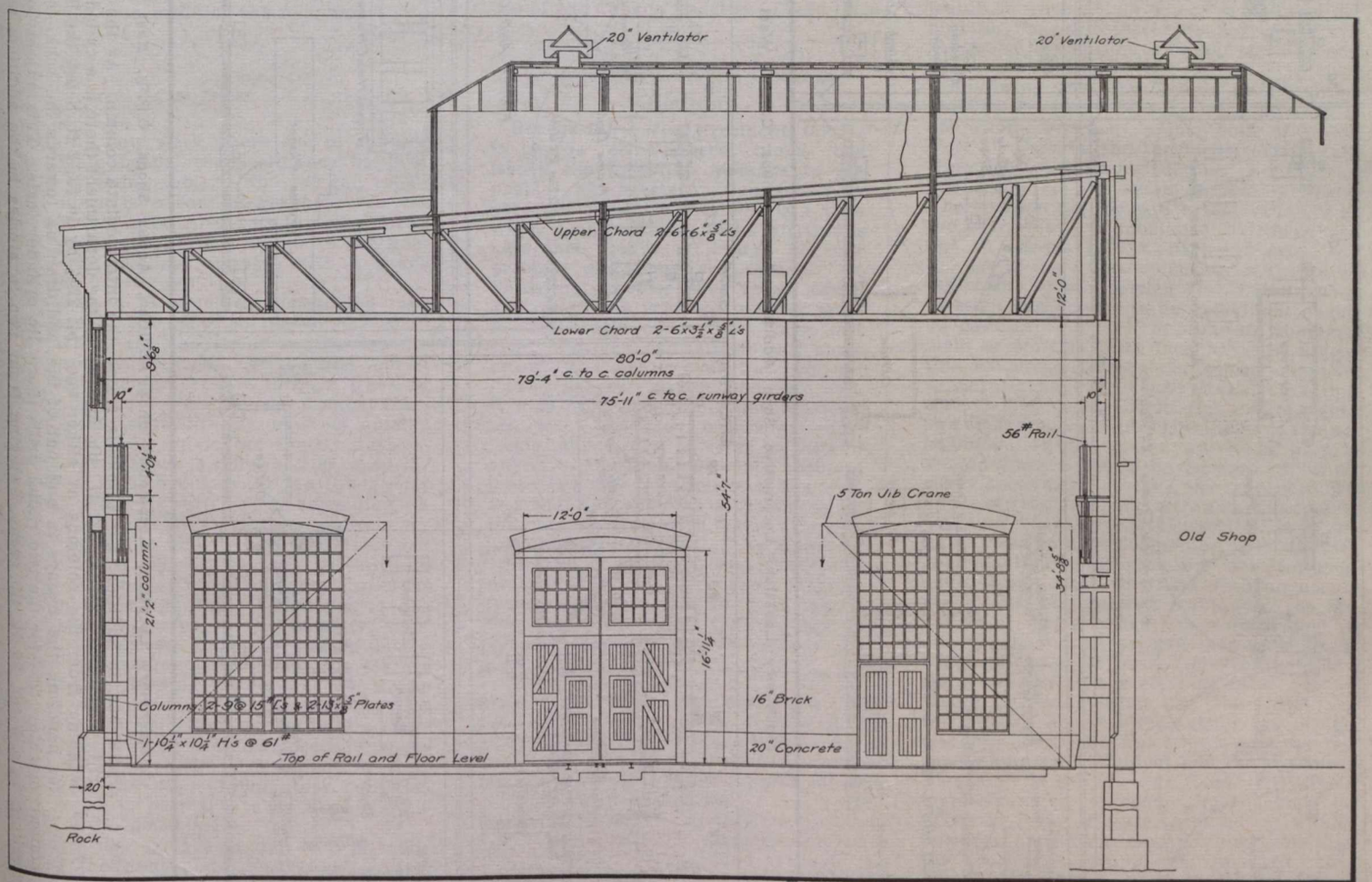
Canadian Railway and Marine World

October, 1914.

Locomotive Shop Addition, Angus Shops, Canadian Pacific Railway, Montreal.

A large addition to the C.P.R. Angus locomotive shop at Montreal has been completed, and was placed in service recently, relieving certain of the departments that were materially cramped in the old shop. The addition is 594 by 80 ft., extending along the north side of the building from near the midway end of the shop, more than half way the length of the old shop. It is a structure similar in all details of design to that of the older part, consisting of a steel framework, on a concrete subwall, with red brick in the upper portion, with the roof trussed by steel spans at 22 ft. centres, which divides the addition into 27 bays, from no. 12 of the old shop to no. 38.



Cross Section of Addition to Locomotive Shop, Angus Shops, C.P.R.

The shop addition has a clear span of 80 ft., with a clearance under the truss of 34 ft. 8⅝ ins. Over each cross bay, there is a skylight extending over a portion of the old shop. The building columns are composed of two 9 in. 15 lb. channels and two 13 by ⅝ in. plates, and the crane columns, 21 ft. 2 ins. long, are 10¼ x 10¼ ins. H. section members, at 2 ft. 0½ in. centres with regard to the building columns, these two sets of columns being tied together by 1 by ½ in. batten plates. The crane girder is 4 ft. 0½ in. deep, supporting a 56 lb. rail, the base of which is 25 ft. 2½ ins. above the level of the floor. Two 10 ton travelling cranes operate the length of the shop, with a clear span of 75 ft. 11 ins.

Centrally through the length of the shop, entering the latter through large doors at either end, there extends a standard gauge track, the rails of which form the outer rails of two 2 ft. gauge shop tracks. At five points in the shop length these tracks connect to similar track sets at right angles, four of which pass across the shop, from the old building to the outside of the new shop, through large doors, while the fifth only connects across into the old shop. Turntables are provided at all the intersections. The partition between the old building and the new section has been knocked out with the exception of a 10 ft. width at the columns, leaving a 12 ft. opening in each bay between the shops. This provides clear communication at a large number of points through the length of the shop for the interchange of materials.

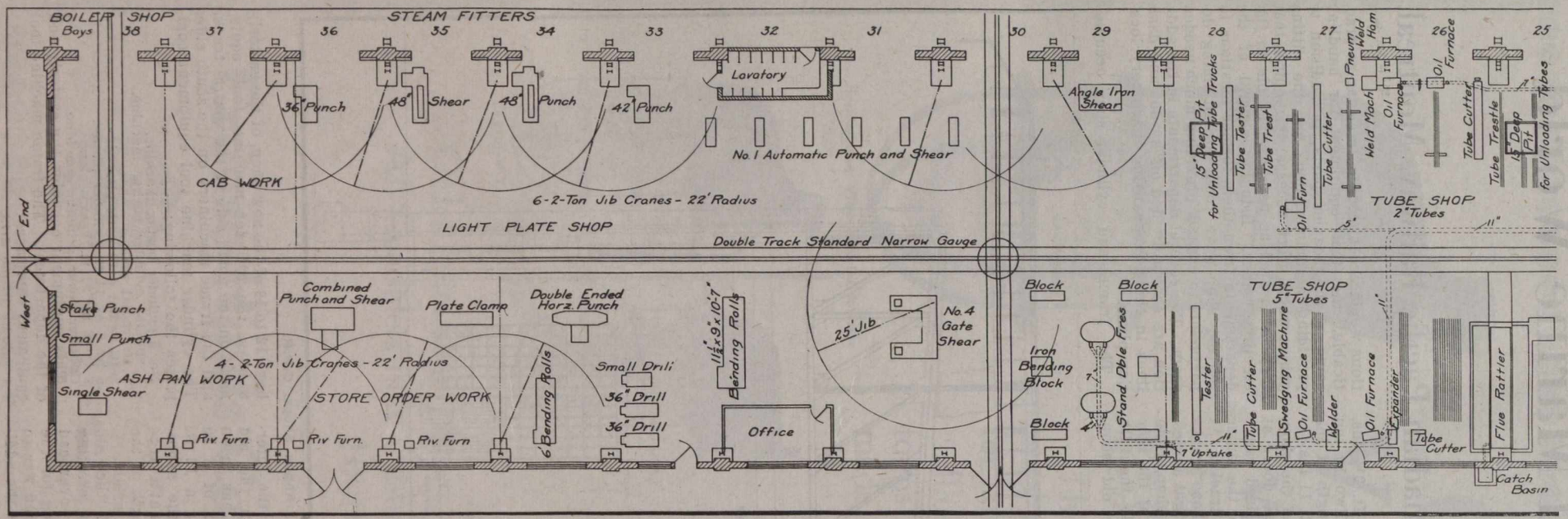
Along the adjoining wall of the old shops are located the two long erecting tracks, served by a travelling overhead crane. In consequence, in planning for the new addition, the idea borne in mind was to so rearrange the departments that the additions would accommodate, in so far as practicable, the tool equipment for handling some of the heavier parts, in addition to providing accommodation for the fitting gangs, whose work necessarily requires that they be located as near as possible to the erecting tracks. Bringing several of the departments from their former locations in the old shop gave room for adjoining departments to expand, providing much needed room. The several departments in the addition are shown divided off by dot and dash lines in the accompanying machinery location plans.

The frame and cylinder shop occupies bays 12 to 19 of the new shop, of the easterly 8 bays, the cylinder machine tool equipment on the north side of the central track, and the frame machinery on the south side. The cylinder machine tool equipment comprises the following:—

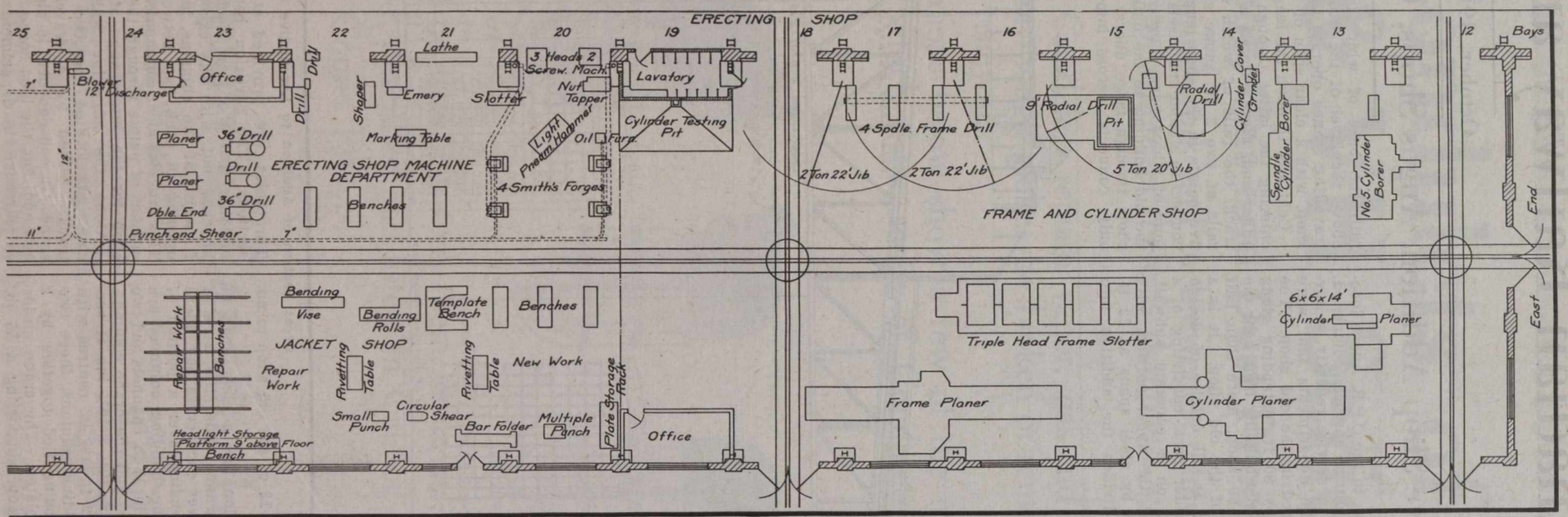
No. 5 cylinder boring machine.
3 spindle cylinder boring machine.
6 ft. radial drill.
9 ft. radial drill with pit.
6 by 6 by 14 ft. cylinder planer.
6 by 6 by 22 ft. heavy planer.
Cylinder cover grinding machine.

