in the evidence. The



Engine for wooden drifter, built by Goldie & McCulloch Co.

ful of his previous extended and untarnished record. It therefore held the master, D. T. Tannock, in default, and suspended his certificate for three months from Dec. 20, 1918, to Mar. 20, 1919.

With respect to the first officer, B. B. Simpson, while it was not shown that his observation was negligently or indifferently taken, yet if viewed from the standpoint of his subsequent actions, the accuracy of his word was brought into grave question, and could not be accepted without reserve. It was the court's opinion that if he had, in addition to ordering the helm hard a port, ordered the engines astern, the vessel might have swung more rapidly, and possibly the disaster might have been averted. His total lack of even the elementary demands of seaman-

showed that the vessel was carefully navigated from the time of leaving Hampton Roads until she reached Canso, frequent casts of the lead being taken, and a chain established when off Canso, which was passed at a safe distance. The weather was fair regarding wind and sea, but foggy at intervals. The court considered that the master set too fine a course after leaving Canso, especially seeing he was working on a large scale chart and had never navigated these waters before. When 17 fathoms was obtained, ordinary prudence demanded that the vessel's head should have been turned seaward and her half speed brought to slow, and she should have been navigated carefully until 40 or 45 fathoms had been reached, and then the former course resumed. To have re-

master's opinion of the ability of the pilot is not based on fact; that he was a good river pilot he did observe, but that he lacked in ability in manoeuvring a vessel had not been tested, and therefore could not be criticized. The master evaded the vessel himself and therefore no opinion could be formed as to the pilot's knowledge. If, in the past, he had found the pilot incompetent and unequal to his task, it was his duty to report such to his chief, and especially so in view of the fact that it was a special pilot who had been engaged by the owners for some years past. The master is compelled to pay the pilotage fee, but there is nothing in the statutes which compels him to accept the services of one whom he considers incompetent. When he held the

Lake Carriers Association Annual Meeting.

The Lake Carriers Association's annual meeting was held at Detroit, Mich., Jan. 17. Consideration of President Wm. Livingstone's annual report, and reports of the welfare plan and other committees, occupied the greater part of the meeting.

A resolution was adopted authorizing an appeal to the federal authorities for an addition to the number of lighthouse tenders on the lakes. Two vessels of that type were withdrawn from the lakes during the war, and additional tenders are necessary to attend properly to the navigation aids. The association hopes to obtain additional aids as well.

The President of the British Board of Trade on the Shipping Situation.

Sir Albert Stanley, President of the British Board of Trade, addressing the Huddersfield, Eng., Chamber of Commerce, Jan. 25, is reported in a press cablegram to have said he would be much happier if he could see stronger indications of restoration and development of trade in Great Britain. It was the deliberate policy of the government that restrictions and control would be removed as rapidly as possible, but the blockade must be maintained until peace was definitely secured. The government also proposed to speedily end the system of priority, possibly early in March.

Sir Albert said that there was more shipping available than cargoes and it was expected that this summer the world tonnage afloat would be equal to the pre-war tonnage. They might anticipate a very big slump in shipping rates. He thought it was a fair suggestion that the government should restrict imports until manufacturers were established on a peace footing, and it might be accepted by the government. A Ministry would shortly be established and experienced men had already been invited to join the board.

Rivetless Steamships.—There has been much discussion of late about the feasibility of building electrically-welded steamships and thereby avoiding the time and expense consumed in riveting. From England comes word of the completion of a rivetless 275-ton barge, supposedly the largest electrically welded craft so far produced. It is 125 ft. over all, and 16 ft. beam. The hull is rectangular in section amidships—only the bilge plates being curved. All water tight joints as far up as the latter are continuously welded on both sides, while those thereafter are tack welded on one side. The process permitted an estimated saving of from 25 to 40% in time and 10% in material. The expense of welding amounted to \$1,500, \$890 of which went for electrodes. In normal times this item would be less by about 60%. Another experimental barge, with certain parts riveted and others welded, is to be built.

Suit Against Northern Navigation Co.—London, Ont., press dispatch, Jan. 20:—The suit of F. McGibbon & Sons, who claim \$7,000 damages from the Northern Navigation Co., has been re-entered for trial at the approaching winter assizes. The plaintiffs claim that through the negligence of the defendants, the s.s. *Majestic*, owned by defendants, was moored, while burning, close to the s.s. *Cataract*, and as a result the latter ship was burned. The Northern Navigation Co.'s rejoinder is that it did not own the *Majestic* at the time of the fire, that there was no negligence, and that, in any event, the *Cataract* had lain for years, an abandoned wreck, on the bottom of Sarnia harbor.

Importation of Wood from Canada to U.S. War Trade Board announces that the restriction on the importation of wood, as classified under par. 647 of the Tariff Act of 1913, except cedar and balsam, and also the restriction on balsam of Oct. 17, 1918, have been modified to permit the issuance of licenses for the importation of all wood therein described, when originating in Canada and coming by any means of transportation. Import licenses, therefore, may now be issued for ocean shipment.



Wireless telegraph set for steel steam drifter, built by Marconi Wireless Telegraph Co.

pilot's advice in apparent contempt and took upon himself the direction of affairs, it became his own responsibility, and therefore the court holds that he lacked in judgment in approaching the pier at too great speed. The court did not consider it necessary to comment on this state of affairs, more than to say that there was sulkiness on the one side and strong-headedness on the other, neither of which should have existed, and it therefore finds both pilot and master in default. The pilot, Jules Lamarre, was fined \$100 and his own travelling expenses, and the master was severely reprimanded.

Canadian Boat & Engine Exchange, Ltd., has been incorporated under the Dominion Companies Act, with \$100,000 capital and office at Toronto, to conduct a general agency business.

The following officers were elected:—President, Wm. Livingstone, Detroit, Mich.; Vice President, J. S. Ashley, Cleveland, Ohio; Secretary and Treasurer, G. A. Marr, Cleveland; General Counsel, H. D. Goulder, Cleveland; Chief Shipping Commissioner, A. R. Rumsey, Cleveland. W. H. Smith, Manager, Canada Atlantic Transit Co., Montreal, was elected a director.

Price of U.S. Wooden Steamships.—The United States Shipping Board has fixed \$700,000, or \$200 a ton, as the price for each of the 3,500-ton wooden ships which were designed for ocean going traffic and which it now desires to sell to private owners. Where the ships are purchased in lots of five the price will be \$675,000 each. Offers have been received from both foreign and domestic buyers.

Canadian Government Merchant Marine, Ltd., Shipbuilding, Operation, Etc.

Orders for Steamships.—The two tables on the next page give full particulars of steel cargo steamships to be built for the Dominion Government, through the Marine Department, and to be operated by the Canadian National Railways management, as the Canadian Government Merchant Marine, Ltd. Up to the date of our last official advice, orders in council had been passed authorizing the Minister of Marine to order 47 vessels. Two of these orders in council, passed some months ago, were not acted on, and it will be noticed that the list does not contain any contracts numbered 8 and 9. However, there are contracts numbered 19a and 20a, which bring the total number authorized to be ordered up to 45, as per the following summary:—

Port Arthur Shipbuilding Co., Port Arthur, Ont.	4	3,400	13,600
Port Arthur Shipbuilding Co.	2	4,300	8,600
Tidewater Shipbuilders, Ltd., Three Rivers, Que.	4	5,100	20,400
Victoria Machinery Depot, Victoria, B.C.	2	8,100	16,200
Wallace Shipyards, Ltd., Vancouver, B.C.	2	4,300	8,600
Wallace Shipyards, Ltd.	2	5,100	10,200
	45		263,850

British American Shipbuilding Co., Welland, Ont., advised us Jan. 14 that neither of the keels for the 2 steel steamships of 4,350 tons d.w. each, for which it has orders for the Dominion Government, had been laid. It expected to have a berth available towards the end of January,

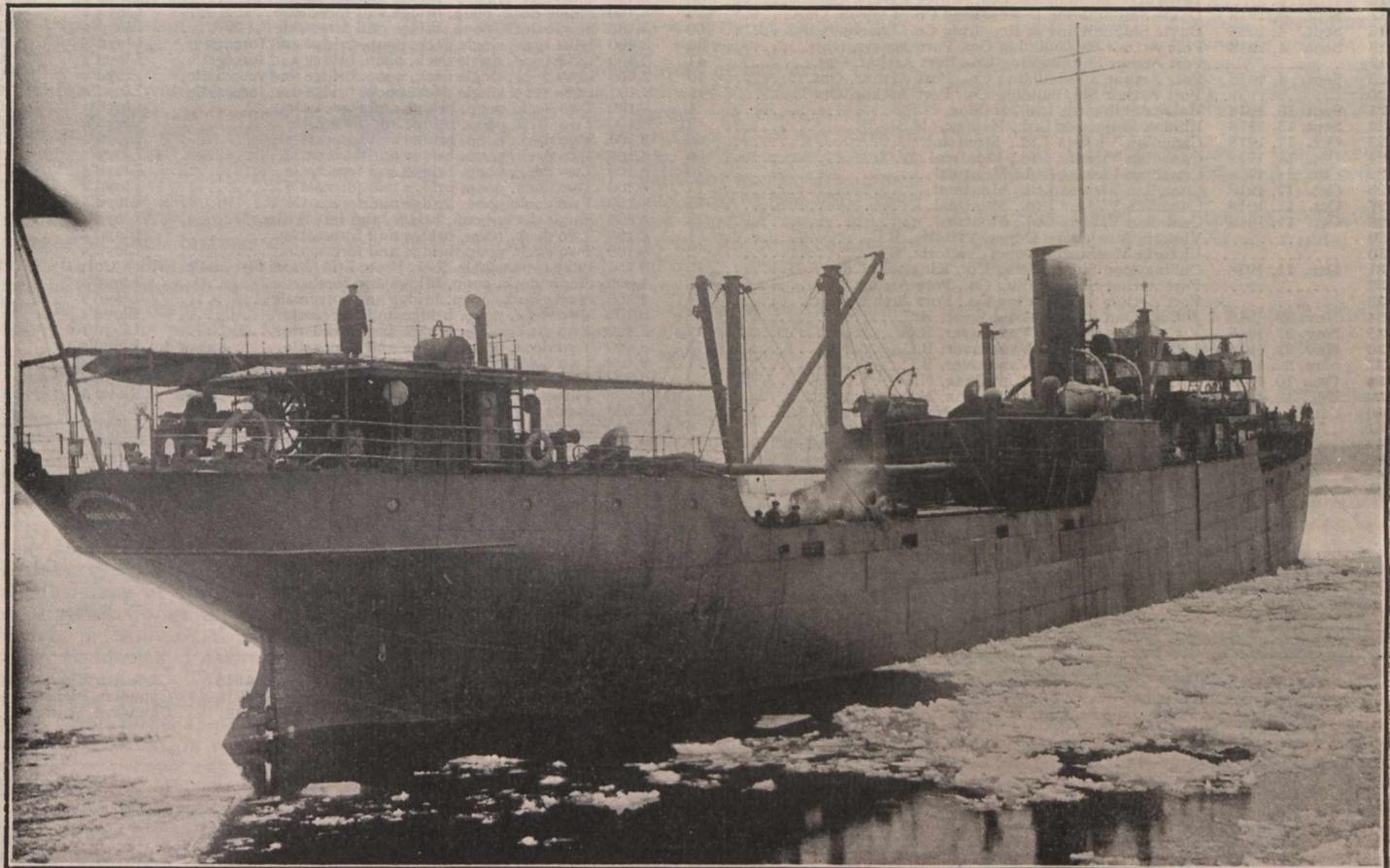
was launched Dec. 3, 1918, and named Canadian Pioneer. She left Montreal Dec. 6, 1918, in tow, for Quebec, for completion there, and it was expected to deliver her to the Marine Department by the end of January.

The keel of yard no. 68, 8,100 tons d.w., was laid Aug. 26, 1918, and it was expected to launch her Jan. 15, but we had no advice of the launching up to the time of writing.

The keel of yard no. 69, 8,100 tons d.w., was laid Nov. 30, 1918, and it is expected to launch her in May.

The keel of yard no. 70, 8,100 tons d.w., was laid Dec. 2, 1918, and it is expected to launch her in May.

It is expected to launch yard no. 71, 8,100 tons d.w., in May; yard no. 72, 8,100



Canadian Government Merchant Marine, Ltd., Steamship Canadian Voyageur, 4,300 tons d.w., leaving Quebec Jan. 21 for Halifax.

	No.	Tons each	Total tonnage
British American Shipbuilding Co., Welland, Ont.	2	4,350	8,700
Canadian Vickers, Ltd., Montreal	2	4,300	8,600
Canadian Vickers, Ltd.	6	8,100	48,600
Collingwood Shipbuilding Co., Collingwood, Ont.	4	3,750	15,000
Collingwood Shipbuilding Co., Kingston, Ont.	1	3,750	3,750
J. Coughlan & Sons, Ltd., Vancouver, B.C.	4	8,100	32,400
Davie Shipbuilding & Repairing Co., Lauzon, Que.	2	5,100	10,200
Halifax Shipyards, Ltd., Halifax, N.S.	2	8,100	16,200
Halifax Shipyards, Ltd., Halifax, N.S.	2	10,500	21,000
John L. Mullen Construction Co., Prince Rupert, B.C.	2	8,100	16,200
Nova Scotia Steel & Coal Co., Ltd., New Glasgow, Ont.	2	2,800	5,600

and directly steel arrives the keel for yard no. 4 will be laid, but it will probably be the middle of March before the keel for yard no. 5 can be laid.