This equipment occupies the easterly end of the department. The frame machine tool equipment comprises:

4 spindle frame drill.



Machinery Location, Locomotive Shop Addition, Angus Shops, C.P.R., West End.



Machinery Location, Locomotive Shop Addition, Angus Shops, C.P.R., East End,

Triple head frame slotter, 24 in. stroke. 6 by 6 by 32 ft. frame planer.

This equipment occupies the westerly end of the department.

Most of the handling in this department is taken care of by the overhead travelling crane, but, in addition, the 4 spindle frame drill has two 2 ton 22 ft. jib cranes, swinging from the columns at either end, for handling the frames in and out of the machine, and for the two radial drills there is a 5 ton 20 ft. jib crane, swinging from the intermediate column. At the west end of the department there is a cylinder testing pit 22½ by 10 ft., 2 ft. below the floor level, and draining towards the back, for hydraulic cylinder tests. This adjoins one of the two lavatories in the addition, and on the opposite side of the addition is the foreman's office. The frames and cylinders enter from the erecting shop at the east end on the cross tracks, pass through the machining stages, and, in the case of the cylinders, are tested, and pass back into the erecting shop

through the other cross tracks. There are no retrograde movements.

The erecting shop machine department occupies the upper half of bays 20 to 23, and contains a complete line of equipment for such erecting work as requires to be performed on the spot, without passing on to any special department. It is well equipped with the following machinery:

Double head screw machine.
Triple head screw machine.
Slotter, 12 in. stroke.
500 lb. pneumatic power hammer.
4 blacksmith fires.
Oil furnace.
24 in. engine lathe.
24 in. shaper.
Colburn drill.
20 in. drill.
Three 36 in. drill presses.
Two 30 by 30 in. by 4 ft. planers.
Double end punch and shear, 16 in. gap.

In addition, there are four benches and a marking off table. Both the blast and exhaust for the blacksmith fires are under the floor.

The jacket shop occupies the same bays of the new addition to the south of the through shop tracks as the erecting shop machine department. It is divided into two sections, for the new work and for the repair work, and contains the following equipment:

Multiple punch.
Bar folder.
Circular shears.
Small punch, 18 in. stroke, 3-8 in. capacity.
Bending rolls.
Bending vise.

For the new work, there are in addition a template bench, three ordinary benches, and a rivetting table, while for the repair work there is a row of benches. To the south of this latter row there is a small overhead storage platform, 9 ft. above the floor level, for headlight storage, with a bench beneath.

Bays 25 to 28 inclusive contain the tube departments, the upper portion for the small 2 in. tubes, and the lower section for the 5 in. superheater flues. At the east end of this department there is a through track on which the tube lorries may be brought from the erecting shop directly, or from outside storage in the yard to the south. Just inside the door there is a flue rattler, used for all tubes, from which point the tubes pass through either of two paths, depending on size. The 2 in. tube section contains an unloading pit, in which the tube lorries are set, and from which they pass to the tube cutter alongside. From here they pass in succession through the oil furnaces to the welding machine, pneumatic hammer, tube cutter, oil furnace and tube tester, finally coming out complete for loading on lorries in a similar loading pit to that on which they were unloaded. The passage of the 5 in. tubes through that section is in a similar manner. There are no retrograde movements with either the 2 or 5 in. tubes, in both cases the sequence of steps being in order so as to pass the tubes from end to to end of the department.

Most of the balance of the shop is occupied by the light plate department, which contains the following equipment:

Two double blacksmith fires.
100 in. gate shear.
Angle iron shear.
Automatic punch and shear for tank plates.
Bending rolls, 12 ft. housings.
Three 36 in. drill presses.
Bending rolls, 6 ft. housings.
Double horizontal punch.
Punch, 42 in. throat.
Two punches, 48 in. throat.
Punch, 36 in. throat.

This department is served by several jib cranes, all as shown.

The plate storage is outside the building, adjoining the track passing out from bay 30. On this track the plate is brought into the shop, where it is first of all handled by the large gate shears, which cut it up to the desired sizes, and then pass it on for the subsequent operations, the central location of these large shears facilitating the handling of the plate work.

Bay 37, above the through track, is reserved for cab work.

The lower part of bays 35 and 36 contains the store order section, and is equipped with a double punch and shear, 24 in. gap, and also a plate clamp and two rivet furnaces. It is served by two jib cranes. The balance of the lower side of the shop contains the ash pan work section, equipped with:

Stake punch and rivetter.
Punch, 18 in. throat.
Single shear.
Rivet furnace.

We are indebted to W. Peterson, Shop Engineer, Angus Shops, for the data on which this article is based.

Proposed Increases for Exclusive Use of Drawing Rooms and Compartments.

Commissioner McLean, of the Board of Railway Commissioners, has given the following judgment, concurred in by three of the other Commissioners, Messrs. Drayton, Scott and Goodeve:—

Following the hearing in Montreal of January 23 and 24, 1911, orders went approving of the basis of maximum sleeping and parlor car tolls on railways subject to the Board's jurisdiction. These orders made provision for publication of tariffs so approved in at least two consecutive weekly issues of the Canada Gazette. These tariffs, therefore, covered the maximum rates legally applicable on lines subject to the Board's jurisdiction. To take the G.T.R. tariff C.R.C. E-1989 as typical, the provision contained as to drawing room and compartment car fares is as follows:—

"Drawing rooms in standard sleeping cars —Three and a half times charge for lower berths, sufficient being added to make the charge end in a multiple of $1. Minimum charge, $6.

"Compartments in standard sleeping cars —Two and four-fifths times charge for lower berths, sufficient being added to make the charge end in a multiple of 50c. Minimum charge, $5.

"Drawing room in parlor cars or for day runs in standard sleeping cars—Six times charge for seats, not exceeding charge for drawing room in night service between same points.

"Compartments on day runs of standard sleeping cars—Four times charge for seats, not exceeding charge for compartment in night service between same points."

This accommodation was available, on the payment of the above fares, to the holder of one passenger ticket.

In Feb., 1914, tariffs were filed by the railways providing for additional passenger fares in case of exclusive occupancy of a compartment or of a drawing room. The following from G.T.R. tariff C.R.C. E-1989 is typical of the arrangement:—"A minimum of 1½ passage tickets (including 1½ extra fare tickets on extra fare trains between points where extra fares apply) will be required for the exclusive occupancy of a compartment and 2 adult passage tickets (including 2 extra fare tickets in extra fare trains between points where extra fares apply) for the exclusive occupancy of a drawing room, in addition to proper sleeping and parlor car tickets."

Following this the Board, by its order 21413 of Feb. 27, 1914, suspended, as to their operation between points both of which were in Canada, the tariffs of certain railways subject to its jurisdiction.

The matter was heard on Mar. 17, 1914. The position put forward by the railways at the hearing was in substance that there was not an adequate payment being made for the use of the compartment, or of the drawing room. It was further stated that under existing arrangements an individual could, on payment of the appropriate compartment or drawing room fare, have the use of this exclusive accommodation on one passenger ticket, and it was stated that this worked detrimentally, in that on occasion two individuals might desire to have the accommodation in question, but would be prevented from doing so on account of its already being purchased by one traveller. The effect of this, from the railway's standpoint, was that where two passenger tickets might have been sold in connection with the accommodation in question only one had been sold. From what was said such an occurrence must be relatively infrequent. In the course of the investigation, which ended in Jan., 1911, it was testified that only about 5½% of the total passenger traffic of the C.P.R. was carried in sleeping cars. It was stated by Mr. Flintoft, for the C.P.R., at the present hearing, that about 3% of the sleeping car traffic was represented by the case where an individual had the exclusive occupancy of the drawing room. These are mere averages, of course, and cannot be taken as being necessarily final. It would, however, appear on these computations that the grievance complained of was concerned with only a small fraction of 1% of the total passenger traffic. It does not appear that the hypothetical two individuals who would use the accommodation, if it were not already occupied exclusively by one person, will, on this account, abstain from travelling; and if they do not abstain from travelling the railway will be in the same position as to passenger fares. Whether two passenger fares are received in connection with the use of a section and one for a drawing room, or vice versa, will not affect the passenger returns of the railway since in either case three passenger tickets are purchased.

There was not at the hearing an application by the railways to raise the standard sleeping car rates. There was in effect an application to increase the passenger rate

George Bury on the General Situation.

George Bury, Vice President, C.P.R., in charge of Western Lines, has issued the following message to the people of Western Canada:—"My personal advice is that this is a time when people should above all things hold their heads. Through life our greatest sufferings are through anticipating troubles that never come. The West this year will receive more for its crops, cattle, etc., than last year. Foreign capital will not come in until the war is over, but I do not know that this is an unmixed evil. It may hold back some development, but we have been borrowing recklessly, and it had to come to an end anyway. I believe legitimate business will not suffer on account of the war, and that the effective steps taken by the Government will make a monetary crisis impossible. The Empire's existence is at stake, and every one must present a bold and cheerful front and be prepared for every sacrifice should the worst come, which at present appears impossible."

under certain conditions. The case for the increase of the passenger rate has not been made out, and the order of suspension above referred to should be replaced by an order disallowing the tariffs within the scope set out by the order. As has been indicated, it is contended that at times an individual may have the exclusive occupancy of a drawing room or of a compartment when two individuals desire this accommodation. It, no doubt, would be a convenience under such circumstances for the two individuals in question to have the first chance of purchasing the accommodation. If the railways desire to cover this situation, it would seem that a rule could be drafted providing that compartment or drawing room accommodation will not be sold to an individual for his exclusive occupancy until either within a certain time before the train leaves or after the train is in motion. And in this way the question of the convenience of the two individuals so often referred to during the hearing could be adequately provided for.

Automatic Signalling on the Victoria Jubilee Bridge, Grand Trunk Railway.

The G.T.R. put into service recently its new a.c. automatic signals across the Victoria Jubilee Bridge and the approaches thereto, thereby replacing the old disc signals which had been in continuous service for 14 years. The Victoria Jubilee Bridge across the St. Lawrence River, which connects the Island of Montreal with the mainland, is one of the largest bridges on this continent, having accommodation for two steam and one electric railway tracks and also a large roadway and footpath. The steel work is about 6,600 ft. long. This new a.c installation included the equipping of the double track from Point St. Charles on the Montreal end, to Saint Lambert on the south shore of the river—a distance of about 3½ miles. At the St. Lambert end the automatics tie into the new 64 lever G.R.S. all electric interlocking plant. Four other railways lease running rights from the G.T.R. over this bridge, viz., the Central Vermont, the Delaware & Hudson, the Quebec Montreal & Southern and the Intercolonial. On account of extremely heavy traffic the length of the blocks was made comparatively short, ranging from 2,500 to 3,600 ft.

The installation in general follows the latest recommended practice in a.c. signal work. The signals are the Union Switch & Signal Co.'s top post T-2 mechanism, operated by a single phase 110 volt, 60 cycle a.c. induction motor. The so called wireless control circuits are used, employing the 12 polyphase three position relay; the local coils of these relays receive their energy at 12 volts potential from the track transformers. Track transformers also supply the energy for track circuits and electric signal lamps. All signals are electric lighted by 2 c.p. 2½ watt 6 volt tungsten lamps burning in multiple; convertible R.S.A. lamps equipped with model 9 electric sockets are used.

The centre span of the bridge has a steel floor system, which necessitated the use of a trap circuit; two vane type relays are used on this trap circuit; the circuit employed is shown in fig. 2.

All main line switches are equipped with universal switch circuit controllers and Z type switch indicators, operating at 110 volts. The indicators are of the normally energized type, standing when clear at 45 degrees in the upper right hand quadrant.

The high and low tension line wires are supported on a single cantilever cross arm, the two high tension wires being placed on the outside and spaced 18 ins. apart and the low voltage wires on the inside and spaced 12 ins apart. On the bridge this cantilever cross arm is attached to the vertical bridge members, and off the bridge to the Montreal Light, Heat and Power Co.'s steel poles, which run along the G.T.R. right of way. Due to the difficulty of double arming, a special forked bracket pin was used, set on a single cross arm, as shown in fig. 1.

No. 6 B. & S. gauge hard drawn D.B.W.P. insulated copper wire was used for the high tension line. Solderless cable taps were used to connect the leads running from the high tension line to the transformer primaries. No. 10 B. & S. gauge 40% copper clad line with D.B.W.P. insulation was used for the low voltage line. Copper line sleeves were used throughout in making all joints in line wire.

On the bridge proper all wires are enclosed in sherardized conduit, with condulet fittings, so that in no case are wires exposed. No wooden trunking whatever is used on the bridge structure. Reference to fig. 1 will show the general idea of how the conduit work was installed.

On the bridge structure proper great difficulty was experienced in getting the necessary clearance for the signal blade without placing it so high as to have it obscured from the locomotive man's view by the steel work. The difficulty was overcome by using a style T-2 dwarf signal mechanism, set on a steel cantilever platform which was riveted to the end post of the truss. The spectacle casting was a special design with the blade attached to the bottom of the casting, so as to give it the maximum clearance and best view yet arranged, so that as it moved from the stop to clear positions at no point would the clearance be decreased over that of the blade in the stop position. The platform, signal mechanism, and spectacle are clearly shown in fig. 1. On the same platform is mounted an ordinary relay post and box, in which are placed the relays, track transformer, reactances, and low voltage lightning arrestors. The line transformer and high voltage lightning arrestors are also mounted on the platform. Reference to fig. 1 will show the general arrangement.

Power for operating these signals is obtained over a single phase 60 cycle, 2,200 volt transmission line. Under normal conditions power is purchased from the Montreal Light, Heat and Power Co. The a.c. transmission line is sectionalized at two points, so that a transmission line failure will not necessarily tie up the entire installation. General Electric Co. double pole form P outdoor type oil switches are used for this purpose. At the east end of the bridge the switch is mounted on the transmission pole line. The pole is provided with steps and painted white, so as to facilitate finding it at night in case of failure. The sectionalizing switch at the west end of the bridge is mounted on a steel platform attached to a large A frame steel transmission line support of the Montreal Light, Heat and Power Co.

General Electric Co. multigap type form F2 lightning arrestors, enclosed in asbestos lined weather proof wooden boxes, are used to protect the high tension transmission line. Two of these are placed at every transformer location. Off the bridge structure no. 3 paragon ground cones, set in coke,

Fig. 1. Automatic Signalling on Victoria Jubilee Bridge, G.T.R.

were used for high tension lightning arrestor grounds. On the bridge structure, both the high and low tension lightning arrestors were grounded to the steel work of the bridge. A bare no. 6 B. & S. gauge 40% copper clad line wire was strung the entire length of the bridge and grounded at each end through a no. 3 paragon ground cone set in coke. At each signal or transformer

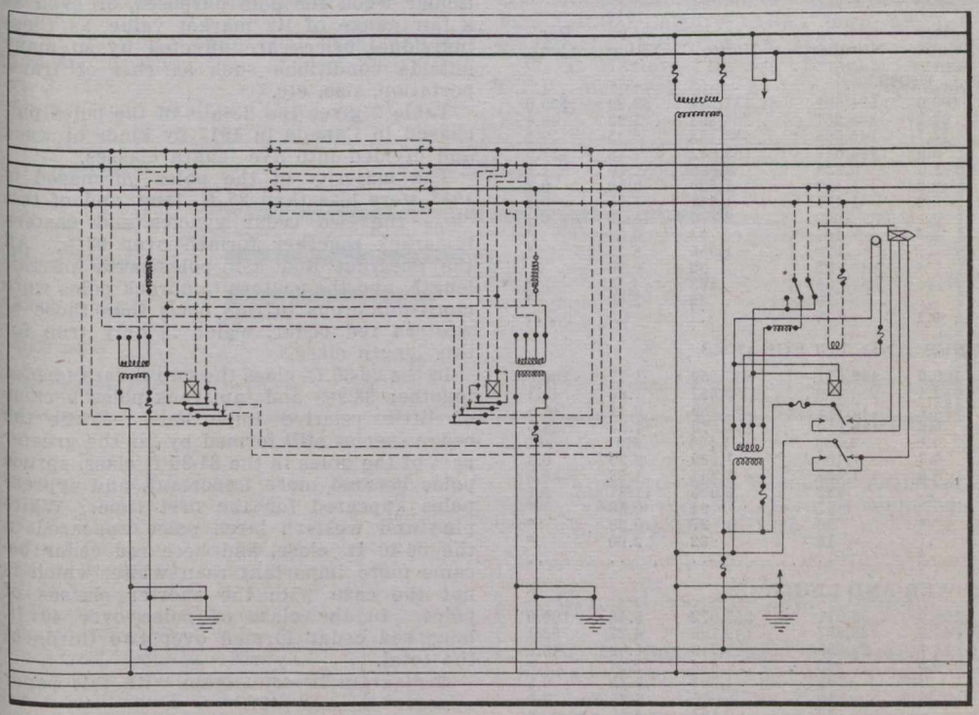


Fig. 2. Automatic Signalling on Victoria Jubilee Bridge, G.T.R.

location the bridge structure was connected to this ground wire. Off the bridge structure the low tension lightning arrestors were grounded through a coil of 12 turns of no. 6 B. & S. gauge bare copper wire placed one foot below the concrete foundation. Low voltage lightning arrestors were used in all wire leads to either line or track.

In the St. Lambert interlocking plant there was installed an auxiliary power supply consisting of a storage battery, d.c.-a.c motor generator set, and step up transformer, together with the necessary switching apparatus. This auxiliary plant has sufficient capacity to operate the interlocking plant and a.c. signal system for about five hours. Due to the extremely heavy traffic over this installation absolute continuity of signal service was essential, and therefore an auxiliary power supply was installed. The Montreal Light, Heat and Power Co. brings its energy into Montreal over six independent power lines, and in addition has a large reserve steam plant, so that a power failure lasting more than five hours should be a very rare occurrence.

The former power equipment at the St. Lambert all electric plant was enlarged and changed to provide both the d.c. for the all electric interlocking plant. and in cases of emergency, a.c. energy for the a.c. signal system.

Fig. 3 shows diagrammatically the arrangement of this apparatus. Normally 3 phase 60 cycle energy at 2,200 volts is purchased from the Montreal Light, Heat and Power Co. This is stepped down to 220 volts, by 3 single phase out door type transformers mounted on a pole outside the tower. This 220 volt energy is then led to a special 3 phase a.c. induction motor which drives a d.c. generator. This generator is used to charge two storage batteries—one of 80 ampere hour and one of 120 ampere hours capacity. Switch board equipment is such that any one of the following combinations can be arranged:—

(a) Charge both batteries at the same time.

(b) Charge either battery separately.

(c) Charge one battery and have the other supplying energy for the all electric interlocking plant.

(d) Have one battery supplying energy for the all electric interlocking plant and the other supplying energy to operate the d.c.-a.c motor generator set.

(e) Have either battery supply energy to the all electric interlocking plant.

Normally the a.c. signal transmission line is fed right off one phase of the 2,200 volt 3 phase a.c. line entering the St. Lambert interlocking tower. Should this energy fail, a circuit breaker would automatically open. The auxiliary power set would then start up, the 200 ampere hour storage battery supplying the energy necessary to operate both the a.c. signal system and the d.c. all electric interlocking plant. The d.c. generator is run as a motor, and the special 3 phase induction motor is operated as a single phase a.c. generator supplying a.c. 60 cycle energy at about 200 volts. This is then stepped up to 2,200 volts and fed out on the a.c. signal transmission line.

The d.c.-a.c. motor generator-generator motor set is mounted on a concrete foundation. Beside this are mounted the two switch board panels, and beyond is the storage battery room. On the wall are mounted the disconnecting switches and fuse blocks. All transformers are of the out door type and located on poles outside the tower. All wire leads between pole line, transformers and tower are in cable enclosed in sherardized conduit.

This installation is said to be the first of its kind in Canada. The signal apparatus was manufactured and installed by the Union Switch and Signal Co. Switch boards and power equipment were purchased from the General Electric Co. and installed by G.T.R. forces. We are indebted to R. F. Morkill, Signal Engineer, G.T.R., for the foregoing information.

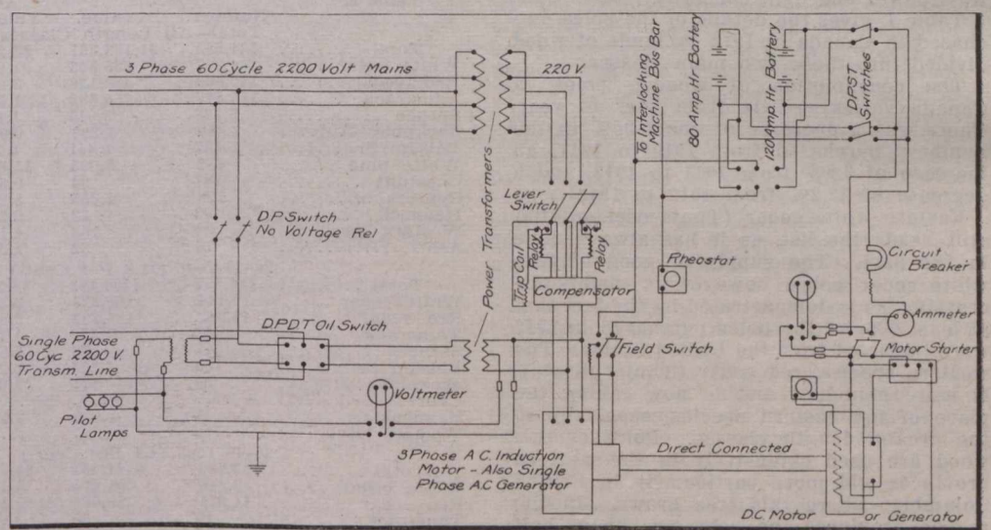


Fig. 3. Automatic Signalling on Victoria Jubilee Bridge, G.T.R.

A Tribute From Japan.

In our issue of January last, in announcing a change in Canadian Railway and Marine World's subscription price, we said:—

"As a sample of letters received from time to time we may quote one from one of the principal general officers of the Canadian Pacific Railway, who wrote as follows: 'I look upon Canadian Railway and Marine World as THE paper which anyone interested in Canadian railway or marine matters has to take and read in order to be posted. I would not be without it for considerably more than the price of admission.' Another well known railway man, in remitting his renewal subscription recently, wrote:—'I am ashamed to send so small a trifle for so valuable a publication.'"

W. T. Payne, Manager, Trans-Pacific Steamship Line, Yokohama, Japan, in remitting his renewal subscription recently, attached a clipping of the above extract to his letter and wrote on it:—"I agree." Such unsolicited tributes are an encouragement to still greater efforts to merit approval.

Pere Marquette Rd.—An inquiry is being made under the direction of the Interstate Commerce Commission into this company's affairs. The inquiry will cover the financial history of the road, including its connection with the Cincinnati, Hamilton and Dayton Rd., as well as the physical condition of the property, its equipment and operation.

The total unobstructed air openings in the locomotive ash pan need not exceed the total tube area, nor must they be less than 75% of the total tube area.

Poles Purchased in Canada in 1913.

Reports received from 424 pole purchasers in Canada in 1913 were used as a basis for the statistics in this bulletin. These purchasers consisted of 218 telephone companies, 155 electric light and power concerns, 29 electric railways, 18 steam railways and 4 telegraph companies. The statistics have been divided into two main groups:—First, those received from steam railway, telegraph and telephone companies, and second, those received from electric railway, power and light concerns.

Table 1.