Canadian Vickers, Limited, Montreal.—Following are particulars of this company's work on steel cargo steamships for the Dominion Government. As stated in Canadian Railway and Marine World for January, the vessel, yard no. 66, 4,300 tons d.w., the keel of which was laid June 10, 1918, was launched Nov. 23, 1918, and named Canadian Voyageur. She left Montreal Dec. 11 under her own steam for Quebec, was completed there and handed over to the Marine Department under the control of which she sailed from Quebec Jan. 21 for Halifax, where she will be transferred to the Canadian National Railways management for operation.

The vessel, yard no. 67, 8,100 tons d.w., the keel of which was laid July 17, 1918,

tons d.w., in June; and yard no. 73, 4,300 tons d.w., in June.

Collingwood Shipbuilding Co., Collingwood, Ont.—As stated in Canadian Railway and Marine World for January, the first of the steel steamships built by this company for the Dominion Government, yard no. 61, 3,750 tons d.w., was launched Dec. 21 and named Canadian Warrior. She is expected to be completed about the end of March. The keel for a similar vessel, yard no. 62, was laid June 3, 1918.

J. Coughlan & Sons, Vancouver, have contracts from the Dominion Government for 4 steel cargo steamships of 8,100 tons d.w. each. No keels have been laid, and when they will be depends on the delivery of steel.

We were advised Jan. 20 that slips for laying the keels of four vessels will be ready during February, March and April. The Dominion Government is supplying the steel, and when the keels will be laid

depends on the steel's arrival. Up to Jan. 20 there was no advice when it would be shipped, so it was unable to state at all definitely when the keels will be laid.

Davie Shipbuilding & Repairing Co., Lauzon, Levis, Que., advised us Jan. 16 that it had not laid either of the keels for the 2 steel steamships of 5,100 tons

each for which it has orders from the Dominion Government, owing to delay in delivery of material. **Halifax Shipyards, Limited, Halifax,**

Orders for Steel Cargo Steamships for Dominion Government. Table 1.

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. Where a contract date is not given the contract had not been signed at the time of our latest official advice.

Contract no.	Contract date	Builder	Yard no.	Tons d.w.	Type	Classification	Speed, knots
1	Mar. 4, 1918	Canadian Vickers Ltd., Montreal	66	4,300	Single deck, poop, bridge and forecastle	Lloyd's	11
2	May 22, 1918	Canadian Vickers Ltd., Montreal	67	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
3	May 18, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	61	3,750	Lake type, single deck, poop, bridge and forecastle	British Corp.	9
4	Mar. 15, 1918	Wallace Shipyards Ltd., Vancouver, B.C.	100	4,300	Single deck, poop, bridge and forecastle	Lloyd's	11
5	Nov. 25, 1918	Wallace Shipyards Ltd., Vancouver, B.C.	106	4,300	Single deck, poop, bridge and forecastle	Lloyd's	11
6	Nov. 25, 1918	Wallace Shipyards Ltd., Vancouver, B.C.	101	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
7	Nov. 25, 1918	Wallace Shipyards Ltd., Vancouver, B.C.	102	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
10	July 5, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	62	3,750	Lake type, single deck, poop, bridge and forecastle	British Corp.	9
11	Oct. 17, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	63	3,750	Lake type, single deck, poop, bridge and forecastle	British Corp.	9
12	Oct. 17, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	64	3,750	Lake type, single deck, poop, bridge and forecastle	British Corp.	9
13	Aug. 9, 1918	Tidewater Shipbuilders Ltd., Three Rivers, Que.	5	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
14	Aug. 9, 1918	Tidewater Shipbuilders Ltd., Three Rivers, Que.	6	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
15	.....	Tidewater Shipbuilders Ltd., Three Rivers, Que.	7	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
16	.....	Tidewater Shipbuilders Ltd., Three Rivers, Que.	8	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
17	Sept. 4, 1918	Davie Shipbuilding & Repairing Co., Lauzon, Que.	459	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
18	Sept. 4, 1918	Davie Shipbuilding & Repairing Co., Lauzon, Que.	460	5,100	Single deck, poop, bridge and forecastle	Lloyd's	11
19	Sept. 4, 1918	Port Arthur Shipbuilding Co., Port Arthur, Ont.	39	3,400	Lake type, single deck, poop, bridge and forecastle	Lloyd's	9
19a	.....	Port Arthur Shipbuilding Co., Port Arthur, Ont.	41	3,400	Lake type, single deck, poop, bridge and forecastle	Lloyd's	9
20	Sept. 4, 1918	Port Arthur Shipbuilding Co., Port Arthur, Ont.	40	3,400	Lake type, single deck, poop, bridge and forecastle	Lloyd's	9
20a	.....	Port Arthur Shipbuilding Co., Port Arthur, Ont.	42	3,400	Lake type, single deck, poop, bridge and forecastle	Lloyd's	9
21	Sept. 13, 1918	Halifax Shipyards Ltd., Halifax, N.S.	1	8,100	Two deck, poop, bridge and forecastle	Lloyd's	10
22	Sept. 13, 1918	Halifax Shipyards Ltd., Halifax, N.S.	2	8,100	Two deck, poop, bridge and forecastle	Lloyd's	10
23	Oct. 11, 1918	Canadian Vickers Ltd., Montreal	68	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
24	Oct. 11, 1918	Canadian Vickers Ltd., Montreal	69	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
25	Oct. 11, 1918	Canadian Vickers Ltd., Montreal	70	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
26	Oct. 11, 1918	Canadian Vickers Ltd., Montreal	71	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
27	Oct. 11, 1918	Canadian Vickers Ltd., Montreal	72	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
28	Oct. 11, 1918	Canadian Vickers Ltd., Montreal	73	4,300	Single deck, poop, bridge and forecastle	Lloyd's	11
29	.....	Victoria Machinery Depot, Victoria, B.C.	1	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
30	.....	Victoria Machinery Depot, Victoria, B.C.	2	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
31	Dec. 11, 1918	Collingwood Shipbuilding Co., Kingston, Ont.	15	3,750	Lake type, single deck, poop, bridge and forecastle	British Corp.	9
32	.....	Port Arthur Shipbuilding Co., Port Arthur, Ont.	43	4,300	Single deck, poop, bridge and forecastle	Lloyd's	11
33	.....	Port Arthur Shipbuilding Co., Port Arthur, Ont.	44	4,300	Single deck, poop, bridge and forecastle	Lloyd's	11
34	Nov. 22, 1918	J. Coughlan & Sons, Vancouver, B.C.	11	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
35	Nov. 22, 1918	J. Coughlan & Sons, Vancouver, B.C.	12	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
36	Nov. 22, 1918	J. Coughlan & Sons, Vancouver, B.C.	13	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
37	Nov. 22, 1918	J. Coughlan & Sons, Vancouver, B.C.	14	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
38	Dec. 10, 1918	Halifax Shipyards Ltd., Halifax, N.S.	3	10,500	Three deck, poop and forecastle	Lloyd's	12
39	Dec. 10, 1918	Halifax Shipyards Ltd., Halifax, N.S.	4	10,500	Three deck, poop and forecastle	Lloyd's	12
40	.....	Nova Scotia Steel & Coal Co., New Glasgow, N.S.	5	2,800	Single deck, poop, bridge and forecastle	Lloyd's	8½
41	.....	Nova Scotia Steel & Coal Co., New Glasgow, N.S.	6	2,800	Single deck, poop, bridge and forecastle	Lloyd's	8½
42	.....	John L. Mullen Construction Co., Prince Rupert, B.C.	1	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
43	.....	John L. Mullen Construction Co., Prince Rupert, B.C.	2	8,100	Two deck, poop, bridge and forecastle	Lloyd's	11
44	.....	British American Shipbuilding Co., Welland, Ont.	4	4,350	Single deck, poop, bridge and forecastle	British Corp.	10
45	.....	British American Shipbuilding Co., Welland, Ont.	5	4,350	Single deck, poop, bridge and forecastle	British Corp.	10

263,850

Orders for Steel Cargo Steamships for Dominion Government. Table 2.

Contract no.	Builder	Yard no.	Price per ton d.w.	Total price	Approximate delivery date	Keel laid	Launched	Name
1	Canadian Vickers Ltd.	66	\$207.	\$ 896,100	Dec. 31, 1918	June 10, 1918	Nov. 23, 1918	Canadian Voyageur
2	Canadian Vickers Ltd.	67	180.	1,458,000	Jan. 31, 1918	July 17, 1918	Dec. 3, 1918	Canadian Pioneer
3	Collingwood Shipbuilding Co.	61	205.	768,750	May 1, 1919	.....	Dec. 21, 1918	Canadian Warrior
4	Wallace Shipyards Ltd.	100	207.	890,100	Mar. 31, 1919	Oct. 1, 1918	.....	.....
5	Wallace Shipyards Ltd.	106	217.	933,100	May 31, 1919	Nov. 15, 1918	.....	.....
6	Wallace Shipyards Ltd.	101	210.	1,071,000	July 31, 1919	.....	.....	.....
7	Wallace Shipyards Ltd.	102	210.	1,071,000	Sept. 30, 1919	.....	.....	.....
10	Collingwood Shipbuilding Co.	62	205.	768,750	May 15, 1919	June 3, 1918	.....	.....
11	Collingwood Shipbuilding Co.	63	205.	768,750	July 15, 1919	.....	.....	.....
12	Collingwood Shipbuilding Co.	64	205.	768,750	July 1, 1919	.....	.....	.....
13	Tidewater Shipbuilders Ltd.	5	200.	1,020,000	Aug. 1, 1919	.....	.....	.....
14	Tidewater Shipbuilders Ltd.	6	200.	1,020,000	Sept. 1, 1919	.....	.....	.....
15	Tidewater Shipbuilders Ltd.	7	200.	1,020,000	May 1, 1919	.....	.....	.....
16	Tidewater Shipbuilders Ltd.	8	200.	1,020,000	July 1, 1919	.....	.....	.....
17	Davie Shipbuilding & Repairing Co.	459	200.	1,020,000	Nov. 1, 1919	.....	.....	.....
18	Davie Shipbuilding & Repairing Co.	460	200.	1,020,000	Nov. 8, 1919	.....	.....	.....
19	Port Arthur Shipbuilding Co.	39	205.	697,000	June 1, 1919	Dec. 9, 1918	.....	.....
19a	Port Arthur Shipbuilding Co.	41	210.	714,000	Sept. 30, 1919	.....	.....	.....
20	Port Arthur Shipbuilding Co.	40	205.	697,000	July 1, 1919	Dec. 10, 1918	.....	.....
20a	Port Arthur Shipbuilding Co.	42	210.	714,000	Oct. 31, 1919	.....	.....	.....
21	Halifax Shipyards Ltd.	1	195.	1,579,500	Dec. 19, 1919	.....	.....	.....
22	Halifax Shipyards Ltd.	2	195.	1,579,500	Apr. 1920	.....	.....	.....
23	Canadian Vickers Ltd.	68	188.	1,522,800	May 1, 1919	Aug. 26, 1918	.....	.....
24	Canadian Vickers Ltd.	69	188.	1,522,800	June 1, 1919	Nov. 30, 1918	.....	.....
25	Canadian Vickers Ltd.	70	188.	1,522,800	July 1, 1919	Dec. 2, 1918	.....	.....
26	Canadian Vickers Ltd.	71	188.	1,522,800	Aug. 1, 1919	.....	.....	.....
27	Canadian Vickers Ltd.	72	188.	1,522,800	Sept. 1, 1919	.....	.....	.....
28	Canadian Vickers Ltd.	73	215.	924,500	May 27, 1919	.....	.....	.....
29	Victoria Machinery Depot	1	198.	1,603,800	Jan. 31, 1920	.....	.....	.....
30	Victoria Machinery Depot	2	198.	1,603,800	Nov. 30, 1920	.....	.....	.....
31	Collingwood Shipbuilding Co.	15	205.	768,750	Nov. 1, 1919	.....	.....	.....
32	Port Arthur Shipbuilding Co.	43	215.	935,250	Nov. 1, 1919	.....	.....	.....
33	Port Arthur Shipbuilding Co.	44	215.	935,250	Nov. 15, 1919	.....	.....	.....
34	J. Coughlan & Sons	11	198.	1,603,800	July 31, 1919	.....	.....	.....
35	J. Coughlan & Sons	12	198.	1,603,800	Aug. 31, 1919	.....	.....	.....
36	J. Coughlan & Sons	13	198.	1,603,800	Sept. 30, 1919	.....	.....	.....
37	J. Coughlan & Sons	14	198.	1,603,800	Oct. 31, 1919	.....	.....	.....
38	Halifax Shipyards Ltd.	3	197½	2,073,750	Aug. 1, 1920	.....	.....	.....
39	Halifax Shipyards Ltd.	4	197½	2,073,750	Nov. 1, 1920	.....	.....	.....
40	Nova Scotia Steel & Coal Co.	5	210.	588,000	Oct. 1919	.....	.....	.....
41	Nova Scotia Steel & Coal Co.	6	210.	588,000	Nov. 1919	.....	.....	.....
42	John L. Mullen Construction Co.	1	198.	1,603,800	Feb. 1920	.....	.....	.....
43	John L. Mullen Construction Co.	2	198.	1,603,800	June 1920	.....	.....	.....
44	British American Shipbuilding Co.	4	215.	935,250	Nov. 1919	.....	.....	.....
45	British American Shipbuilding Co.	5	215.	935,250	June 1920	.....	.....	.....