	1912. Number.	Value.	Av. Value.	Per Cent.	1913. Number.	Value.	Av. Value.	Per. Cent.
TOTAL OF ALL USES.								
Total	608,556	$1,113,524	$1.83	100.0	534,592	$1,188,331	$2.22	100.0
White cedar	378,369	613,580	2.83	62.2	264,267	525,853	1.99	49.4
Red cedar	144,222	408,472	2.83	23.7	145,569	488,138	3.35	27.2
Tamarack	36,158	46,822	1.29	5.9	115,517	155,682	1.35	21.6
Spruce	9,127	10,334	1.13	1.5	5,228	6,046	1.16	1.0
Jackpine	1,790	2,710	1.51	0.3	1,450	1,299	0.90	0.3
Balsam fir	38,000	30,400	0.80	6.2	1,437	1,841	1.28	0.3
White pine	....	....	..	..	682	8,095	11.37	0.1
Chestnut	228	147	0.64	*	167	94	0.56	*
Cypress	....	....	..	..	128	1,056	8.25	*
Hemlock	50	65	1.30	*	92	32	0.35	..
Western larch	....	....	..	..	39	163	4.18	*
Ash	....	....	..	..	16	32	2.00	*
Douglas fir	612	994	1.62	0.1	..	..	..	..
STEAM RAILWAYS, TELEPHONES AND TELEGRAPHS.								
Total	549,560	830,793	1.51	100.0	469,521	833,259	1.77	100.0
White cedar	341,240	462,964	1.36	62.1	230,360	382,657	1.66	49.1
Red cedar	122,925	278,846	2.27	22.4	115,714	282,389	2.44	24.6
Tamarack	36,158	46,822	1.29	6.6	115,212	152,675	1.33	24.5
Spruce	8,567	7,869	0.92	1.6	4,393	4,150	0.94	0.9
Jackpine	1,790	2,710	1.51	0.3	1,450	1,299	0.90	0.3
Balsam fir	38,000	30,400	0.80	6.9	1,437	1,841	1.28	0.3
White pine	....	....	..	..	682	8,095	11.87	0.1
Chestnut	228	147	0.64	*	167	94	0.56	*
Hemlock	40	40	1.00	*	90	27	0.30	*
Ash	....	....	..	..	16	32	2.00	*
Douglas fir	612	995	1.63	*	..	..	..	..
ELECTRIC RAILWAYS, POWER AND LIGHT.								
Total	58,996	282,731	4.79	100.0	65,071	355,072	5.45	100.0
White cedar	37,129	150,615	4.06	62.9	33,907	143,196	4.22	52.1
Red cedar	21,297	129,626	6.09	36.1	29,855	205,749	6.89	45.9
Spruce	560	2,465	4.40	0.9	835	1,896	2.27	1.3
Tamarack	....	....	..	..	305	3,007	.9.89	0.5
Cypress	....	....	..	..	128	1,056	8.25	0.2
Western larch	....	....	..	..	39	163	4.18	*
Hemlock	10	25	2.50	*	2	5	2.50	*

* Less than a tenth of one per cent.

The consumption of wooden poles in Canada varies greatly from year to year. There was a decrease of about 30% in the numbers purchased from 1910 to 1911, an increase of 3.9% from 1911 to 1912, and a decrease of 12.2% from 1912 to 1913.

Eastern white cedar (Thuja occidentalis) still heads the list, as it has always done in the past. The supply of good eastern white cedar poles, however, is visibly decreasing, as is demonstrated by the fact that at least 20% of the poles purchased in 1913 were imported from the United States. The western species, red cedar (Thuja plicata), is more abundant and is now taking the place of the eastern species, especially in the greater length classes. Poles of this wood are used extensively in the western provinces and more particularly in British Columbia, where this tree grows. In the prairie provinces the poles are about half of the eastern species and half of the western. Of the red cedar poles purchased in 1913 over 8% were imported from the Pacific states and were classed as "Idaho red cedar," although these are of the same species as those obtained from British Columbia.

Out of a total of 534,592 poles, 12.1% were reported as having been imported from the U.S. in 1913. While the total number was a decrease from 1912 to 1913 the total value showed an increase of 6.7%, caused by an increase in the average price amounting to $0.39.

Telephone, telegraph and railway companies operating telephone and telegraph lines used 87.8% of all the poles purchased in Canada in 1913. This is a decrease in numbers of 14.6 and an increase in value of 0.3%, the average value to these companies increasing by $0.26. All the jackpine, balsam fir, white pine, chestnut and ash poles were purchased by this class of companies.

Table 2.

	Number.	Value.	Av. Value.	Per Cent.	Number.	Value.	Av. Value.	Per. Cent.
	Total—All Length Classes				20-25 feet (63.8 Per Cent.)			
Total	534,592	$1,188,331	$2.22	100.0	340,865	$463,665	$1.36	100.0
White cedar	264,267	525,853	1.99	49.4	159,064	192,908	1.21	46.7
Red cedar	145,569	488,138	3.35	27.2	60,028	112,821	1.88	17.6
Tamarack	115,517	155,682	1.35	21.6	114,564	151,386	1.32	33.6
Spruce	5,228	6,046	1.16	1.0	4,357	3,972	0.41	1.3
Jackpine	1,450	1,299	0.90	0.3	1,375	1,125	0.82	0.4
Balsam fir	1,437	1,841	1.28	0.3	1,202	1,299	1.08	0.4
White pine	682	8,095	11.87	0.1	2	1	0.50	*
Chestnut	167	94	0.56	*	167	94	0.56	*
Cypress	128	1,056	8.25	*	....	....	....	....
Hemlock	92	32	0.35	*	90	27	0.30	*
Western larch	39	163	4.18	*	....	....	....	....
Ash	16	32	2.00	*	16	32	2.00	*
	26-30 feet (21.8 Per Cent.)				31-35 feet (7.1 Per Cent.)			
Total	116,297	$294,162	$2.53	100.0	38,166	$148,639	$3.89	100.0
White cedar	70,144	165,379	2.36	60.3	21,356	75,835	3.55	56.0
Red cedar	44,942	126,292	2.81	38.6	16,073	70,979	4.42	42.1
Tamarack	662	1,150	1.74	0.6	75	179	2.39	0.2
Spruce	347	892	2.61	0.3	480	972	2.03	1.3
Balsam fir	150	333	2.22	0.1	75	179	2,39	0.2
Jackpine	50	111	2.22	*	20	48	2.40	*
Cypress	....	....	....	....	75	402	5.36	0.2
Hemlock	2	5	2.50	*	....	....	....	....
Western larch	....	....	....	....	12	45	3.75	*
	36-40 feet (4.4 Per Cent.)				40 feet and over (2.9 Per Cent.)			
Total	23,939	$141,431	$5.91	100.0	15,325	$140,434	$9.16	100.0
White cedar	9,443	51,214	5.42	39.4	4,260	40,517	9.51	27.8
Red cedar	14,371	89,603	5.91	60.0	1,055	88,443	8.71	66.3
Tamarack	10	30	3.00	*	206	2,937	14.26	1.3
Spruce	43	205	4.77	0.2	1	5	5.00	*
Balsam fir	10	30	3.00	*	....	....	....	....
Jackpine	5	15	3.00	*	....	....	....	....
White pine	42	274	6.52	0.2	638	7,820	12.26	4.2
Cypress	....	....	....	....	53	654	12.34	0.3
Western larch	15	60	4.00	0.1	12	58	4.83	0.1

*Less than one tenth of one per cent.

The electric railway, power and light companies' purchases formed only 12.2% of the total, but these poles cost on an average $3.68 more than those purchased by the telephone and telegraph companies.

The total number was an increase of 10.3% over 1912, while the average price was an increase of $0.66. These companies imported over 5% of the poles they used in 1913. They purchased all the cypress poles imported into Canada during that year and also all the western larch poles from British Columbia.

The average prices given for certain kinds of poles which have been purchased in small quantities cannot be considered as indicative of the intrinsic value of that particular wood for pole purposes, or even as a fair gauge of its market value, as these individual prices are affected by so many outside conditions such as cost of transportation, size, etc.

Table 2 gives the details of the poles purchased in Canada in 1913 by kinds of wood and divided into five length classes.

The majority of the poles purchased in 1913 were less than 25 ft. long, and of this class the two cedar species and eastern tamarack together formed over 97%. All the chestnut and ash poles were of this length, and the eastern tamarack poles were more numerous in this class than those of western red cedar, which is only true for this length class.

In the 26-30 ft. class the two cedars formed together 98.9% and tamarack poles became of little relative importance. While the cedar species still formed by far the greater part of the poles in the 31-35 ft class, spruce poles became more important, and cypress poles appeared for the first time. White pine and western larch poles appeared in the 36-40 ft. class, and here red cedar became more important than white, which is not the case with the shorter classes of poles. In the class of poles over 40 ft. long, red cedar formed over two thirds of the total.

A diagram in connection with this paper appears on page 451.

Paint on Concrete Surfaces was discussed by the American Society of Testing Materials, recently, when the results of a series of tests were presented. Good oil paints give very satisfactory service, while water paints, or varnish, and other resinous paints do not. The oil paints are not attacked by the dry cement, and retain both texture and color.

The principles of efficient combustion will be best served if the percentage of air openings be made as large as possible without causing losses of fuel through the grate.

Birthdays of Transportation Men October.

Many happy returns of the day to:—

L. S. Brown, Superintendent, Truro, Sydney and Oxford District, Intercolonial Ry., New Glasgow, N.S., born at Nelson, N.B., Oct. 19, 1864.

R. A. Burford, cashier, C.P.R. ticket office, New York City, born at Brooklyn, N.Y., Oct. 4, 1878.

T. C. Burgess, Commercial Agent, G.T.R., Minneapolis, Minn., born at New York City, Oct. 2, 1853.

G. E. Burns, Freight Claims Agent, Eastern Lines, C.P.R., Montreal, born at St. Thomas, Ont., Oct. 6, 1863.

K. J. Burns, Assistant General Freight Agent, Great Northern Ry., Vancouver, B.C., born at Rochester, Eng., Oct. 11, 1878.

F. F. Busteed, C.E., Engineer in charge of C.P.R. revision and second tracking, west of Calgary, Kamloops, B.C., born at Battery Point, Que., Oct. 10, 1858.

J. M. S. Carroll, District Manager, Canadian Consolidated Rubber Co., Montreal, born at Ballarat, Australia, Oct. 22, 1877.

C. E. Cartwright, M. Can. Soc. C.E., ex-Division Engineer, C.P.R., Vancouver, B.C., born at Toronto, Ont., Oct. 13, 1864.

G. S. Cooke, Superintendent Grand Trunk Pacific Ry., Melville, Sask., born at Montreal, Oct. 27, 1875.

A. F. Dion, Traffic Agent, Quebec Harbor Commission, Quebec, born at L'Islet, Que., Oct. 1, 1871.

L. V. Druce, Commercial Agent G.T.R. and G.T.P.R., Vancouver, B.C., born at London, Eng., Oct. 20, 1873.

C. E. Dewey, Freight Traffic Manager, G.T.R., Montreal, born at Cheshunt, Eng., Oct. 2, 1873.

C. E. Friend, General Auditor, Canadian Northern Ry., Winnipeg, born at Brighton, Eng., Oct. 12, 1871.

W. P. Fitzsimmons, Commissioner of Industries, G.T.R., Montreal, born at Detroit, Mich., Oct. 27, 1868.

A. H. Harris, Special Traffic Representative, C.P.R., Montreal, Que., born in Devonshire, Eng., Oct. 15, 1855.

G. Hodge, General Superintendent, Eastern Division, C.P.R., Montreal, born there Oct. 2, 1874.

J. H. Hughes, Assistant Superintendent, District 2, Eastern Division, Smith Falls, Ont., born at Charlottetown, P.E.I., Oct. 7, 1865.

H. Irwin, M. Can. Soc. C.E., Consulting Right of Way and Lease Agent, C.P.R., Montreal, born at Newgrove, County Down, Ireland, Oct. 27,1847.

J. W. N. Johnstone, General Passenger Agent, Reid Newfoundland Co., St. Johns, Nfld., born at Campobello, N.B., Oct. 4, 1878.

W. M. Kirkpatrick, Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, born at Kingston, Ont., Oct. 8, 1874.

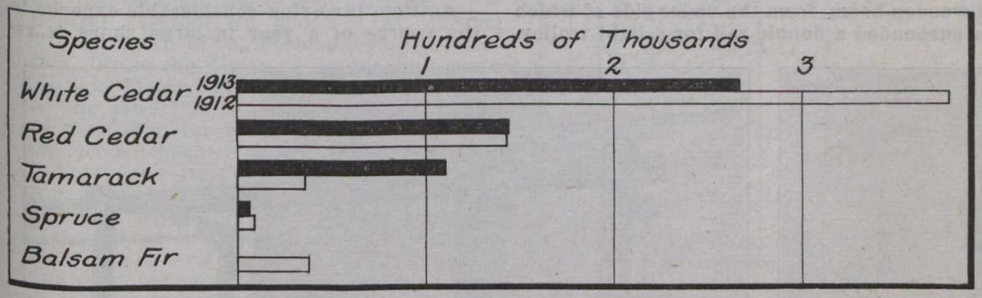
W. B. Lanigan, Assistant Freight Traffic Manager, Western Lines, C.P.R., Winnipeg, born at Three Rivers, Que., Oct. 12, 1861.

J. W. Leonard, Assistant to Vice President, C.P.R., Montreal, born at Epsom, Ont., Oct., 1858.

Sir William Mackenzie, President, Canadian Northern Ry., Toronto, born at Kirkfield, Ont., Oct. 30, 1849.

C. Malcolm, chief clerk, Auditor of Stores and Mechanical Accounts, Alberta Division, C.P.R., Calgary, Alta., born at Tatamagouche, N.S., Oct. 18, 1881.

W. T. Marlow, Import Freight Agent, C.P.R., Montreal, born at Limerick, Ireland, Oct. 25, 1872.



Poles Purchased in Canada in 1913.

R. Marpole, General Executive Assistant, C.P.R., Vancouver, B.C., born in Montgomeryshire, Wales, Oct. 9, 1850.

A General Storekeeper's Opinion.

A. E. Cox, General Storekeeper, Canadian Northern Railway, Winnipeg, writes Canadian Railway and Marine World:—"I would like to congratulate you on your excellent publication. I assure you it is looked for each month. I consider it a valuable paper for any railway man, as the subjects dealt with are so varied and applicable to all departments. My best wishes for its continued success."

H. Paton, President, Shedden Forwarding Co., Montreal, born at Johnstone, Renfrew, Scotland, Oct. 5, 1852.

J. W. Porter, acting Chief Engineer, Hudson Bay Railway, Winnipeg, born at Aberdeen, Scotland, Oct. 15, 1877.

D. Pottinger, I.S.O., ex-Assistant Chairman, Government Railways Managing Board, Moncton, N.B., born at Pictou, N.S., Oct. 7, 1843.

H. G. Reid, Master Mechanic, Lake Superior Division, C.P.R., North Bay, Ont., born at Pembroke, Ont., Oct. 27, 1863.

W. S. Rollo, joint agent, G.T.R., and Central Vermont Ry., St. Johns, Que., born at Dundee, Scotland, Oct. 8, 1852.

J. K. Savage, Superintendent, District 1, Saskatchewan Division, C.P.R., Regina, born at Forreston, Ill., Oct. 5, 1876.

Sir Thomas G. Shaughnessy, K.C.V.O., President, C.P.R., Montreal, born at Milwaukee, Wis., Oct. 6, 1853.

T. Duff Smith, Fuel Agent, Grand Trunk Pacific Ry., Winnipeg, Man., born at Barking, Essex, Eng., Oct. 2, 1868.

A. B. Spence, Travelling Auditor, Reid Newfoundland Co., St. Johns, Nfld., born at Harbor Grace, Nfld., Oct. 21, 1882.

F. Stamelen, Night Locomotive Foreman, C.P.R., Winnipeg, born at Chatham, Ont., Oct. 16, 1863.

E. Sterling, Superintendent Districts 2 and 3, British Columbia Electric Ry., New Westminster, born at Thornbury, Ont., Oct. 3, 1875.

F. B. Tapley, A.M. Can. Soc. C.E., Assistant Engineer Maintenance of Way, Eastern Lines, C.P.R., Montreal, born at St. John, N.B., Oct. 17, 1876.

E. N. Todd, Division Freight Agent, Eastern Division, C.P.R., Montreal, born at Huntington, Que., Oct. 17, 1879.

A. W. Wheatley, Manager, Canadian Locomotive Co., Ltd., Kingston, Ont., born at Ashford, Kent, Eng., Oct. 12, 1870.

L. H. Wheaton, Resident Engineer, Dartmouth branch, Intercolonial Ry., Dartmouth, N.S., born at Sackville, N.B., Oct. 5, 1869.

Canadian Pacific Railway Employes' Medical Association of British Columbia.

An organization with this title has been completed among the C.P.R. employes on the British Columbia Division, and those of the Alberta Division located between Field and Stephen, B.C. The organization is intended to replace the old medical arrangements, which, while working satisfactorily, in many cases were found to be inadequate to meet the increasing requirements. The old arrangements provided benefits for about 4,000 of the employes, leaving about 1,550 outside their operations. As many of these 1,550 employes resided at points away from a centre where medical attendance could be obtained, considerable hardships often resulted.

The new organization seeks to include every C.P.R. employe in the province, provide medical attendance for them and their families, and a certain amount of hospital accommodation at central points. The contribution of married men is fixed at $1.25 a month, and of unmarried men at $1 a month, which is deducted from the monthly pay and paid over in a lump sum by the company to the Association's treasurer. Employes may decline to join the Association, but they must give notice to that effect. The Association's management is in the hands of a committee of 18, representative of every grade of service, from the General Superintendent to the trackmen. All the appointments of medical men are made by this committee, the only exception being the Chief Medical Officer, who is appointed and paid by the C.P.R. Each medical officer has a district assigned to him, and it is his duty to attend all the company's employes and their families within that region, free transportation being provided by the company to enable him to travel over his district. The medical officers are also required to give first aid at any accident on the line. Accommodation in hospitals will be provided, under certain conditions, and it is hoped that this feature will be extended by the provision of cottage hospitals at points not now provided with public hospitals.

Medical men have been appointed at 19 points on the line outside Vancouver, and temporary arrangements have been made at such points where permanent medical men have not yet been appointed.

Steel Rail Order.—Sir Robt. Borden announced in the House of Commons during the recent short session that the Government had ordered 10,000 tons of steel rails from the Dominion Iron and Steel Co.

The amount of solid matter discharged from the locomotive stack has been found to vary from 1 to 14%, depending on the rate of firing, increasing at a much greater rate than the rate of firing.

The first locomotive made its initial trip drawing freight at Killingworth colliery, Northumberland, Eng., July 25, 1814. It weighed about six tons. To-day the largest locomotive weighs 850,000 lbs.

Railway Mechanical Methods and Devices.

Handling Power House Coal and Ashes at the Allandale Locomotive House, Grand Trunk Railway.

The G. T. R. locomotive house at Allandale, Ont., where four of the lines converge, handles a large number of locomotives daily, and a large locomotive house for handling this equipment is required. In addition there is a large machine shop for handling the running repairs. As a result the power plant, where the power for operating the machinery is generated, requires a large amount of coal for its operation. The usual custom in plants of this kind is to handle all the coal in and out of the boiler room by wheel barrow, as it has not generally been considered necessary to improve this department, which is usually considered unimportant. This condition prevailed in this locomotive house until the coal and ash handling facilities to be described were installed.

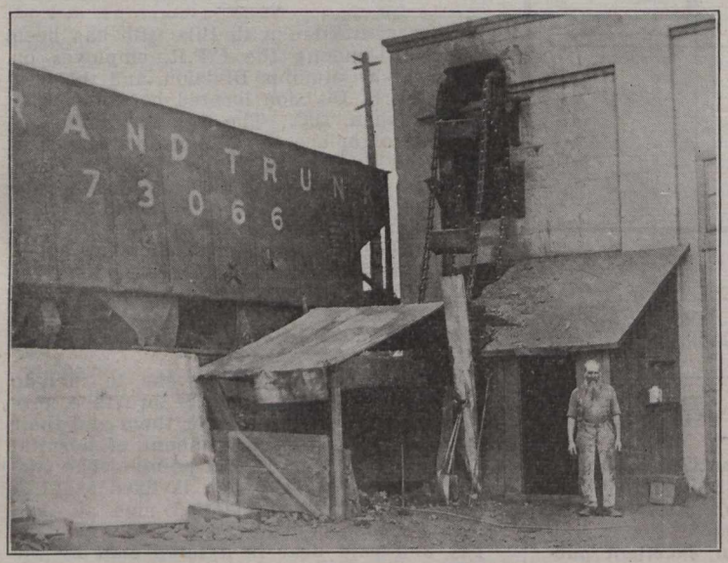


Fig. 1.—Chain Elevator for Power House Coal.

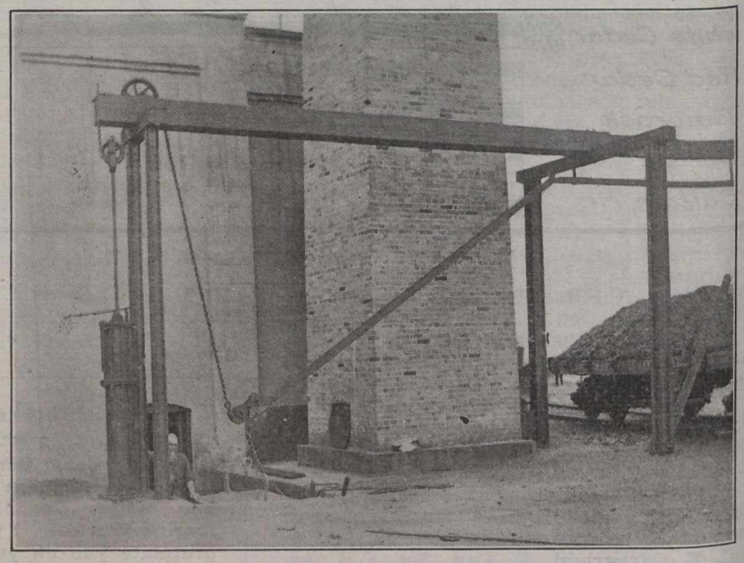


Fig. 2.—Ash Handling Crane for Power House.

The coal handling machinery is shown in the accompanying fig. 1. The coal from the cars was formerly dumped from the elevated coal car truck, in the background, and shovelled through an opening in the end wall into coal bins along that wall, in front of the boilers. As now arranged, there is an elevating mechanism, consisting of a chain belt with steel buckets, the lower end of which extends into a coal pocket, where the coal drops from the car. This is protected on one side by the wooden partition shown, which permits the operator to allow just enough coal to pass in to the chain buckets at such a rate as not to clog the machinery. The one man can operate the machinery satisfactorily. At the top of the elevating chain there is a steel chute, leading in to the coal storage bins, the sides of this chute extending about half its length. The major portion of the coal will chute along into the body of the bin, enough escaping over the unprotected sides to fill the near end. The boiler room coal doors are thus always kept with an ample supply of coal. The elevating chain is driven by a small vertical steam engine, in the shed shown to the rear of the operator. The door to the boiler room is central in the end of the building, immediately to the right of the operator's shed.