\$52,691,450

N.S., advised us Jan. 15 that building berths were ready, but that it had not been possible to lay keels for any of the 2 steel steamships of 8,100 tons each, and 2 of 10,500 tons each, for which it has orders from the Dominion Government, as the steel had not been received. It was then expected to receive steel in time to lay the keels of the first 2 steamships in February.

Nova Scotia Steel & Coal Co., New Glasgow, N.S.—Particulars of 2 steel cargo steamships of 2,800 tons d.w. each, which the Dominion Government has ordered from this company, were given in our January issue. We were advised Dec. 23 that it was expected the keels of both vessels would be laid early in January.

Port Arthur Shipbuilding Co., Port Arthur, Ont., which has orders from the Dominion Government for 4 steel cargo steamships of 3,400 tons d.w. each, and for 2 of 4,300 tons d.w. each, laid keels for two 3,400-ton ones on Dec. 9 and Dec. 10, 1918, respectively. The approximate launching date is about April 15.

Reference was made in our last issue, to the 2 steel steamships of 4,300 d.w. tons capacity each, which the Dominion Government has ordered from this company, and which, as stated, it will be necessary to cut in two for passage through the Welland Canal. It had been suggested that instead of cutting them in two, they be built in sections, but we are advised that it is the present intention to build them full size, and then cut them, but it is possible that this decision may be changed later.

Prince Rupert Shipbuilding & Engineering Co. has been incorporated under the British Columbia Companies Act, with \$500,000 capital, and office at Prince Rupert, B.C., for the operation of the dry dock and shipbuilding plant leased recently from the Grand Trunk Pacific Development Co., at Prince Rupert, B.C., by the John L. Mullen Construction Co., Pittsburg, Pa. The company is said to be a subsidiary of the Empire Shipbuilding & Drydock Co. of the State of Delaware, which is capitalized at \$1,500,000, and John L. Mullen, Pittsburg, Pa., is stated to be President. The company has orders from the Dominion Government for 2 steel steamships, as mentioned previously, and in addition, is reported to have several other orders, aggregating about 100,000 tons.

Victoria Machinery Depot Co., Victoria, B.C.—The Dominion Government has authorized the Minister of Marine to give this company contracts for 2 steel cargo steamships of 8,100 tons d.w. each. We are advised that the site for building is being prepared.

Negotiations are reported to have taken place regarding the purchase of this company's plant and business by the Foundation Co. C. J. V. Spratt, President, V.M.D., Ltd., is reported to have stated, recently, that the company was prepared to sell its plant at its appraised value, but that the negotiations for the sale had not been advanced to any appreciable extent during the last two months. The company has 2 contracts for vessels of 8,100 tons each at \$198 a ton, from the Dominion Government.

Wallace Shipyards, Ltd., Vancouver, B.C., has laid keels for 2 steel cargo steamships for the Dominion Government. The first one, for yard no. 100, 4,300 tons d.w., was laid Oct. 1, 1918, and the second, for yard no. 106, 4,300 tons d.w., was laid Nov. 15, 1918. On Dec. 18, 1918, we were advised that it was expected to launch the first hull about the middle of Febru-

ary and the second one about the middle of March, and to lay keels for two 5,100-ton steel cargo steamships, yards numbers 101 and 102, about the middle of February and the end of March, respectively, and to launch them in June and August.

Incorporation of Operating Companies.—In accordance with the announcement made in our last issue, Canadian Government Merchant Marine, Ltd., has been incorporated under the Dominion Companies Act, with \$1,000,000 authorized capital, and office at Toronto, to build, own and operate steam and other vessels of every description, buildings, machinery, plant, equipment, etc., of every kind connected with the building and management of such vessels, and also to build and operate any railway or branch thereof, at any port of call of any steamship lines, and such buildings as it may be deemed advisable for hotels and restaurants, and to carry on any business that may tend to the travelling public's comfort and convenience. It may also make any arrangements with any railway or navigation company, government or municipal organization, whose railway or vessel lines are or may be adjacent, or connecting, for the leasing to or from it of any part of such undertaking, or for amalgamation on terms and conditions as may be agreed upon. It may also acquire and undertake the whole or any part of such similar business, and may use its funds to acquire shares, bonds and other securities in companies carrying on any business which is capable of being operated to its benefit. The incorporators are Gerald Ruel, L. W. Mitchell, W. B. Langmore, C. D. Cowie and F. J. Buller, Toronto, all of whom are, or were, connected with the Canadian Northern Ry., now a component of the Canadian National Railways. Canadian Government Merchant Marine, Ltd., will be the operating company, through its subsidiaries, for the steel cargo steamships being built for the Dominion Government.

Canadian Pioneer, Ltd., and Canadian Voyager, Ltd., have each been incorporated under the Dominion Companies Act, with \$100,000 authorized capital each and offices at Toronto, their powers being very similar to those of Canadian Government Merchant Marine, Ltd., of which they will be subsidiaries. They will operate the steamships Canadian Pioneer and Canadian Voyager respectively. The incorporators of both these subsidiary companies are: G. Ruel, R. H. M. Temple, G. N. Limpricht, R. P. Ormsby and R. C. Vaughan, all of whom are Canadian National Railways officials.

Location of Head Office.—There seems to be some little local irritation as to the selection of Toronto for the head office of Canadian Government Merchant Marine, Ltd., which is expressed in various ways. It is natural that the head office be located at the head office of the Canadian National Railways, which is to control the vessels, but this does not necessarily mean that all the details of vessel operation will be undertaken from Toronto. There will naturally be some sort of decentralization, and it is unlikely that other places will be overlooked in regard to local offices. The Quebec Telegraph, perhaps unconsciously, hits the nail on the head, when it describes Quebec as the "vital ganglion of the Government Railway System." A ganglion is described as "a mass of nervous matter."

The s.s. **Canadian Voyager**, which, as stated elsewhere in this article, was delivered to the Marine Department at Quebec, Jan. 17, sailed from Quebec on Jan. 21 at 8.50 a.m. for Halifax, to be

there transferred to Canadian Government Merchant Marine, Ltd., for operation. She left Quebec in charge of Capt. R. Ackman, who was appointed by Canadian Government Merchant Marine, Ltd., and a Quebec pilot, the latter to go as far as Father Point. She was accompanied from Quebec by the Dominion Government icebreaking s.s. Montcalm, the latter being intended to go as far as ice conditions might necessitate. The following reports had been received up to the time we went to press:

Jan. 22, 6 p.m. Off Maitougan Bank, 200 miles from Quebec, making about 7 knots.

Jan. 23, 5 a.m. Stopped most of previous night in heavy ice; 8 a.m., making good progress, ice clear - and wind n.e.

Jan. 23, 8 p.m. Off Godbout, 265 miles from Quebec, in easterly gales and blinding snowstorm.

Jan. 25. Montcalm had drifted 46 miles to west, and was then about 3 miles off Port Neuf bank, Canadian Voyager 4 cables from her. Both vessels tried to go north, but it was impossible to move ahead or astern, there being heavy packed ice everywhere, and strong n.e. winds with blinding snow.

Jan. 26. Gave Montcalm 86 tons of coal and 50 tons water Jan. 25, and proceeded at midnight through ice.

Jan. 26, 11.30 a.m. Off St. Nicholas. Signal service reports n.w. winds; ice clearing.

Steamship Passes Through the Welland Canal on Its Side.

Rolled over on its side, a large lake steamship of beam exceeding the width of the locks has been passed through the Welland Canal. The Charles R. Van Hise, a 9,000-ton Great Lakes freighter, was chosen for a tryout of this new method. It was first cut in two crosswise, as had been done previously with lake steamships too long for the canal locks, but not exceeding in beam the 44 ft. width of the locks.

With a view to securing larger lake ships for ocean traffic, F. A. Eustis, of the United States Shipping Board, suggested that a ship (or half section of a ship) might be sent through the locks when turned on its side, the depth being less than the beam. The Van Hise experiment was planned in consequence, and this experiment has been carried out with success. The forward section of the vessel was turned on its side at Buffalo by the agency of pontoon tanks placed along its side at the deck line and filled with water. The half ship was then towed to the Port Colborne entrance to the Welland Canal and passed down to Lake Ontario.

Vancouver Dry Dock.—In commenting on the possible building of a dry dock at some port on the British Columbia coast, and urging that it be built at Vancouver, the Vancouver World says:—"The Dominion Government, as is well known, stands ready, under the Drydock Subsidy Act, 1910, to grant any company, which complies with the financial requirements, a percentage subsidy on its investment, extending over a long term of years. It is understood that there are several companies in Vancouver ready to comply with the conditions if only the Dominion Government will say the word." It would be interesting to know whether any of the companies referred to have applied to the Dominion Public Works Department in the usual way, for a subsidy.

Cargo Steamship Building in Canada for British Government.

Launchings of Steamships.—Following are particulars of cargo steamships ordered by the Imperial Munitions Board for the British Government, and which had been officially reported as launched up to Jan. 14, giving in each case the date of the launching, the name of the steamship, the name and address of the building company and the deadweight tonnage:—

Steel Steamships.	
May 18, 1917—War Dog, Wallace Shipyards North Vancouver, B.C.	4,500
July 9, 1917—War Wasp, Nova Scotia Steel & Coal Co., New Glasgow, N. S.	1,800
Aug. 19, 1917—War Fish, Port Arthur Shipbuilding Co., Port Arthur, Ont.	4,300
Nov. 3, 1917—War Dance, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
Mar. 16, 1918—War Camp, J. Coughlan & Sons, Vancouver, B.C.	8,800
Mar. 23, 1918—War Power, Wallace Shipyards, North Vancouver, B.C.	4,600
Apr. 3, 1918—War Isis, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
May 8, 1918—War Wizard, Collingwood Shipbuilding Co., Collingwood, Ont.	2,900
May 21, 1918—War Bee, Nova Scotia Steel & Coal Co., New Glasgow, N.S.	2,400
May 27, 1918—War Osiris, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
June 8, 1918—War Earl, Canadian Vickers Ltd., Montreal	7,000
June 29, 1918—War Duchess, Canadian Vickers Ltd., Montreal	7,000
July 20, 1918—War Hathor, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
July 29, 1918—War Charger, J. Coughlan & Sons, Vancouver, B.C.	8,800
Aug. 19, 1918—War Chief, J. Coughlin and Sons, Vancouver, B.C.	8,800
Aug. 21, 1918—War Weasel, British-American Shipbuilding Co., Welland, Ont.	3,500
Sept. 6, 1918—War Witch, Collingwood Shipbuilding Co., Collingwood, Ont.	2,900
Sept. 19, 1918—War Taurus, Polson Iron Works, Ltd., Toronto	3,500
Sept. 28, 1918—War Faith, Canadian Vickers Ltd., Montreal	7,000
Sept. 28, 1918—War Noble, J. Coughlan & Sons, Vancouver, B.C.	8,800
Sept. 28, 1918—War Storm, Wallace Shipyards, Ltd., Vancouver, B.C.	4,600
Oct. 5, 1918—War Horus, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
Oct. 15, 1918—War Hydra, Polson Iron Works, Ltd., Toronto	3,500
Oct. 24, 1918—War Fiend, Midland Shipbuilding Co., Midland, Ont.	3,400
Oct. 26, 1918—War Karma, Port Arthur Shipbuilding Co., Port Arthur, Ont.	3,400
Oct. 29, 1918—War Joy, Canadian Vickers Ltd., Montreal	7,000
Dec. 22, 1918—War Hamilton, Polson Iron Works, Ltd., Toronto	3,500
Total, 27 steel steamships.....129,000	
Wooden Steamships.	
Dec. 28, 1917—War Songhee, Foundation Co., Victoria, B.C.	3,080
Jan. 4, 1918—War Nootka, Western Canada Shipyards, Vancouver, B.C.	3,080
Jan. 24, 1918—War Yukon, Cameron-Genoa Mills Shipbuilders, Ltd., Victoria, B.C.	3,080
Feb. 16, 1918—War Puget, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
Mar. 6, 1918—War Selkirk, Western Canada Shipyards, Vancouver, B.C.	3,080
Apr. 10, 1918—War Caribou, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
Apr. 11, 1918—War Comox, New Westminster Construction & Engineering Co., New Westminster, B.C.	3,080
Apr. 11, 1918—War Masset, Foundation Co., Victoria, B.C.	3,080
Apr. 13, 1918—War Tye, Pacific Construction Co., Coquitlam, B.C.	3,080
Apr. 25, 1918—War Haida, Cameron-Genoa Mills, Victoria, B.C.	3,080
Apr. 27, 1918—War Cayuse, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
May 11, 1918—War Mohawk, Quinlan & Robertson, Ltd., Quebec, Que.	3,080
May 11, 1918—War Sioux, Port Arthur Dredging Co., Port Arthur, Ont.	3,080
May 21, 1918—War Atlin, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
May 23, 1918—War Tatla, Western Canada Shipyards, Ltd., Vancouver, B.C.	3,080
June 12, 1918—War Skeena, Cameron-Genoa Mills Shipbuilders, Ltd., Victoria, B.C.	3,080