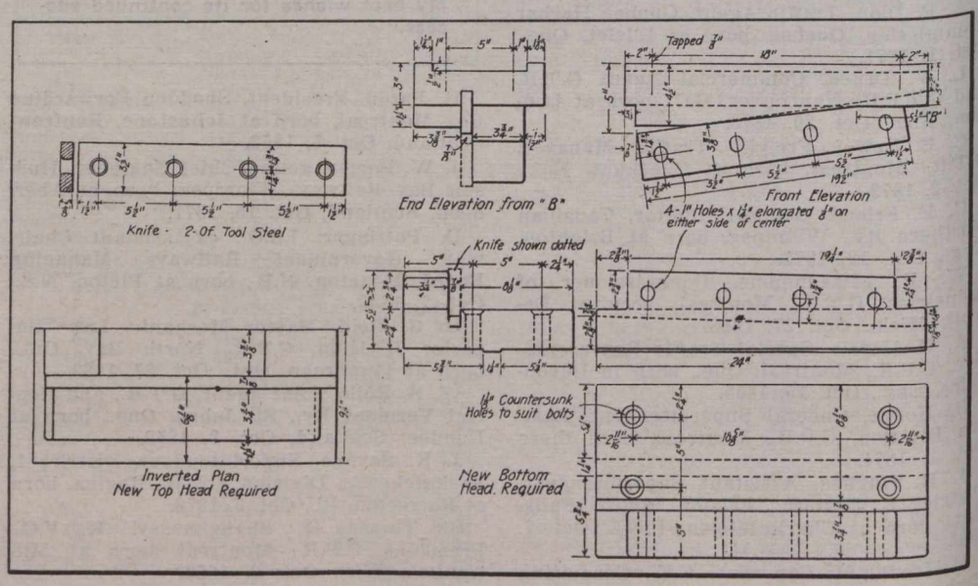
On the other side of the door opening, in the position shown in fig. 2, there is an ash handling plant. From under the boilers there is a small passage leading through the end wall as shown, in which a small ash car operates, running on light trucks. The ashes are drawn from under the boilers to this car, and run out into the outer part of the tunnel. Across this pit, there is a crane way, with a single track, extending across to the adjoining auxiliary track, on which the ash cars are located. The crane way consists of three pairs of old bridge columns, carrying a wooden beam, from the under side of which is suspended a double rail for a light trolley. The end of the trolley rail over the pit is hinged so that the pit end may be lowered to grapple with the pit car. The loose end of this trolley rail is connected with a chain passing over a sheaf on top of the end columns. The other end, being attached to the plunger of a vertical air cylinder, raises the rail section, allowing the car to be run over to the ash car for dumping. The air cylinder consists of two lengths of drop pit jack cylinders, the upper end of one of which has been cut off to shorten its length, a packed head being substituted, through which the piston passes. This packed head is bolted in place by long bolts passing down alongside the cylinder to the flange of the lower cylinder. One operator takes care of both the coal and ash handling equipment.

This plant is in charge of W. Quilter, Locomotive Foreman.

Shear Blade Economy.

By E. T. Spidy, Assistant General Foreman, C.P.R., Winnipeg.

An item involving considerable expense in the course of a year in large shops is repairs and renewals of shear blades. Almost all our large machines have shear blades that are wide at one end and narrow at the other, giving only one edge to shear on, so that when this edge becomes worn it has to be repaired or renewed. We have effected an economy in this direction by providing our shear machines with new heads that accommodate a rectangular blade that is symmetrical about the bolt holes in every respect. This allows of using all four edges of the blades both top and bottom, making each blade of new pattern. We are in consequence cutting our steel bill for blades in

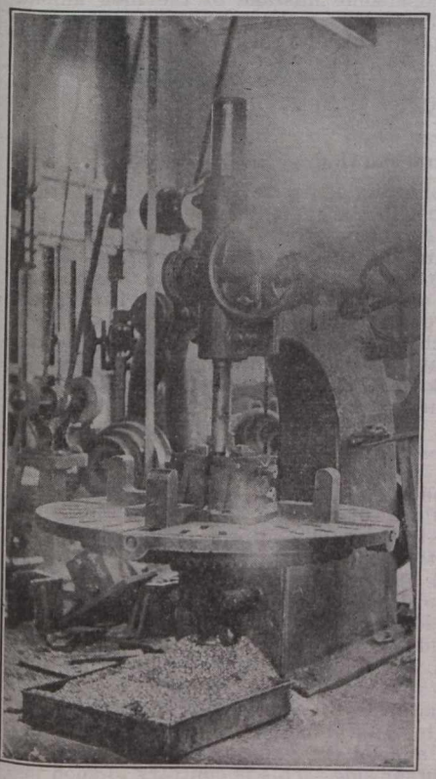


Four Edged Shear Blade.

four and getting equally satisfactory results, to say nothing of the labor entailed that is saved into the bargain. The accompanying illustration shows the necessary drawings required to effect this change on one machine.—Railway Master Mechanic.

Old Vertical Boring Mill, for Boring Brasses, in Central Vermont Railway Shops.

An old style of boring mill, that was no longer of any service for general shop boring, has been utilized to good purpose in the Central Vermont Ry. shops at St. Albans, Vt., as shown in the accompanying illustration. From the design of the machine, with its light boring bar, and flimsy construction of the lower table spindle, it can readily be seen that, for ordinary service it would chatter so much as to make only the very lightest cuts possible. Two simple blocks have been clamped on the table, as shown, and held in position by the vise jaws. In these blocks two journal brasses can be slipped, and each clamped in position by the two set screws on the back. As the amount of metal removed is small, and as brass is a comparatively easy metal to cut, and the radius to which the brasses are bored is small, the boring mill has been found quite serviceable for this class of work. While



Old Vertical Boring Mill used for Boring Journal Brasses.

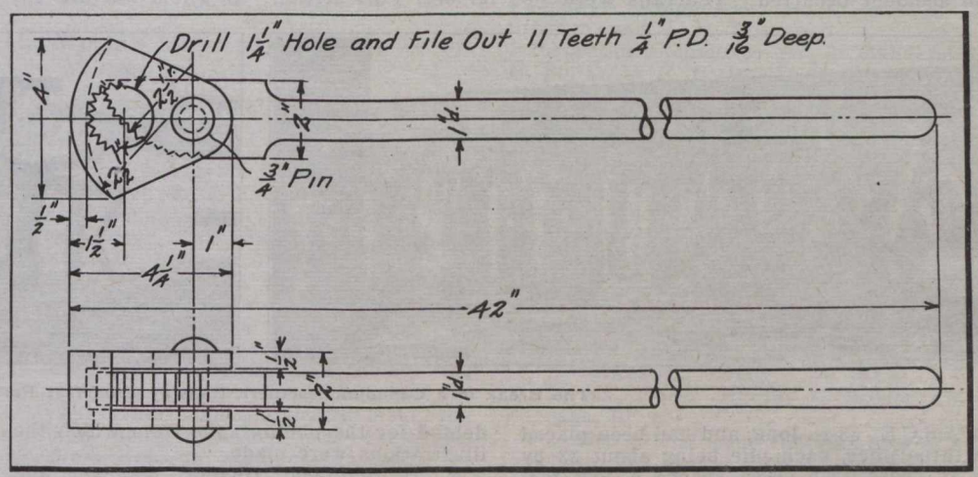
undoubtedly not as efficient in its work as a machine designed for the purpose, it has solved the problem of disposing of the old machine, and made unnecessary the purchase of a new one.

The largest European locomotive is said to be a 0-8-8-0 Mallet, built for the Bavarian State Railways, and it is also claimed that it is the first of its type to be used on the continent. The weight in working order is 122½ tons, which is distributed over 8 pairs of 3 ft. 11⅞ in. driving wheels. The cylinders are 20½ and 31½ by 25 3-16 ins., and have a working pressure of 212 lbs. The grate area is 45½ sq. ft.

Stud Wrench in Canadian Northern Railway Shops.

The accompanying illustration shows a stud wrench that has been made a standard for use in C.N.R. shops all over the system. It is made of tool steel, and is used for applying and removing stud bolts. A 1½ in. hole is drilled in the centre of the hinged portion, and 11 teeth, 3-16 in. deep, are filed out along the edge opposite the pivot pin. The swinging portion is slotted to receive the lever, which also has 16 teeth to correspond. Both sets of teeth are case-hardened.

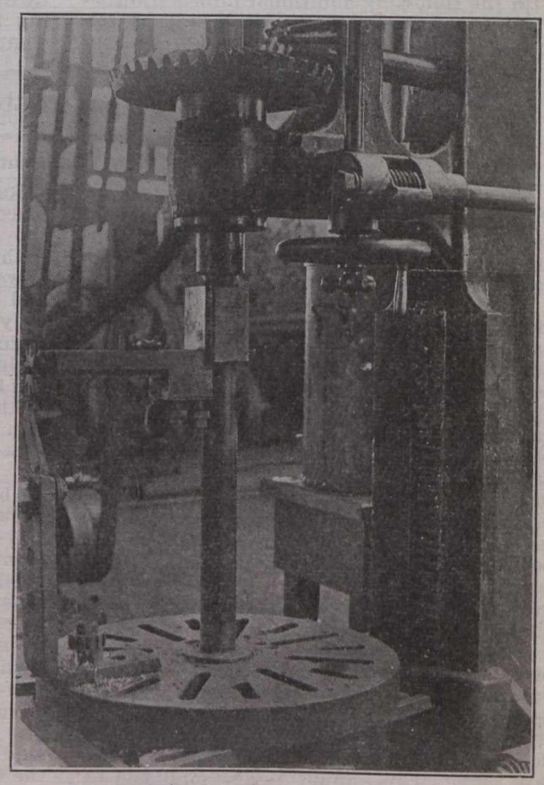
The teeth of the swinging portion are on a cam section, so that by bringing forward the handle, the full 1½ in. hole is open, and the wrench may be slipped over the projecting stud. Swinging the handle in the opposite direction causes the cam teeth to grip the stud, forcing it against the stud in the other portion, gripping the stud securely. The wrench may be swung back and forth in applying or removing, the same as a Stillson wrench, but has the advantage of not slipping off the stud, and in consequence may be operated much more rapidly.



Stud Wrench for Applying or Removing Studbolts.

Facing Driving Wheel Brasses in Drill Press at North Bay Shops, C.P.R.

It is the usual custom in the C.P.R. shops at North Bay, Ont., as at others on the system, to face locomotive driving wheel brasses in the vertical boring mill, but it frequently happens that that machine is pressed with other work, and in consequence other methods of handling the work are required, if the progress of the work is not to be interrupted. A drill press has been so rigged up that the facing of the brasses can be done on it.



Facing Driving Wheel Brasses in the Drill Press.

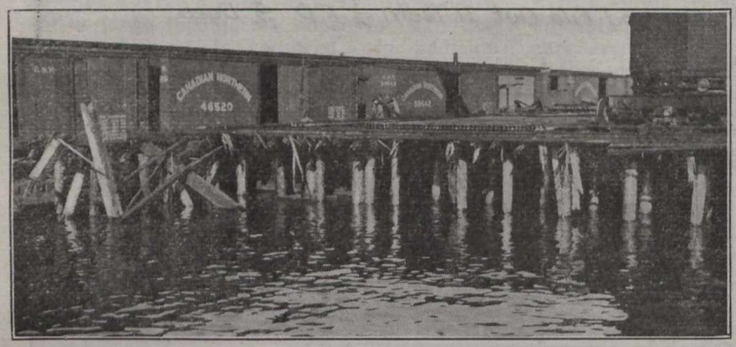
The arrangement is shown in the accompanying illustration. The drill press used is of the non swing table type, the table only having vertical adjustment, with no movement about the supporting column. In consequence, the drill spindle is always in perfect alignment with the table centre. A boring bar, with taper socket to fit into the drill spindle, extends through a vertical bearing in the centre of the drill table. Attached to this boring bar is a cross feeding bar, carrying a facing tool, which is fed radially by a feed screw from a star on the outer end. Bolted to the drill table there is an angle bar, to the upper end of which is attached an adjustable feed finger, through which the amount of feed can be regulated. The brass to be faced is bolted in a stationary position on the drill table, and the tool revolves over the face, machining in the usual manner. This reverses the movement from that on the vertical boring mill, the tool revolving instead of the work.