June 14, 1918—War Edensaw, New Westminster Construction & Engineering Co., B.C.	3,080
June 15, 1918—War Babine, Foundation Co., Victoria, B.C.	3,080
June 24, 1918—War Nicola, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
June 28, 1918—War Quebec, Quebec Shipbuilding & Repairing Co., Quebec, Que.	3,080
June 29, 1918—War Ontario, Toronto Shipbuilding Co., Toronto	3,080
July 5, 1918—War Huron, Fraser, Brace & Co., Montreal	3,080
July 5, 1918—War Erie, Fraser, Brace & Co., Montreal	3,080
July 6, 1918—War Casco, Western Canada Shipyards, Ltd., Vancouver, B.C.	3,080
July 12, 1918—War Sumas, Pacific Construction Co., Port Coquitlam, B.C.	3,080
July 24, 1918—War Squash, Wm. Lyall Shipbuilding Co., Vancouver, B.C.	3,080
July 27, 1918—War Gaspe, Quinlan & Robertson, Quebec, Que.	3,080
July 27, 1918—War Ottawa, Fraser, Brace & Co., Montreal	3,080
Aug. 5, 1918—War Chilkat, Western Canada Shipyards, Vancouver, B.C.	3,080
July 29, 1918—War Stikine, Cameron-Genoa Mills Shipbuilders, Victoria, B.C.	3,080
Aug. 31, 1918—War Camchin, Foundation Co., Victoria, B.C.	3,080
Sept. 7, 1918—War Sorel, Quebec Shipbuilding & Repair Co., Quebec	3,080
Sept. 8, 1918—War Nanoose, Foundation Co., Victoria, B.C.	3,080
Sept. 19, 1918—War Niagara, Fraser, Brace & Co., Montreal	3,080
Sept. 21, 1918—War Halifax, Southern Salvage Co., Liverpool, N.S.	3,080
Sept. 22, 1918—War Nipigon, Great Lakes Dredging Co., Port Arthur, Ont.	3,080
Sept. 23, 1918—War Matane, Quinlan & Robertson, Quebec, Que.	3,080
Sept. 26, 1918—War Ewen, New Westminster Construction & Engineering Co., New Westminster, B.C.	3,080
Oct. 15, 1918—War Mingan, Three Rivers Shipyards, Ltd., Three Rivers, Que.	3,080
Oct. 26, 1918—War Toronto, Toronto Shipbuilding Co., Toronto	3,080
Nov. 2, 1918—War Radnor, Three Rivers Shipyards, Ltd., Three Rivers, Que.	3,080
Total, 45 wooden steamships.....138,600	
Aggregate deadweight tonnage of 27 steel and 45 wooden steamships launched, 267,600 tons.	

In addition to the launchings of which we had been officially advised up to Jan. 14, as given above, the British American Shipbuilding Co., Welland, Ont., launched on Jan. 21 the War Badger, 3,500 tons d.w.

In the list of launchings published in our January issue, it was stated that the Polson Iron Works, Toronto, had launched the War Aquila, on Dec. 21. Her name was changed subsequently to War Hamilton.

Steamships Under Construction.—Of the 43 steel, and 46 wooden, steamships which the Imperial Munitions Board ordered in Canada, on behalf of the British Government, 16 steel steamships and 1 wooden one still remained to be launched at the date of our last official advices, Jan. 14. Since then, the steel steamship War Badger is reported launched by the British American Shipbuilding Co., Welland, Ont. Following is a list showing the other vessels in process of construction, giving the builders' names, the names which will be given the various vessels, and the deadweight capacity of each:—

Steel Steamships.	
Builder.	Tons d.w.
British American Shipbuilding Co. Welland, Ont.—	
“War Raccoon”	3,500
Canadian Allis-Chalmers, Ltd., Bridgeburg, Ont.—	
“War Leveret”	3,500
“War Vixen”	3,500
“War Wallaby”	3,500
“War Wombat”	3,500

J. Coughlan & Sons, Vancouver, B.C.—	
“War Chariot”	8,800
“War Cavalry”	8,800
“War Convoy”	8,800
“War Column”	8,800
“War Company”	8,800
Midland Shipbuilding Co., Midland, Ont.—	
“War Magic”	3,400
“War Fury”	3,400
Polson Iron Works, Ltd., Toronto, Ont.—	
“War Timiskaming”	3,500
“War Algoma”	3,500
“War Halton”	3,500
15 steel steamships	
Wooden Steamships.	
Grand & Horne, St. John, N.B.—	
“War Moncton”	3,080
Total—15 steel steamships, 1 wooden steamship, 81,880 tons.	

The s.s. War Charger, one of the steel steamships built under order of the Imperial Munitions Board, for the British Government, by J. Coughlan & Sons, Vancouver, B.C., is reported to have put back to port for the second time, owing to some slight damage to her machinery. The first return is said to have been deemed advisable on account of the low quality of steam coal which had been shipped.

The Imperial Munitions Board's shipbuilding department has been removed from Ottawa to the Drummond Building, Montreal.

Canadian Pacific Ocean Services and the War.

From the outbreak of war to the signing of the armistice, Canadian Pacific Ocean Services, Ltd., carried well over 1,000,000 troops and passengers on its vessels. Its troop transports proceeded to all parts of the world, including ports in China and Japan, Singapore, Bombay, Colombo, Suez, Gallipoli, Dar es Salaam, Delagoa Bay, Durban and the Mauritius, as well as ports in the Mediterranean Sea, and the west coasts of North and South America, and they also took part in the Mesopotamia expedition. On one consecutive, continuous voyage, one of the vessels steamed 28,441 miles. Over 4,000,000 tons of cargo and munitions of war have been carried, in addition to several thousands of horses and mules.

Of the steamships engaged in the Atlantic service before the war, the Calgarian, Hesperian, Ionian and Missanabie were sunk by submarines, and during the war, two steamships have been built and placed in service, viz., Melita and Minnedosa. The Atlantic service now has 14 steamships in service, and is thus enabled to maintain a weekly schedule.

Of the Pacific Ocean vessels, the steamships Empress of Asia and Empress of Russia, after doing considerable transport service, were overhauled recently at Liverpool, and sailed from there early in January. The Empress of Asia sailed, via the Panama Canal, for Vancouver, carrying returning troops for British Columbia points, and she is scheduled to sail from Vancouver for the Orient on her usual service, Feb. 27. The Empress of Russia sailed from Liverpool, Eng., via the Suez Canal, for Hong Kong, China, carrying returning troops for India and other points.

The Canadian National Railways' car ferry Canora was docked at Esquimalt early in January, for general overhaul after her long trip from Quebec, via the Panama Canal, and preparatory to being placed in service between Port Mann and Patricia Bay.

General Shipbuilding Notes Throughout Canada.

A. Boutilier & Co., Centreville, N.S., launched the s.s. *Frances Boutilier* at the end of December. The hull is of local wood, the general fittings being of Douglas fir. She is equipped with fore and aft engine, with cylinder 11 x 20 in., with large boiler and up to date machinery.

Burns & Kelliher, Halifax, N.S., have a wooden steamship of 1,600 gross tons under construction at Bayside, N.S., for launching in February. Her dimensions are: length 200 ft., beam 33 ft., depth 21 ft. She is of the 2-deck type, the upper one being flush, with officers' quarters amidships. The propelling machinery will consist of compound engines, with cylinders 21 and 40 in. diam., by 30 in. stroke. After launching, the hull will be towed to Halifax, where the machinery will be installed.

The Duffy-Blinn Co., Ltd., is reported to have been organized at Saulnierville, N.S., to build sailing vessels, and to have acquired a site for a shipbuilding yard there. It is stated that the company intends to confine its operations to coasting and fishing vessels of about 150 tons.

Esquimalt Ship Co. is reported to have contracts for building 4 wooden auxiliary powered schooners of 3,500 tons d.w. capacity each, and is said to be completing negotiations for the establishment of a shipbuilding plant on a site of 24 acres at Victoria, B.C.

Foundation Co., Victoria, B.C.—A recent press report stated that, in addition to the 20 wooden steamships which the company is building for the French Government, of which we have given details previously, it had received a large order

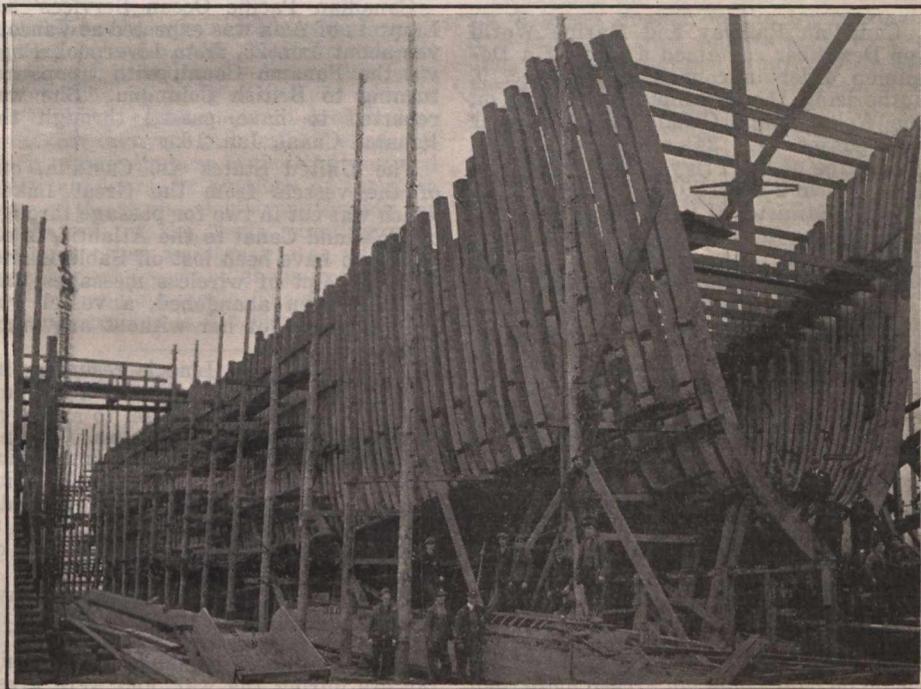
classed in the American Bureau for 12 years. She was built for A. Moulton, Halifax, N.S., and has since been sold to La Have parties. After launching, she was taken to St. John, N.B., where she loaded a cargo of lumber for Barbadoes.

T. H. McDonald, Meteghan, N.S., launched the barquentine *T. H. McDonald* Jan. 16. Her dimensions are: length over all, 221 ft.; length on keel, 176 ft.; beam, 40 ft.; depth of hold, 19 ft.; tonnage, 1,138 gross, 1,088 net.

The Nova Scotia Shipbuilding & Transportation Co. launched the tern schooner *Gordon T. Tibbo*, at Halifax, N.S., recently, for S. Tibbo & Co., Grand Banks, Nfld. The dimensions are: length over all 135 ft., beam 26½ ft., depth of hold 12 ft.; 250 tons register. She is classed with the American Bureau of Shipping for 12 years. The company has under construction a beam trawler for La Have interests, and has laid the keel for a three masted schooner for launching in the spring.

Oromocto, N.B.—It is reported that some British and local interests are concerned in a project for a wooden shipbuilding plant at this point.

Quebec Steel Shipbuilding Plant Rumored.—**T. M. Kirkwood,** formerly associated with Three Rivers Shipyards, Ltd., Three Rivers, Que., is reported to have stated that he is working on a project having for its object the establishing of a steel shipbuilding plant, with the accompanying rolling mills for the manufacturing of ships' plates, etc., at Quebec, and that he expects to receive orders for steel steamships from various allied governments, especially France and Italy. He is also reported to have stated that vessels would be built under subsidies from the Dominion Government. Among the statements reported is one that, in the establishing of such a plant, no time would be lost in waiting for machinery, as he is owner of two plants in other parts of Canada, machinery from both of which would be utilized in the present project. Another scheme with which Mr. Kirkwood was connected recently, was one for the establishment of a wooden shipbuilding yard at Quebec, and again, Dominion Government and local subsidies were to be the chief elements for the carrying out of the project. From statements made from time to time by the Minister of Marine, in enunciating his government merchant marine policy, it may be taken for granted that the Dominion Government has no present intention of subsidizing the building of steamships, either wooden or steel, by cash payments. The Quebec scheme, so far as it is at present outlined, is hazy, and the foundations on which it is based, are more or less supposititious. Presumably these consist chiefly of possible orders from foreign countries, for the filling of which the Dominion Government would be asked to grant licenses, and also of the granting of subsidies in cash, by local, provincial and Dominion authorities. No doubt foreign countries are quite willing to place orders for steamships, provided these can be financed satisfactorily, but whether the Dominion Government will license the building of steel steamships in Canada for foreign registry, in view of the present shipbuilding conditions in the Dominion, is questionable. The government has already stated that steel steamships may be built in Canada for Cana-



Hull for 3,000-ton wooden steamship, for French Government, under construction by Foundation Co. at Victoria, B.C.

Canadian Allis-Chalmers, Ltd., shipyard (near Bridgeburg), Ont., has completed a fourth slip at its yard. A press report that the company had received orders for three steamships, in addition to the four which it is building for the British Government, is, we are officially advised, incorrect.

Canadian-Chicago Bridge & Iron Co., Bridgeburg, Ont., is reported to be negotiating for 600 ft. of waterfront along the Niagara River, for the establishment of a dock and shipbuilding yard. It is reported that the company has a contract for the building of 12 steel cargo barges for the U.S. Navy.

The Dominion Shipbuilding Co., Toronto, launched a full sized canal freight steel steamship at its yard, Jan. 28. She was named *General Currie*, and is for private owners. She is of similar type to the s.s. *Le Quesnoy*, launched at the end of November, and is classed 100 A1 at Lloyd's, for trans-Atlantic service. Her dimensions are: length over all 261 ft., breadth moulded 43½ ft., depth moulded 28 ft. 2 in.; d.w. capacity, 4,300 tons. She is equipped with triple expansion engines 1,400 i.h.p., by John Inglis Co., Toronto.

for other similar steamships. We have been officially advised that the report is without foundation.

Halifax Shipyards, Ltd., Halifax, N.S., has made an arrangement with the city for the use of the city market building as a mould loft, pending the completion of its own shops. The space utilized is 150 x 50 ft., so that the work is proceeding in somewhat cramped quarters.

International Shipbuilding Corporation, Ltd., Newcastle, N.B.—A petition by a number of creditors for the winding up of this company was before a court at St. John, N.B., recently. A statement by the provisional liquidator showed that the Royal Bank of Canada held security for \$168,924. It was also stated that Job & Co., of Newfoundland and New York, had purchased a vessel to be built by the company, and had paid \$40,000 on account of the total purchase price of \$80,000. The company, of which F. H. McNaught, formerly Manager of the Maritime Foundry, Chatham, N.B., was Manager, has only been in operation about a year.

J. W. Kirpatrick, Eatonville, N.S., launched the schooner *Ella L. Williams* Jan. 17. She is 374 register tons, and is

dian registry, and mention has already been made of its attitude on cash subsidies. The Dominion's response in the matter of shipbuilding, and the growth of the industry, are matters of history, and it is not in our province to question the advisability of any additions to the number of shipbuilding plants, in view of existing conditions in the steel trade, but any project which may be put forward for A press report Jan. 2, stated that the the public to consider should have some reasonably substantial foundation.

J. N. Rafuse & Sons, Conquerall Bank, N.S., during 1917, launched 9 vessels, and during 1918, it launched 12 vessels, at its various yards in the province. In addition to its own yards at Conquerall Bank and Salmon River, it controls the McKay Shipbuilding Co., and the Jos. McGill Shipbuilding Co., Shelburne.

United States Shipbuilding Notes.

The U.S. Shipping Board announced recently that U.S. shipowners may accept contracts to build wooden ships for either foreign or domestic account, without special authorization from the board. Similar permission was granted to companies building steel ships so far as domestic orders are concerned, but the former prohibitions stand with respect to orders of foreign owners. Cancellations of many contracts for wood ships have been announced. The precise number of ship contracts that will be affected is not yet known, as it will depend on the money spent on the particular ship. Work is to be discontinued on every ship on which not more than \$200,000 has been spent. The cancellations, however, may for the present be regarded as suspensions, since their disposition will depend upon the success of Chairman Hurley's efforts to sell wooden ships in Europe.

A Paris, France, press dispatch of Jan. 28 said it was officially that E. Hurley, 28 said it was officially announced that E. Hurley, Chairman of the U.S. Shipping Board, will return soon to the United States to take up the question of establishment of a great American merchant marine.

The U.S. Shipping Board has announced the personnel of a committee to examine the building plans of the Emergency Fleet Corporation, with a view to such revision as might be wise in view of the altered international situation. This committee is to consist of J. A. Farrell, President of the U.S. Steel Corporation; P. A. S. Franklin, President of the International Mercantile Marine Co.; George S. Dearborn, President of the American-Hawaiian Steamship Co.; H. H. Raymond, President and General Manager of the Mallory Steamship Co., and F. D. M. Strachan, President of Strachan Shipping Corporation. In addition to the foregoing, Charles Piez, Director General of the Emergency Fleet Corporation, and John H. Rosseter, Director of Operations of the United States Shipping Board, will be ex officio members of the committee. Of these, Messrs. Dearborn and Raymond are the nominees of the American Steamship Association, which was asked to designate two of its members for places on the committee.

Until hostilities ceased the purpose and effort of the Fleet Corporation was to produce useful tonnage in the largest possible quantity to keep pace with the growing need of tonnage as our overseas forces increased, and to repair the destruction wrought by submarines. With the sign-

ing of the armistice, the problem of the Fleet Corporation took on a different aspect, and the question now is, "What revisions of type are advisable and what modifications of plan or practice can be undertaken to give the Fleet Corporation's output of ships as high an economic value in world trade as possible?"

The lifting of the pressure, both of need and time, which controlled the Fleet Corporation's decisions during the actual continuance of war, makes it possible to give more consideration to economic standards, and the Director General and the other officials of the Fleet Corporation have for many weeks been engaged in a thorough examination of the corporation's building plans, and have themselves developed some important suggestions. It is to test these proposed alterations of programme that the committee above named has been appointed.

Welland Ship Canal Construction.

Canadian Railway and Marine World for December contained a copy of a Dominion order in council passed Dec. 9, authorizing the resumption of work on the Welland Ship Canal. Another order was passed Dec. 24, as follows:—"The committee of the Privy Council have had before them a report, dated Dec. 23, 1918, from the Minister of Railways and Canals, representing that by an order in council dated Dec. 9 authorization is given for the resumption of construction work upon those sections of the Welland Ship Canal which had been already commenced and partly completed.

"The Minister states that in such authorization it was decided that the work should be proceeded with on actual cost plus a percentage thereon, certain specified expenditures made by the government being excluded in the computation of the cost. That the Chief Engineer of the Railways and Canals Department estimates that during 1919 the maximum amount that would be expended on the several works would be as follows:—Section 1, \$500,000; section 2, \$600,000; section 3, \$700,000; section 5, \$500,000. That the amount upon which the percentage would be paid would not exceed more than \$2,000,000 on the four sections.

"The Minister further states that the Chief Engineer of the department has made a memorandum in connection with this work in which he states as follows: 'I would most earnestly urge that the services of former contractors be again utilized under cost plus agreements, upon the sections formerly held under contract by them.'

"The Minister observes that the Chief Engineer has arranged with the former contractors to undertake such work temporarily on a cost plus 8% basis which he considers fair and reasonable. The Minister, therefore, recommends that he be authorized to enter into agreements with the former contractors for the work to be temporarily carried on, on the basis of cost plus a percentage of 8% as recommended by the Chief Engineer, the specified expenditures being excluded, and that such contracts so made with them shall not extend until a date later than Dec. 31, 1919, or earlier if in the public interest the Minister decides tenders should be called, and that on or before Dec. 31, 1919, public tenders shall be called for the completion of the works at schedule rates. The committee concur in the foregoing and submit the same for approval."

The sections under contract, and the contractors, are as follows:—

Sec. 1.—From Lake Ontario for about 3 miles, including pier and trestle work at the entrance to the canal, construction of lock 1, and canal work to bridge 2. Dominion Dredging Co., Ltd.

Sec. 2.—From bridge 2 to bridge 5, about 4½ miles, including locks 2 and 3. Baldry, Yerburgh & Hutchinson, Ltd., St. Catharines, Ont.

Sec. 3.—From bridge 5 to about halfway between bridges 9 and 10, including the erection of twin guard gates at Thorold, single lock 7, short stretch of canal below lock 7, and three twin locks, 6, 5 and 4, in flight. Doheny, Quinlan & Robertson, Montreal.

Sec. 5.—From just above bridge 12 to just above bridge 13, about 2¾ miles. Canadian Dredging Co., Ltd., Midland, Ont.; construction office at Port Robinson, Ont., in charge of W. E. Hardison.

Atlantic and Pacific Ocean Marine.

Canadian Pacific Ocean Services' s.s. Empress of Asia was expected at Vancouver about Jan. 28, from Liverpool, Eng., via the Panama Canal, with troops returning to British Columbia. She was reported to have passed through the Panama Canal, Jan. 16.

The United States s.s. Castalia, one of the vessels from the Great Lakes, which was cut in two for passage through the Welland Canal to the Atlantic, is reported to have been lost off Sable Island. After receipt of wireless messages that she had been abandoned, a vessel was sent in search of her without any trace being discovered.

The Blue Funnel Line is resuming its service to Pacific ports, and it is announced that the first vessel to arrive at Victoria, B.C., will be the s.s. Cyclops, about Mar. 1. The s.s. Protesilaus, which arrived at Vladivostok recently with Canadian troops, on a Siberian expedition, is expected at Victoria about Apr. 8, and the s.s. Tyndareus about the end of April.

The Cunard Line is reported to have bought 6 steel cargo steamships from the British Government, aggregating 29,734 tons. They are of the standard type, built for use during the war, and were given names in what is known as the "war" series. They are stated to have been renamed, the new names and the respective tonnage being as follows: Vellania, 5,272 tons; Vennonia, 5,225 tons; Venusia, 5,222 tons; Verentia, 5,185 tons; Vindellia, 4,430 tons; Vitellia, 4,400 tons.

The Ulster Steamship Co. (Head Line) announces that its regular sailings from St. John, N.B., will continue throughout the winter, and that the Montreal service will be resumed on the reopening of the St. Lawrence navigation season. During 1917, the service was carried on under the supervision of the British Ministry of Shipping, and several of the company's vessels were used in convoy and escort service, the owners being complimented by the Admiralty on their performance.

Canadian Pacific Ocean Services' appeal to the Appeal Court in England, against the judgment of the late President of the British Admiralty Court, re the collision between the company's s.s. Montreal, and the White Star Line's s.s. Cedric, off Morecambe Bay, England, during war time, was allowed with costs, in the appeal, and in the court below, the s.s. Cedric being held entirely to blame for the casualty. The Admiralty Court held that both vessels were to blame, the Cedric in the proportion of three to one of the Montreal.

Maritime Provinces and Newfoundland.

The channel approach to the government wharf at Pownell Bay, P.E.I., has been dredged to a depth of 8 ft., the width of the cut at the outer end being 60 ft., widening to 120 ft. at the pier head, to form a turning basin. A berth 220 ft. long by 90 ft. wide on the eastern side has been dredged to an average depth of 8 ft.

The St. John, N.B., ferry commissioners have included in their estimates for this year, \$10,350 for repairs and overhauling of the ferry Ludlow, and \$9,200 for repairs and overhauling of the ferry Governor Carleton. The operating expenses for 1917 were \$90,327, and it is anticipated that there will be an increase of about \$9,000 for this year, rather more than one third being due to increased wages. The estimated revenue for 1918 is \$40,000.

Maintenance work on the wharf property in St. John, N.B., harbor, which it is proposed to undertake during this year, includes the repairing of decayed or worn out decking, replacement of broken fenders and decayed and broken caps, replacing some timbers in the wharves, and renewing floors, or portions of them, in some of the sheds; also strengthening the foundations of the sheds, painting, etc., and such other maintenance as will preserve the wharves and sheds in fit condition for handling traffic. The approximate amount involved is \$70,000.

Province of Quebec Marine.

A shipping chamber is proposed to be established in Quebec, for the government of all matters pertaining to local shipping.

During the St. Lawrence navigation season of 1918, 640 vessels arrived at Quebec, including 81 ocean vessels, 133 coasting vessels from the lower St. Lawrence, and 364 from Montreal and the Great Lakes. This was an increase in the total, of 41 vessels over 1917.

Ontario and the Great Lakes.

The Detroit & Windsor Ferry Co. is reported to have decided to build a concrete ferry dock at Amherstburg, to cost \$10,000.

The Great Lakes Transportation Co., which has the contract for icebreaking in Thunder Bay, used the tugs D. S. Pratt and F. W. Grant during the latter part of the year, and it is expected that these vessels will be able to do the work in the spring.

The Foundation Co., which acquired the Reid Wrecking Co.'s yards, etc., at Port Huron, Mich., recently, is operating same under the name of The Foundation Co.-Port Huron Ship Yard, Inc. The building of a new dry dock at the plant is under consideration, but nothing will be done until the spring.

The U.S. Lake Survey reports the levels on the Great Lakes in feet above mean sea level for December, as follows:—Superior, 602.42; Michigan and Huron, 581.05; St. Clair, 575.42; Erie, 572.21; Ontario, 245.89. Compared with the average December levels for the past 10 years, Superior was 0.17 ft. above; Michigan and Huron, 0.03 ft. above; Erie, 0.60 ft. above, and Ontario, 0.52 ft. above.

A deputation from a number of Northern Ontario municipalities waited on the Dominion Government, Jan. 10, to urge that the proposed Georgian Bay canal scheme be proceeded with. It was stated that the carrying out of the scheme would cost about \$16,000,000, or an annual interest charge of \$720,000, which, it was claimed, would be met by an estimated revenue of \$750,000 from water power. It was also claimed that the entire cost of the canal would be liquidated in 18 years by additional customs receipts due to increased traffic.

British Columbia and Pacific Coast.

The Dominion Public Works Department has awarded a contract to R. Moncrieff, Vancouver, B.C., for \$3,500, for the construction of an adjustable slip and alterations to protective fenders on pier 3 at Victoria, B.C.