Methods of Wrecking Concrete Buildings to make room for improvements, on account of the newness of the monolithic construction, have not been developed extensively. In two recent instances of wrecking concrete structures, dynamite and the oxy-acetylene torch have been used to advantage. In the former instance, small charges of dynamite were placed at the top and bottom of the columns, dropping the girders to the floor below, where they were broken up. In the other instance, the torch was employed to cut up the reinforcing steel, when it was found that the flame would cut the concrete effectively, holes being cut, and with this start the body was afterwards broken up with sledges.

The practice of mixing one third of the empty cars in a train at the forward end, and two thirds at the rear end, appears to meet with general approval.

The Break in a Canadian Northern Railway Wharf at Port Arthur.

As stated in Canadian Railway and Marine World for August a section of the C.N.R. wharf at Port Arthur, Ont., sank on night July 4 under a load of about 2,100 tons of steel rails. The s.s. McKee had completed unloading a cargo of rails in the afternoon and had left a short time before the accident occurred. The rails were 80-lb. A.S.C.E., 33 ft. long, and had been placed in three piles, each pile being about 33 by 66 ft., with transverse spaces a few feet wide between piles. The section that failed was about 75 ft. square. Two piles of the rails were carried down with it, each pile containing about 1,050 tons. The entire length of the wharf was loaded with rails, some of the piles weighing 1,200 or more tons. The rails on the portion not wrecked were hastily loaded on cars to save from further loss and to facilitate the salvaging of lost rails.



The Break in a Canadian Northern Railway Wharf at Port Arthur.

The wharf, which was about 75 by 450 ft., was constructed in the winter of 1912-13 by the Thunder Bay Harbor Improvement Co. under the supervision of the C.N.R., according to plans and specifications furnished by the railway. The pier was built similar to the others originally used for unloading steel rails and later was covered and used for package freight as occasion demanded. It is stated that some of these older wharves had supported piles of rails weighing as much as 1,400 tons, without sign of failure.

The piles used were sound tamarack from 40 to 50 ft. long, with 12 in. butts, and were driven to hard bottom. The water varied from 12 to 20 ft. in depth. In places the bottom of the lake was covered with several feet of soft mud. No batter piles or sway bracing was used. The piles were spaced about 5 ft. each way and were capped with 12 by 12 in. fir running transversely. The longitudinal stringers were 6 by 10 in. fir, spaced 24 in. on centres. The flooring was 2 by 12 in. material. The deck is about 8 ft. above the level of the lake. The portion of the wharf which remained standing supported several piles of rails, the edge of one being only a few inches from the rupture.

Of the accompanying illustrations the left hand one shows the east end of the break and the manner in which the stringers were sheared off also a small pile of unloaded rails. The stringers were sheared off on a straight line across the wharf. The few rails shown are some of those which had been removed by derrick and diver. The right hand view shows the slip side and west end of the break, also the portion (about 12 ft.) of wharf which remained standing at that end. It shows the manner in which a section on the slip side was pushed upward. A section on the track side was pushed upward in a similar manner. These views would indicate that the first part to go was the east end of the break where the stringers were sheared off. This is proved by the manner in which the rails laid in the water. The diver who removed them states that they slid toward the east end of the break.

The foregoing information was furnished by C. E. Henderson, Assistant City Engineer, Port Arthur, to whom we are indebted for the photographs from which the illustrations were made.

M. H. MacLeod, General Manager and Chief Engineer, C.N.R., has furnished us with the following additional information:—"The construction of the dock was as follows:—Piles driven to rock at 5½ ft. centres each way, with 12 by 12 in. caps running transversely on dock, on top of which were placed 6 by 10 in. joists covered with 3 in. surface plank. Tamarack piling and British Columbia fir superstructure, all bolted and drifted together. The rails were piled interlocked to a height of 10 ft. above dock level, the load at the centre being about 1,244 lbs. per sq. ft. There were 2,129 tons of rails on the portion that failed. The damage to them was very slight. The dock is 400 by 74 ft., and the portion which collapsed was 80 ft. in length near the shore end. The dock was overloaded considerably in excess of what it was designed for, through some mistake of the men unloading the rails, as they apparently wished to complete unloading a cargo late at night."

Notes on Roadmasters' Work.

By J. W. Powers, Supervisor, New York Central and Hudson River Railroad.

Every practical trackman must admit that our railways are in a state of gradual development. If the older employes will look back 20 or 25 years and compared the past with the present they will observe a wonderful change for the better. Crude methods of track construction and maintenance have developed as the years roll by, until at the present time track work must be looked upon no less skilled and important than the work performed by other departments. This is as it should be. Every passing year should add to our experience and teach us lessons to be heeded in the future. The demand made upon railways in the way of speed, comfort and capacity makes it imperative that the permanent way be of the highest possible order and that such may be the case, requires the best talent, intellectually and physically, to have charge of maintenance of track.

In order to maintain and improve the present standard of efficiency in railway progress suitable encouragement should be given to induce ambitious and progressive men to enter this department and sufficient inducements should be given to retain them. This cannot be accomplished by the rules adopted and now in force on a prominent eastern road where the promotion of practical men is limited to that of assistant supervisor, regardless of their ability and when qualified for promotion. The writer believes the adoption and enforcement of such rules detrimental to the company's interest.

It is the writer's opinion that all employes should make every effort to qualify themselves for promotion to more important positions, as the ideal organization is one in which every man is proficient to that extent which will warrant his immediate promotion to the next higher position when the occasion offers. This is the goal for which all employes should strive and the company should give sufficient compensation and encouragement to reach.

Renewing of ties is one of the great items of cost in the maintenance of railways and the company should furnish the best ties within its means. The subject of tie renewals has been discussed from time to time and many articles have been written about it, yet there are also certain phases in it which need further discussion. The writer maintains that a great many defects in track are due to the fact that ties are not of the proper length and uniform cross section. It is his opinion that to obtain the best results, the length of the ties should be twice the gauge and they should all be of equal length, and furthermore they should be of uniform cross section.

If ties would conform to these requirements, track would remain much longer in good line, surface and gauge. It stands to reason that the effect of uniform supports placed at equal intervals under the rail would be more conducive to good track than where adjacent ties are not of uniform size and have varying bearing surface. It is customary on some roads using ties varying in length to line the ties true on one side and let the unequal lengths project on the other side. This is contrary to good mechanical principles as the support of both rails should be uniform. The proper method of putting in ties of variable lengths is to have the ends, projecting past the rails, equal.

The most appropriate time to prepare estimates for new ties needed is in the autumn. If estimates are submitted at this time, it is possible to secure favorable contracts and have ties delivered when needed.

Much time and money can be saved by using good judgment in the unloading and distributing of ties. To do this all ties about to come out should be marked, care being taken not to mark any that would last one additional year, but none should be left in the track that should be removed. When distributing ties, if marked in this manner, it can be determined exactly how

many ties are needed at each point. Care should be taken to see that they are unloaded where needed. By doing this money will be saved which would otherwise be lost for time required to handle them.

If ties are not to be put in track soon after being unloaded they should be piled neatly at a proper distance from the track and small trenches dug around them to prevent them from catching fire. If ties to be piled are treated, small quantities of earth should be placed on top of the piles in addition to the trenches as treated ties catch fire more easily than untreated ties.

The most important regular work of the spring season is the renewal of ties, which should be taken in hand as soon as the road bed is in proper condition. Much more of this work can be done with less fatigue during the cool days in spring and early summer on account of the ground being soft, which makes it possible to handle ballast without using picks, which cannot be done later in the season when the ground becomes harder.

When track is to be given a ballast lift, the renewal of ties, if carried on at the same time, is facilitated and by giving a new bed to all ties, settlements will be uniform, a better surface can be obtained, and the ties to remain in the track are more easily spread or straightened. When no lift is to be given to track and it is desired to put in ties on the old bed, it can be done, if the ballast is not too dry, in the following manner: Remove the spikes from the old ties to come out and place a jack each side of the track. Raise the track sufficient to pull out old ties after ballast has been removed from end of same. Care should be taken not to raise the track high enough to allow gravel to run under ties which are to remain in track. All old ties can be removed in this way unless the ballast is too dry and the ties badly rail cut. They can be put in on old bed and but little tamping is required if they are of uniform thickness. If the new tie to be inserted is thicker than the one removed, a portion of the old bed should be cut down with a shovel or with chisel end of pick, care being taken to remove only what is absolutely necessary to avoid unnecessary tamping. When new ties are put in between old ones, which are not disturbed, they are apt to settle in spite of the care of putting them in and tamping. New ties should be left a little high to allow for settlement. Men should not be allowed to use picks to pull new ties in place, but should be furnished with tie tongs for this purpose, as the use of a pick seriously mars the top surface of the tie and induces decay. Careful spiking and gauging should be insisted upon and vigorously followed up.

The importance of uniform tamping to retain good surface cannot be over estimated. Ties should be tamped hardest about 18 ins. from and under each rail, the centres being tamped less heavily. Track in which ties have been put should be followed up the next morning and the track should be brought to perfect surface and dressed up finely to a standard section.—Maintenance of Way Bulletin.

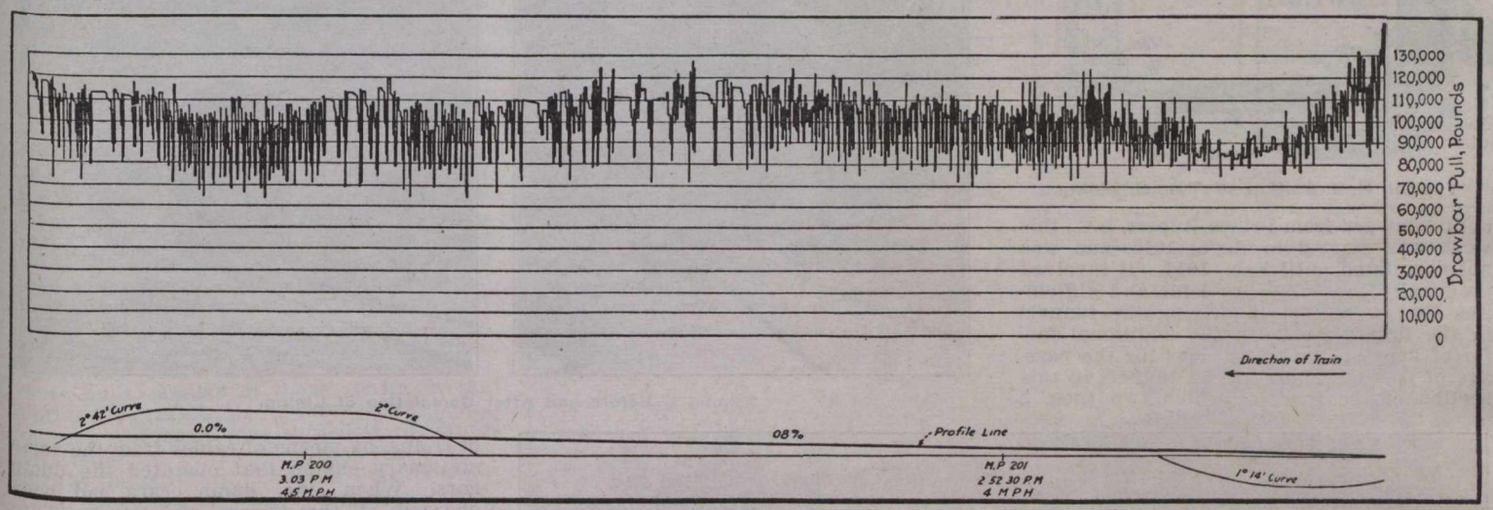
The World's Largest Locomotive Tested for Tractive Effort.

The big articulated locomotive of the Erie Rd., described in Canadian Railway and Marine World for September, pg. 404, was subjected to a hauling capacity test on the Susquehanna division recently. The test was made from Binghamton, N. Y., to Susquehanna, Penn., a distance of about 23 miles. The locomotive was at the head of a train of 250 fifty-ton steel gondolas loaded to full capacity, and a dynamometer car. The train weighed 17,912 tons, exclusive of the locomotive, which weighed about 422 tons, and the length of the train was 8,547 ft. The grade was practically level, the maximum being 0.09%, with 5° curvature.