Regarding the recent loss of the C.P.R. s.s. Princess Sophia, in the Lynn Canal, it is said that from reports made by the diver who was engaged to investigate the position and condition of the wreck, it is more than possible that the vessel may be raised. J. W. Troup, Manager, British Columbia Coast Steamships, C.P.R., is, however, reported as stating that it is more than questionable if this can be done. Investigations by the diver have been more or less interrupted, and while certain fittings may be salvaged, and bodies recovered, it is not likely that the hull will be found in a condition to be raised.

The Naval Service Department received tenders to Jan. 22, for the purchase of H.M.S. Algerine, sloop of war. She was built in England in 1895, and has been in patrol service on the Pacific Ocean, practically since her construction. She was for some time on the Behring Sea patrol, and later on the southern Pacific. Since the commencement of the war, she has been laid up at Esquimalt. She is of steel, and fitted with twin screw, vertical type, triple expansion, surface condensing engines of 1,100 i.h.p. under natural draft, and 1,400 i.h.p. under induced draft; 2 cylindrical tubular boilers for a working pressure of 155 lb.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert was withdrawn from service, Jan. 15, for her annual overhaul. The company's winter schedule was put into operation Jan. 12, when the s.s. Prince George left Victoria, calling at Vancouver, Ocean Falls, Swanson Bay, Anyox and Prince Rupert, on a weekly service. On the resumption of service by the s.s. Prince Rupert, the s.s. Prince George will be withdrawn for

overhaul. The s.s. Prince John, for the balance of the winter schedule, is timed to leave Prince Rupert Feb. 6 and 20, Mar. 6 and 20, for Queen Charlotte ports. The s.s. Prince Albert will be operated without schedule in the general freight business to northern ports.

Mainly About Marine People.

Capt. C. O. Allen, master of the s.s. Strathcona, formerly owned by Canada Steamship Lines, Ltd., and transferred to French service in 1917, communicated recently from Copenhagen, Denmark, with relatives in Canada, following his release from a German prison camp, where he had been confined since April, 1917, after the sinking of his vessel by a German submarine.

Capt. T. A. Clark, head of Clark Co., Ltd., transfer agents, Toronto, and master of the Toronto Ferry Co.'s steamboat Elsie, died there, Jan. 14, aged 58.

R. McLeod, a shipbuilder of Queens County, N.S., is reported to have been appointed surveyor for the American Bureau of Shipping in Nova Scotia.

Capt. G. L. Mackey, who was in Canada Steamship Lines' service when he retired about two years ago, died at St. Catharines, Ont., recently of apoplexy, aged 66. He was a native of Hamilton, Ont., and was for some time in R. O. & A. B. Mackay's service there.

Hon. A. K. Maclean, M.P. for Halifax, N.S., and Minister without portfolio in the Dominion Government, is acting Minister of Marine and of Naval Service, during the absence, through illness, of Hon. C. C. Ballantyne.

Sir J. R. MacLay, for some time British Shipping Controller, has been appointed Minister of Shipping in the new British Cabinet.

Lieut.-Col. W. P. Anderson, C.M.G., Chief Engineer, Marine Department, was in Victoria, B.C., about the middle of January, on his way to California, where he will spend the remainder of the winter.

Hon. C. C. Ballantyne, M.P., Minister of Marine and of Naval Service, who left Ottawa Dec. 24 for his home in Montreal, was taken seriously ill that night, becoming unconscious. At first it was thought he was suffering from influenza, but on Dec. 30 he was operated on for appendicitis at the Royal Victoria Hospital, Montreal. Peritonitis and other complications ensued, and he was seriously ill until Jan. 13, when his condition began to improve. On Jan. 24 we were advised that he continued to show improvement, but would probably not be able to leave the hospi-

Vessels Added to and Deducted From the Canadian Register During November, 1918.

Added.	No.	Steam.—Tonnage—		No.	Sailing.—Tonnage—	
		Gross.	Registered.		Gross.	Registered.
Built in Canada.....	20	15,256	10,102	14	4,465	4,039
Purchased from foreigners..	1	56	38	1	652	652
Other vessels	4	151	128	..	.....	.....
Total	25	15,430	10,426	15	5,117	4,691
Deducted.						
Wrecked or otherwise lost..	1	94	64	2	98	86
Unfit for use afloat.....	—	.....	.....	16	981	981
Sold to foreigners.....	2	351	250	3	976	861
Transferred to Great Britain	—	.....	.....	4	1,558	1,321
Re-registered.	1	16	11	4	193	193
Others, sunk by submarine.	2	5,750	3,623	—	.....	.....
Total	6	6,211	3,948	29	3,803	3,442

tal until early in February, when he will go to his house for a week or two and then go south for several weeks.

Jas. Carruthers, President, Canada Steamship Lines, Montreal, has been elected an honorary vice president of the Albatross Club, an organization of men associated with the Royal Air Force, in Montreal.

Capt. S. Filgate, formerly master of the s.s. Filgate, which for many years ran between Montreal and St. Helens Island, celebrated his 100th birthday at his home in Montreal, in December, and died there Jan. 26. He first entered navigation service in 1852, in the operation of a ferry between Lachine and Caughnawaga, and was later, at different times, master of several river steamboats.

World's Shipbuilding Statistics.—New York press dispatch, Jan. 18:—2,144 merchant ships were under construction at the end of the third quarter of 1918. Of these 1,966 were steam and 178 of the sailing type. Ships of less than 100 tons are not included, nor are vessels built for the British Admiralty for other than mercantile purposes. The United States stands out prominently in the returns. Steamships, motor and sailing vessels now under construction report the unusually high number of 1,020, with a gross tonnage of 2,382,709. The United Kingdom and its dominions are building 582 new ships, the total tonnage being 2,048,214. Of these, 383 are being built in the United Kingdom. Ten are sailing ships. The gross tonnage is 1,746,933, compared with a gross tonnage of 4,624,455 being built in other countries.

The Halifax Graving Dock Expropriation is listed for hearing before the Exchequer Court, on behalf of the Dominion Government, the court being asked to fix the amount which the Government is to pay for the property at \$1,100,000. The property consists of 7.5 acres of land in Halifax harbor, with graving dock, machine shops, offices, etc. Considerable detail relative to this matter has been given in previous issues, covering a statement by the Minister of Public Works in the

Aug., 1918, issue, and a protest by the company's chairman in the Dec., 1918, issue.

A Wooden Ship Suit.—An arbitration award of considerable interest to builders of wooden ships was announced at Halifax, N.S., recently when a Portuguese firm which had purchased the tern schooner Kathleen Crewe, was given \$10,000 as damages, it having been discovered that the bottom of the vessel had been eaten out by worms. The vessel was built in 1912 and made her maiden voyage to South Africa, returning to New York and thence to Halifax, where she was sold to her present owners. The original claim was for \$50,000.

Shipbuilding Work Hours in Great Britain.—Representatives of the Federation of Engineering and Shipbuilders Trades, and representatives of the employers, are reported to have met recently and decided that a 47-hour week, without any reduction in existing wages, constituted a reasonable attempt to readjust working conditions.

International Export & Import Co., Ltd., has been incorporated under the Dominion Companies Act, with \$20,000 capital and office at Montreal, to carry on a general export and import business, and in connection therewith to charter and operate steam and other vessels, and to act as general transfer and transportation agents.

Canada Steamship Lines' Finance.—A Montreal press dispatch states that the five year voting trust which set aside 62,500 shares to assure control of the company to the present management for such period, expired Jan. 19, and a new voting trust was formed for a longer term, and the bulk of the old trust shares exchanged for new.

G. B. Hatfield, Port Greville, N.S., launched the tern schooner Vera H. at Halls Harbor, Jan. 15, and towed her to Port Greville, where her spars and rigging were fitted. She is about 430 register tons, and classed for 12 years with Bureau Veritas.

Yard Trackage for Victoria, B.C.—

Speaking before the inner Harbor Association at Victoria, B.C., Jan. 10, J. O. Cameron, acting President, pointed out the lack of railway trackage in the new industrial area, and suggested that the difficulty could be remedied by building up the old Rock Bay bridge, and running a track across it from the Esquimalt and Nanaimo Ry. on Store St. to the mill sites, and to connect up with the Canadian Northern Ry. lines.

Quebec Bridge Contract.—At the Dominion Bridge Co.'s annual meeting in Montreal, Jan. 8, Phelps Johnson, President, in his report said:—"Notwithstanding the loss of the suspended span in 1916, satisfactory profits have resulted from the construction of the Quebec bridge. The St. Lawrence Bridge Co. has also carried out profitable orders for munitions." A press report of the meeting says a discussion brought out the statement that about \$770,000 had been received from the Quebec bridge contract since the closing of the books for the year, and that a further sum would be coming to the D. B. Co. on the final settlement. Another report states that, of the profits of \$2,477,009 made by the company in the last financial year, \$1,100,000 came from the Quebec bridge contract.

The Lambeth Transportation Co. has been organized at Lambeth, Ont., to carry passengers and freight between that place and London. The capital, which is reported to have been fully subscribed locally, is \$10,000, and the officers and directors are:—President and General Manager, W. K. Coldicott; Vice President, F. Soper; other directors: R. Piper, T. Hamblin and Rev. J. Holmes. It is proposed to operate a 3½-ton motor truck, on a 2-hour schedule, making 7 round trips a day. The service, it is proposed, will be operated at as near cost as possible, and the officers, it is said, will not receive any remuneration for their services. This service is projected to provide for the traffic formerly carried between Lambeth and London by the London & Lake Erie Ry. and Transportation Co.'s electric railway, which is now being scrapped.

Vessels Registered in Canada During November, 1918.

In compiling the following lists of vessels registered, steamboats and motor boats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing vessels of less than 100 tons register.

STEAM

No.	Name	Port of registry	Where and When Built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owners or Managing Owners
141127	War Atlin	Vancouver, B. C.	N. Vancouver, B. C.	1918 249 7	43 5	22 8	2338	1434	Sc 147hp	Shipping Controller, London, Eng.
141128	War Charger	Vancouver, B. C.	Vancouver, B. C.	1918 410 5	54 1	27 5	5703	4145	Sc 2650hp	" " " "
140987	War Edensaw	New Westminster, B.C.	New Westminster, B. C.	1918 249 6	43 5	22 8	2336	1424	Sc 138hp	" " " "
140949	War Nanoose	Victoria, B. C.	Victoria, B. C.	1918 249 8	43 4	22 9	2285	1405	Sc 146hp	" " " "
141125	War Nicola	Vancouver, B. C.	N. Vancouver, B. C.	1918 249 5	43 4	22 8	2280	1429	Sc 111hp	" " " "

SAILING

No.	Name	Port of Registry	Where and When Built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
141124	Dollar IV	Vancouver, B.C.	Dollarton, B.C.	1918 95 2	36 7	7 1	214	214	Canadian Robert Dollar Co., Vancouver, B.C.
141043	E. D. Bailey	Lunenburg, N.S.	Lunenburg, N.S.	1918 118 6	27 3	10 0	203	162	R. Knickle, Lunenburg, N.S.
138728	Fraser Mills No. 4	New Westminster, B.C.	Fraser Mills, B.C.	1910 80 0	30 0	7 0	143	143	Canadian Western Lumber Co., Vancouver, B.C.
141163	Governor Parr	Parrsboro, N.S.	Parrsboro, N.S.	1918 200 0	39 8	18 5	972	912	A. F. Davison and A. D. Richards, Bridgewater, N.S.
141181	J. E. Backman	La Have, N.S.	Meteghan, N.S.	1918 145 2	33 6	13 0	472	399	J. E. Backman, LaHave, N.S.
141081	Jean McKay	Shelburne, N.S.	Shelburne, N.S.	1918 119 3	27 1	11 0	252	194	F. Stoodley, Grand Bank, Nfld.
141129	L. W. 21	Vancouver, B.C.	New Westminster, B.C.	1912 81 0	26 0	6 6	117	117	W. H. Hind, Vancouver, B.C.
138434	Mapleland	Annapolis Royal, N.S.	Annapolis Royal, N.S.	1918 173 0	35 0	13 0	665	591	F. W. Pickels, Annapolis Royal, N.S.
138806	Miriam H.	Weymouth, N.S.	Saulnierville, N.S.	1918 146 0	33 3	12 4	423	359	Acadia Shipping Co., Meteghan River, N.S.
140989	P.G.E. No. 1	New Westminster, B.C.	" " " "	" " " "	172 0	39 0	10 0	652	Pacific Great Eastern Ry., Vancouver, B.C.
141162	Truro Queen	Parrsboro, N.S.	Economy, N.S.	1918 150 5	34 7	12 0	442	386	H. D. McLean and H. C. McKay, Economy, N.S.
138729	R.F. No. 3	New Westminster, B.C.	New Westminster, B.C.	1912 80 0	26 0	6 2	110	110	R. Fenton, New Westminster, B.C.
138730	R.F. No. 4	" " "	" " "	1912 80 0	26 0	6 2	110	110	" " " "
138731	R.F. No. 6	" " "	" " "	1914 86 0	30 0	7 9	175	175	" " " "
141112	V.T. No. X	Vancouver, B.C.	Vancouver, B.C.	1913 85 2	30 0	7 7	167	167	Vancouver Tug and Barge Co., Vancouver B.C.

Canada's Great Advance in the Shipbuilding Industry.

The year 1918 has been a notable one for the Canadian shipbuilding industry. In the building of both steel and wooden ships great progress has been made, and the industry enters upon 1919 with the brightest of prospects. Indeed, in the building of steel ships, Canada has entered upon a new era, this being assured through the extensive shipbuilding programme announced by the Dominion Government; while the contract entered into with the Dominion Steel Corporation for ship plates assures adequate material from a home source.

It is estimated that the total tonnage of vessels launched in Canadian shipbuilding yards during 1918 was about 460,000 tons deadweight. Of this, 23 steel and 45 wooden steamships, with a tonnage of 253,463 deadweight, were ordered by the Imperial Munitions Board for the British Government. All of these ships have not, of course, been delivered. The tonnage delivered is valued at \$37,156,972. Last autumn the French Government contracted in Canada for 70 wooden steamships.

It will thus be seen that the British Government contributed a great deal toward making possible the shipbuilding activity of the past year. All told, the Imperial Munitions Board has awarded contracts for 90 steamships, 46 wooden and 44 steel, with a deadweight tonnage of 356,343 tons. The total value of these contracts is given as \$69,675,235, which is the best possible evidence of what the board has done for Canadian shipbuilding. Its orders for wooden ships put wooden shipbuilding on its feet, so that today there are probably under construction in Canada more than 150 ships of that character. Its orders for steel ships also imparted a strong impetus to that portion of the industry.

To the shipbuilding industry generally the most important event of the year was the announcement made by Hon. C. C. Ballantyne of the government's steel shipbuilding programme, which is designed to provide adequate Canadian tonnage for Canada's already large and rapidly-growing foreign trade. Owing to the difficulty in securing steel and the additional fact that several of the yards that had received government contracts for ships have been busy for a much longer period than had been expected in turning out tonnage for the Imperial Munitions Board, not as much progress has been made on this programme as had been hoped. However, at present 45 vessels are under construction or contracted for. These represent a deadweight tonnage of about 268,350 tons, valued at more than \$52,000,000. The vessels range in tonnage from 3,400 to 10,500 tons. Two of them will be of the latter tonnage and 16 of 8,100 tons. Nor is this the whole of the programme, it being the intention to build for some time up to the full capacity of the yards.

December 3 was a notable day in Canadian shipping circles, for in the yards of the Canadian Vickers, Limited, at Montreal, was launched the Canadian Pioneer, the first vessel of the Canadian mercantile marine to be officially launched; the first also in the Government's programme. Her tonnage is 8,100 deadweight. The Canadian Voyageur, 4,300 tons, had taken the water even before that. Soon Canada will be represented on the high seas by a numerous merchant marine owned by the Canadian Government in connection with the Canadian National Railways.

It is by comparison with the tonnage turned out in pre-war years that one can best realize what has been done by the Canadian shipbuilding industry during 1918. Putting the total tonnage produced at 460,000 deadweight, this means that Canada produced during last year an amount equal to a little more than one-third of the total tonnage of merchant vessels produced in the shipyards of the United Kingdom during 1917. To state it in another way, Canada last year built more tonnage than was built in all Canadian yards between 1902 and 1914.

One of the especially gratifying features of the expansion of the shipbuilding industry is that the benefits are being distributed generally throughout the country. Today shipyards from the Atlantic coast up along the St. Lawrence to the head of the Great Lakes and on the Pacific coast are busy with government and other orders. Fully 40,000 tons of the Dominion Government's steel shipbuilding programme are being built on the Great Lakes. Important new yards, notably one at Halifax, are also being constructed. Busy as Canadian shipbuilders have been during the year that has just closed, they will be equally as busy during 1919. Only the capacity of the yards to produce tonnage is the limit of its operations.

The action of the Dominion Government Steel Corporation for 250,000 tons of ship plates, and thus making possible the erection of a mill for the production of this particular kind of material, will have an important influence on the future of steel shipbuilding in Canada, for it will render the industry independent of other countries for supplies. Hitherto this country has, in this respect, been largely dependent on the United States, but in this, as in many other respects, Canada now stands on her own feet.—Toronto Globe.

Among the Express Companies.

Harold Joseph Palmateer, who has been appointed Assistant Superintendent, Eastern Division, Dominion Ex. Co., Toronto, entered the company's service July 11, 1902, since when he has been, to Mar. 13, 1911, clerk, Superintendent's office, Montreal; Mar. 3, 1911, to Jan. 1, 1919, chief clerk to Superintendent, Toronto.

The United States Railroad Administration has ordered that its Division of Labor will near and investigate, and recommend adjustments of any disputes between the American Railway Ex. Co. and its employes, not affecting wages and working conditions, these latter matters being dealt with by the Board of Railway Wages and Working Conditions.

George Parker, who has been appointed Superintendent, Eastern Division, Dominion Ex. Co., Toronto, vice J. J. Murray, promoted, entered the company's service Oct. 10, 1892, since when he has been, to 1895, station clerk, Ottawa, Ont.; 1896 to 1897, clerk in city office, Ottawa; 1898 to 1900, station foreman, Ottawa; 1900 to 1903, chief clerk and cashier, Ottawa; 1904, route agent, Ottawa; 1905 to Dec. 31, 1918, agent, Ottawa.

Samuel Chadwick, who died at the General Hospital, Montreal, Jan. 22, aged 79, was, many years ago, agent for the American and Canadian Ex. Co.'s, at London, Ont., and in 1876 assisted in the organization of the Intercolonial Ex. Co., at St. John, N.B., which was merged subsequently in the Canadian Ex. Co. He was appointed Superintendent, Canadian

Ex. Co., at Montreal, and later promoted to General Manager, resigning in Dec., 1890.

M. J. Donnelly, agent, Canadian Northern Ex. Co., was found dead in his chair at his office at Quebec, Que., Jan. 8. He was laid up with influenza about two months ago, and did not seem to have fully recovered, but insisted on attending to business. He was formerly in the Quebec & Lake St. John Ry. service, and remained when that company was absorbed by the Canadian Northern Ry. At the inquest it developed that he had shot himself during a moment of acute mental aberration.

The Express Traffic Association of Canada's application, on behalf of the express companies operating in the Dominion, for increases in rates, was before the Board of Railway Commissioners during January. The application is being opposed by the National Dairy Council and the United Farmers of Ontario, represented by D'Arcy Scott, K.C., a former railway commissioner, as well as by others. The chief contention by the opposition is that the present is not the time to make any increases in rates, and that prices in general have a downward tendency.

The Canadian Ex. Co. had exclusive operating rights for many years over the Intercolonial and Prince Edward Island Rys., and latterly over the National Transcontinental Ry. Some years ago the Dominion Ex. Co. also secured operating rights on the I.R.C. and P.E.I.R. It is said that both companies are subject to 90 days notice of the termination of their agreements, and that such notice is likely to be given shortly, in order that the Canadian Northern Ex. Co. may operate exclusively over all the Canadian National Rys., viz., Canadian Northern, Intercolonial, National Transcontinental and Prince Edward Island. In this connection, W. C. Muir, General Superintendent, Canadian Northern Ex. Co., will probably be transferred from Winnipeg to Toronto.

John Joseph Murray, who has been appointed General Superintendent, Lines east of Port Arthur, Ont., Dominion Ex. Co., Toronto, entered express service in July, 1888, in the Customs Department, Canadian Ex. Co., Toronto, and subsequently continued his collegiate course. After engaging in private business for about five years, he returned to express service with the Dominion Ex. Co., Oct. 1, 1907, since when he has been, to 1903, clerk and relieving messenger, Toronto; 1903 to May 1, 1906, chief clerk to Superintendent; May 1, 1906, to Jan. 1, 1911, secretary to President and General Manager; Jan. 1, 1911, to July 1, 1912, Superintendent, Southern Division; July 1, 1912, to Jan. 1, 1919, Superintendent of Eastern Division, on the amalgamation of the Eastern and Southern Divisions.

Telegraph, Telephone and Cable Matters.

T. W. Molson has been elected a director of the Montreal Telegraph Co., in place of Lieut.-Col. Bartlett McLennan, D.S.O., deceased.

The C.P.R. Telegraph Department will move its Winnipeg offices, in February, to the Canada Life Building, at the corner of Portage Ave. and Main St., which it is reported to have purchased recently for \$750,000. The name of the building will be changed to Canadian Pacific Building.

The Marconi Wireless Telegraph Co. of Canada's report for the past year shows

a profit of \$114,953, against \$104,929 for the previous year. The balance at credit of profit and loss is \$256,059, against \$185,745 for the previous year. After providing for sundry charges, \$198,414 is carried forward to the current year. At the recent annual meeting, J. N. Green-shields, K.C., was elected President in place of A. A. Allan, and Thomas Robb was appointed Managing Director. The other directors are: G. Marconi, G.C.V.O., Robert Bickerdike, G. C. Isaacs, G. M. Bosworth, W. D. Birchall, E. J. Nally and A. E. Francis.

The Dominion Government has relaxed certain restrictions on the use of wireless telegraphs at sea, to Canadian vessels through Canadian stations. Messages in plain language on ships' business, or from the general public may now be sent to, or received from, Canadian vessels through any regular Canadian commercial radio-telegraph station on the east coast, Great Lakes, west coast, and Newfoundland at any time, except through the naval stations at Halifax, N.S., and Sable Island, which will only handle ships' business in plain language. Canadian ships are also permitted to exchange plain language commercial traffic on the Pacific on any part, and on the Atlantic west of 40 deg. west, which latter is subject to British restrictions, limiting the traffic to ships' business in plain language. The trans-Atlantic wireless, between Glace Bay, N.S., and Clifden, Ireland, has been reopened, but traffic is limited to press messages and government business until further notice.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The General Railway Signal Co. has issued a booklet, 1,003A, describing and illustrating its model 2A signal.

Dominion Bridge Co.—G. H. Duggan, heretofore Vice President and Managing Director, has been elected President, succeeding Phelps Johnson, who asked to be relieved of the position, but who remains on the board.

The Canada Wire & Cable Co. is installing machinery for manufacturing a full line of steel wire ropes in its plant at Leaside, near Toronto. It expects to have this plant in operation by Mar. 15, and will then be in a position to supply all sizes and kinds of steel wire rope.

The William Kennedy & Sons, Ltd., Owen Sound, Ont., is adding to its plant a building 100 x 50 ft., and 33 ft. high, of steel and concrete construction, equipped with an electric travelling crane of 20 tons capacity. It is to be used as an erecting shop for marine machinery.

Calendars for 1919 have been received from: American Steel Foundries, Chicago; Dearborn Chemical Co., Chicago; Edison Storage Battery Co., Orange, N.J.; Flannery Bolt Co., Pittsburg, Pa.; Hiram L. Piper Co., railway and marine supplies, etc., Montreal; Taylor & Arnold, Ltd., railway and marine specialties, Montreal.

Imperial Munitions Board Offer for Sale PLANT AND EQUIPMENT (IN PART) OF British Cordite Co. Ltd., Nobel, Ont.

TENDERS, accompanied by marked cheque for 5% of the amount of the bid, will be received by the undersigned up to and including February 20th, 1919, for the purchase of the following, located at Nobel, Ontario:—

ITEM NO. 1. POWER HOUSE.—Building of steel frame construction on concrete foundations.

Boiler-room Equipment—10-400 H.-P. Wickes, vertical, water tube boilers, equipped with Murphy Automatic Stokers and 2-1 ton coal-weighing lorries.

Ash Handling System—American Steam Jet Ash Conveyor.

Power-House Equipment—3 Turbo Generators, 3 phase, 2200 volt, 60 cycle; 1-750 K. W. Allis Chalmers; 1-500 K. W. General Electric; 1-1000 K. W. Westinghouse-Parsons, complete with Westinghouse LeBlanc Jet Condenser and 80 H.-P. Sturtevant Turbine direct connected to Booster Pump; 1-25 K. W. Westinghouse-Turbo Exciter Set, 125 volt; 1-25 K. W. Canadian Fairbanks-Morse Motor Exciter Set, 550-volt motor, 125-volt generator; 1-30 K.V.A. constant current transformer.

Switchboard—11 panels fully equipped, 1-10 K.V.A., 2200-110 volts and 3-40 K.V.A., 2200-550 volts, Pittsburgh Transformers; 2-18 x 10 x 12 Worthington Fire Pumps; 2-14 x 22 x 14 x 16 Ingersoll-Rand Air Compressors; 2-No. 785 Cochrane feed water heaters; 4 Alberger heaters; 2-Frick Ammonia Compressors, 30 and 70-ton capacity; 2-4" Goulds Centrifugal Pumps, direct connected to 15 H.-P. motors; 4-1 1/4 x 8 and 2-5 1/2 x 8 Deane Single Acting Triplex Pumps, belt driven; 1-42 x 10 1/2 x 48 Hydraulic Pneumatic Accumulator.

ITEM NO. 2. PUMPING STATION.—Equipment—6-9 x 12 Aldrich Triplex Pumps, directly connected to 40 H.-P. Canadian Fairbanks-Morse, 550 volt, 40 amp., 60 cycle, 3 phase motor, with starting compensators and switch boxes capacity 500 gallons per minute; 3-75 K.V.A., 2,200-550 volts and 1-550-100 volts Pittsburgh Transformers.

ITEM NO. 3. MACHINE TOOLS.—18" Engine Lathe; 20" Drill Press; No. 4 Power Saw; Keyway Cutter; 16" Stroke Shaper; 10" Emery Wheel Stand; No. 34 Little Giant Screwing Machine with taps and dies.

ITEM NO. 4. TANKS.—Steel Horizontal—33—6' to 20' diameter. Steel vertical—41—3' to 8' diameter.

ITEM NO. 5. STOVES.—7 Nos. 41 and 42 Quebec Heaters, 5 Oxford Ranges and 16 Oil Stoves.

ITEM NO. 6. STEEL CANS.—12,900 Steel Cans, with lugs and lids, 11 1/2" x 12" x 3-32".

ITEM NO. 7. COTTAGES.—15 Cottages, frame construction, 20' x 34'.

ITEM NO. 8. PRESSES.—8 Dehydrating Presses (Hydraulic).

ITEM NO. 9. PUMPS.—8 Gardner Duplex Pumps, 7" x 3 1/2" x 10".

ITEM NO. 10. WRINGERS.—20 Centrifugal Wringers 24".

ITEM NO. 11. STOCK DRYERS.—3 Sargent (Stock Dryers).

ITEM NO. 12. PICKER MACHINES.—3 Davis and Furber Picker Machines 36".

ITEM NO. 13. KNEADERS.—52 Kneader Machines.

ITEM NO. 14. PRESSES.—19 Darling Presses (Hydraulic). 22 Inglis Presses (Hydraulic).

ITEM NO. 15. PUMPS.—46 Hydraulic Triplex Worthington Pumps, 1 x 4 for 2,000 pounds pressure.

ITEM NO. 16. PUMPS.—10 Vertical Triplex Single Acting, belt driven Worthington Pumps, 3 1/2" x 6" for 250 pounds pressure.

ITEM NO. 17. PUMPS.—6 Aldrich Pumps, Vertical, Triplex, Bach plunger of the solid water end type, double reduction, direct geared for 900 R.P.M. Motor, 9" x 12", Cap. 500 G.P.M., lift 150'.

ITEM NO. 18. BELTING.—A quantity of leather and rubber belting.

Tenders for these items, in whole or in part, will be considered. The owner will dismantle and load on cars; bids are to be made on this basis. Intending purchasers will be given every facility to inspect the buildings and equipment. Complete information may be obtained from the undersigned.

The highest or any tender not necessarily accepted.

Cheques from unsuccessful bidders will be promptly returned.

R. Home Smith

Agent, Imperial Munitions Board

18 King Street West, Toronto, Ont.

Phone Ad. 1590.

For Sale and Classified Advertising

FOR SALE AND CLASSIFIED ADVERTISING.

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meeting, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
 Positions Wanted and Positions Vacant, 2c per word.
 Equipment for Sale advertisements, 3c per word.
 Allow five words where replies are to be sent to a box number. Minimum order—\$1.
 Rates under other headings and for display advertisements on application.

Positions Wanted

Railway Accountant.—Well trained executive, young man, at present engaged as General Auditor, desires change. Railway or other transportation work preferred, but not essential. Willing to commence on moderate salary, provided prospects are attractive. Best of references. Box 4866, Canadian Railway and Marine World.

MANITOBA AND NORTH WESTERN RAILWAY.

Notice.—The Manitoba and North Western Railway Company of Canada will apply to the Parliament of Canada, at its next session, for an Act authorizing it to construct a line of railway from a point on its Shell River Branch in Twp. 21, Range 28, W. 1 M. in the Province of Manitoba, thence in a generally northerly direction to a point in Twp. 23, Range 28, W. 1 M. in said Province.

Dated at Montreal, this 14th day of January, 1919.

H. C. OSWALD,
 Secretary,

Manitoba and North Western
 Railway Company of Canada.

Pringle, Thompson, Burgess & Côté,
 Ottawa Agents.

THE CANADIAN PACIFIC RAILWAY COMPANY.

Notice.—The Canadian Pacific Railway Company will apply to the Parliament of Canada, at its next session, for an Act authorizing it to construct the following lines of railway:—

- (a) From a point at or near Duchess on its Bassano Easterly Branch in Twp. 20, Range 14, W. 4 M. in the Province of Alberta, thence in a general northerly direction to a point in or near Twp. 25, Ranges 14, 15 or 16, W. 4 M. in the said Province;
- (b) From a point at or near Archive on its Moose Jaw southwesterly branch in Twp. 15, Range 27, W. 2 M. in the Province of Saskatchewan, thence southwesterly and westerly to a point at or near Wymark on its Swift Cur-

- rent southeasterly branch in Twp. 13, Range 13, W. 3 M. in the said Province;
- (c) From a point on its Moose Jaw northwesterly branch at or near Fortune or Rosetown in Twp. 30, Ranges 14 and 15, W. 3 M. in the Province of Saskatchewan, thence in a general southerly direction a distance of about fifty miles, thence in a generally easterly direction, a distance of about thirty miles, to a point in or near Twps. 20, 21 or 22, Range 10, W. 3 M. in the said Province;
- (d) From a point on its Weyburn-Sterling Branch in or near Twp. 7, Range 29, W. 2 M. in the Province of Saskatchewan, thence in a generally southerly direction to a point in Twp. 5, Range 30, W. 2 M., thence in a generally westerly direction to a point in Range 7, W. 3 M. in the Province of Saskatchewan;
- (e) From a point at or near Lanigan on its Pheasant Hills Branch in Twp. 33, Range 22, W. 2 M. in the Province of Saskatchewan, thence in a general northeasterly direction to a point between the Carrot and Saskatchewan Rivers, thence in a general northeasterly direction to a point at or near Cumberland House in the said Province;
- (f) From a point at or near Leader on its Swift Current Northwesterly Branch in Twp. 22, Range 29, W. 3 M. in the Province of Saskatchewan, thence in a general southwesterly direction a distance of about 50 miles; thence in a general easterly direction to a point on or near Big Stick Lake, in or near Twp. 15, Range 25, W. 3 M. in the said Province;
- (g) From a point on its Manitou Lake Branch in Twp. 43, Range 21, W. 3 M. in the Province of Saskatchewan, thence in a general northwesterly direction to a point on or near Whitford Lake in Twp. 56, Range 11, W. 4 M. in the Province of Alberta.

Dated at Montreal, this 14th day of January, 1919.

E. ALEXANDER,
 Secretary,

Canadian Pacific Railway Company.
 Pringle, Thompson, Burgess & Côté,
 Ottawa Agents.



DEPARTMENT OF THE NAVAL SERVICE.

SEALED TENDERS, addressed to the undersigned and endorsed on the envelope "Tender for Naval Vessels", will be received up to noon of Thursday, 20th February, 1919, for the purchase of naval vessels lying at Halifax, Sydney and Liverpool, including,

- Steam Trawlers—Length 125 ft. B.P. Breadth Moulded, 23 ft. 4 in. Moulded Depth 12 ft. 6 in.
- Steam Drifters—Length 90 ft. Breadth 19 ft. 3 in. Depth Hold 10 ft.
- 6 Patrol Vessels—Length 140 ft. Breadth 23 ft. 6 in. Depth Hold 13 ft. 6 in.
- 4 Steam Fishing Vessels—Ranging in length from 130 ft. to 170 ft. Breadth 22 ft. 3 in. to 24 ft. Depth 8 ft. 8 in. to 9 ft. 6 in.

Several small Steamers—Of various dimensions, and Motor Launches of various types.
 Full particulars and permission to inspect the vessels may be obtained on application to the undersigned or to the Admiral Superintendent, H.M.C. Dockyard, Halifax, N.S.

G. J. DESBARATS,

Deputy Minister of the Naval Service.

Department of the Naval Service.

Ottawa, January 18, 1919.

Unauthorized publication of this advertisement will not be paid for.

THE ESQUIMALT AND NANAIMO RAILWAY COMPANY.

The Esquimalt and Nanaimo Railway Company hereby gives notice that it will apply to the Parliament of Canada at its next session, for an Act empowering the company to build the following railways:

(a) A railway from a point between Port Alberni and Bainbridge on the company's railway from Parksville Junction to Port Alberni, thence in a northwesterly direction, via Great Central Lake and the valley of the Ash River, to Comox Lake.

(b) A railway from a point on the above described railway at or near Sproat Lake, via Sproat Lake and the Taylor River, to Long Beach on the west coast of Vancouver Island, and to issue securities, and for other powers in respect thereof.

W. F. SALSURY,
 Secretary.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

- Canadian Car Service Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.
- Canadian Electric Railway Association—Acton Burrows, 70 Bond Street, Toronto.
- Canadian Freight Association (Eastern lines)—G. C. Ransom, Canadian Express Building, Montreal.
- Canadian Freight Association (Western lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Railway Club—J. Powell, St. Lambert, Que. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Railway War Board—W. M. Neal, Montreal.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—R. W. H. Smith, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—James Morrison, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, New York.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Quebec.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.

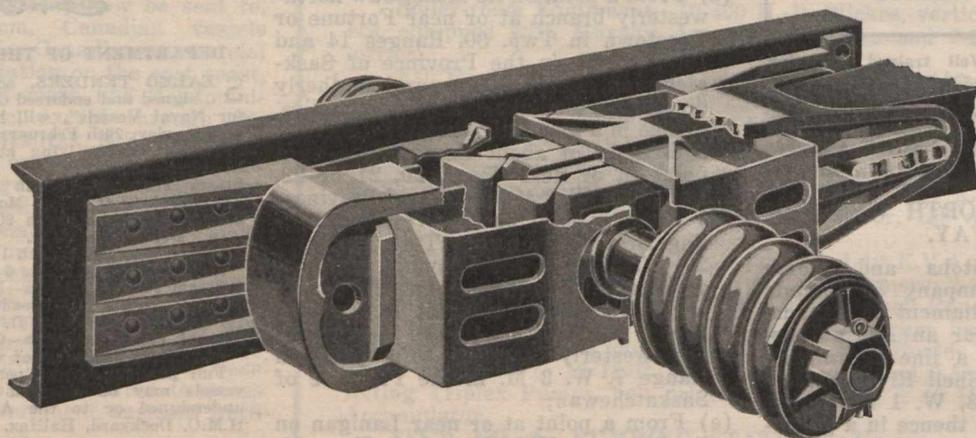
Toronto Transportation Club—W. A. Gray, 143 Yonge Street, Toronto.

Transportation Club of Vancouver—H. W. Schofield, 553 Church Street, Vancouver, B.C.

WEBB. G. KRAUSER

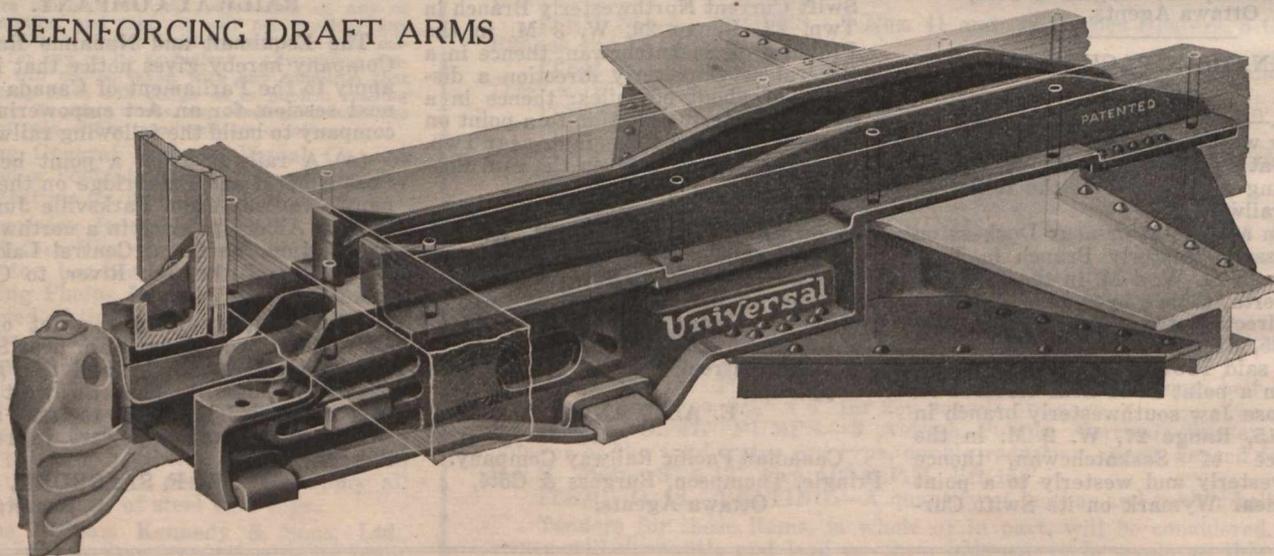
RAILWAY SUPPLIES MADE IN CANADA

CARDWELL FRICTION DRAFT GEAR



Universal ATTACHMENTS

REENFORCING DRAFT ARMS



CAST STEEL YOKES

TANDEM SPRING DRAFT RIGGING

DRAFT LUGS or PLATES

TWIN SPRING DRAFT RIGGING

FRICTIONLESS SIDE BEARINGS

627 Transportation Building, MONTREAL