Pushers were in readiness to assist in getting the train under way, and were used in making the start from Binghamton; but at Great Bend, where the locomotive took on water, pushers were not used in starting. They pushed the slack forward until the lead locomotive had all the cars moving, after which they were uncoupled and followed the train for emergencies. Communication was maintained between the head and rear of the train by portable telephones, which made it possible for the pushers to work efficiently with the lead engine at starting. The maximum drawbar pull is shown in the accompanying section of the dynamometer record. The following tabulation gives the main facts:

Number of cars in train	251
Total weight of train excluding locomotive	17,912 tons
Total length of train	1.6 miles
Maximum speed obtained	14 miles per hr.
Maximum drawbar pull	130,000 lb.
Minimum drawbar pull	67,000 lb.

The above data was furnished by R. S. Mounce, Engineering Department, Erie Rd., New York, N.Y.,—Engineering News.



Typical Section of Dynamometer Record of Hauling-Capacity Test.

E. Jacomb, Assistant Car Foreman, Michigan Central Rd., Windsor, Ont., writes: "Enclosed find $2 for my subscription for the current year to your valuable paper, Canadian Railway and Marine World. It is certainly worth the money."

Canadian Freight Association, Western Lines.

At the annual meeting in Winnipeg recently, officers and standing committees for the current year were elected as follows:—President, G. Stephen, G.F.A., Canadian Northern Ry.; Vice President, A. E. Rosevear, G.F.A., Grand Trunk Pacific Ry.; Executive Committee, W. C. Bowles, G. Stephen, and A. E. Rosevear.

Inspection Committee—W. G. Manders, G. H. Smith, F. R. Porter, P. H. Burnham.

Car Service Committee—A. Hatton, J. P. Driscoll, T. P. White, W. B. Harris.

Classification Committee—W. B Lanigan, G. Stephen, A. E. Rosevear, W. G. Manders, F. R. Porter, P. H. Burnham, W. C. Bowles.

New Books, Etc.

Any of the books mentioned may be obtained through Canadian Railway and Marine World at the published price.

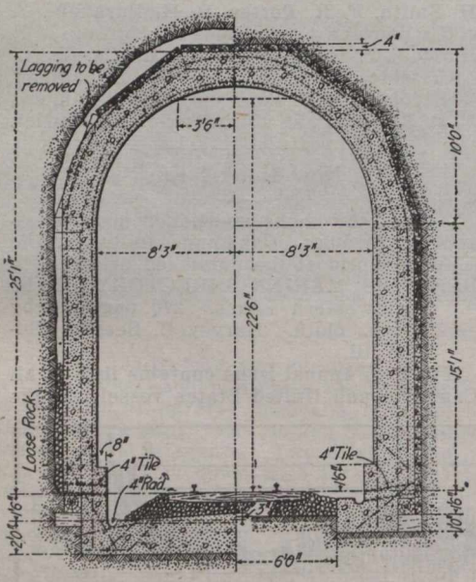
BEESON'S MARINE DIRECTORY of the Northwestern Lakes. 270 pages, 7 by 10 ins., cloth. Harvey C. Beeson, Chicago, Ill.

The 28th annual issue contains lists of all Canadian and United States vessels on the Great Lakes, with details of their equipment, engines, boilers, etc. Owing to the increase of the number of gas engined vessels in use on the lakes of recent years, a separate list has been prepared for these. Other information included in the book, covers hydrographic reports, marine associations, list of lumber vessels, representative grain elevators and vessels with illustrations and descriptions, and a great deal of interesting historical information concerning the Great Lakes. There is also included a history of the great storm of Nov. 8 to 11, 1913, with deta''s of the various vessels wrecked and lost.

Fireproof Concrete Roofs in Locomotive Houses may be prevented from causing condensation on the under side, when the roof is flat, by placing a layer of cinders on the top of the slab roof, at the required roof slope, and covering this with a 1 in. layer of cement mortar as the base for the tar and gravel roofing, the cinder layer acting as an effective insulator. If the roof has a slope, a cinder fill is unnecessary, and a layer of hollow terra cotta tile, with the same concrete covering, answers the purposes. It is said that this latter type of roof covering will cost 12 cts. per sq. ft., as against 10 cts. per sq. ft. for the cinder filling one.

Lining Tunnels on the Grand Trunk Pacific Railway.

After the preliminary work of driving the G.T.P.R. tunnels in British Columbia had been completed in the rough and track laid so that construction and supply trains might pass on to the ever advancing railhead there yet remained a difficult and expensive part of the tunnel work. This was the trimming up of the tunnels and the placing of permanent lining. On the line



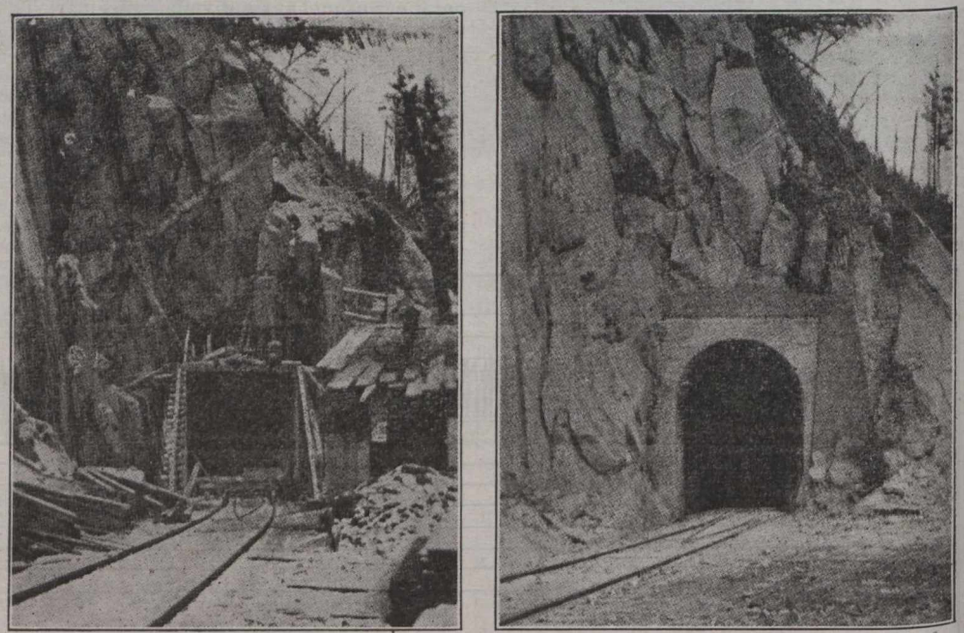
Typical Half Section of Tunnel Lining.

built eastward from Prince Rupert, B.C., this work was started in Sept., 1912, and was not completed until Feb., 1914. It involved practically the same problems and difficulties that were met in driving the tunnels in the first place, with the additional factor of keeping the track clear for the passage of trains. There are 11 tunnels in this section of the road, of which two (nos. 2 and 7) are in solid rock and required no lining. The remaining ones, which required to be lined with concrete, have a total length of about 6,500 ft.

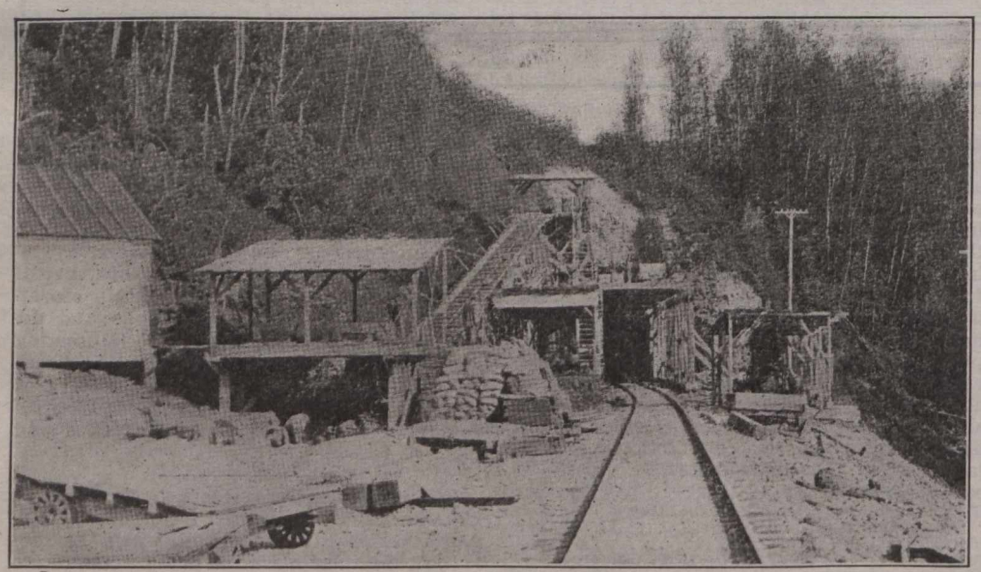
Tunnel 1, at mile 44 east of Prince Rupert, was driven for use as a snowshed during the winter, trains using the main line, which followed the contour of the hill outside, for eight or nine months. The roof of this tunnel was found to be about 4 ft. too low to allow the placing of the lining which was finally considered necessary; but since the track outside could be used for traffic while the tunnel work was under way no great construction difficulties were experienced. The downhill side of the tunnel interior was also widened down to a level about 4 ft. above the track where the rock was benched and was used as a foundation for timber and concrete. About 30 ft. of concrete lining were required in the badly broken rock at the west portal.

At mile 103.7 the main line enters a 920 ft. tunnel, about half of which is in solid rock, and required no lining. At its eastern end, however, the tunnel emerges in material which is extremely troublesome when wet. One of the accompanying views shows the condition of the portal during the work, where, after many slides, timber cribs were built to prevent the mud from flowing over the track. It was decided that long wing walls would be required at the portal, and to secure substantial support for these a pile foundation was put in and the concrete was placed under the protection of a cofferdam. Although the soft material gave much trouble during construction, once the work was completed it is said to have proved satisfactory in every way. The view of the completed portal indicates the successful operation of the subdrainage system.

The concrete plant at this portal was arranged to be operated by two double drum hoisting engines. One of these conveyed materials up an incline to bins over the concrete mixer, while the other handled cars loaded with concrete between the mixer and the desired point on the track. For use at this tunnel a temporary platform was fitted up on a standard flat car and provided with an incline leading up from track level. This was known as the "high car" and was moved from point to point in the tunnel, or drawn out for the passage



Tunnel 1, Before and After Completion of Lining.



Mixing Plant at West Portal of Tunnel 4.

of trains, by means of cables from the same stationary engine that operated the dump cars. When the dump cars had been charged at the mixers and conveyed to this "high car" at the point where work was in progress they were uncoupled and connected to a cable leading up the incline, operated by the engine as before. Thus the concrete was delivered at the desired point along the tunnel line on top of a platform high enough to allow it to be dumped into side wall forms or easily shoveled into the roof forms.

A typical plant for mixing concrete for tunnel lining is shown in the portal view of tunnel 4. This tunnel, at mile 104, is 550 ft. long, and the material traversed was so soft and broken that concrete lining was necessary throughout. Suitable space and materials for mixing concrete were found at the west portal, and the plant shown was therefore established there to supply the entire tunnel. Gravel was shoveled by hand into dump cars, shown at the left of the view, which served as measuring boxes, each holding just enough for a batch. The cars loaded with gravel were hauled up the incline as far as the cement shed, under which they stopped long enough to receive the cement charge on top of the gravel, and were then hauled to the platform, where they were dumped into the mixer hopper as desired. The engine on the left of the track operated cars on the incline, while the one on the right hauled the concrete cars in and out of the tunnel. These cars operating in the tunnel used tracks laid on the 12 by 12 in. timber framing

shown, which had to be erected throughout the length of the tunnel to support loose rock and prevent a cavein.

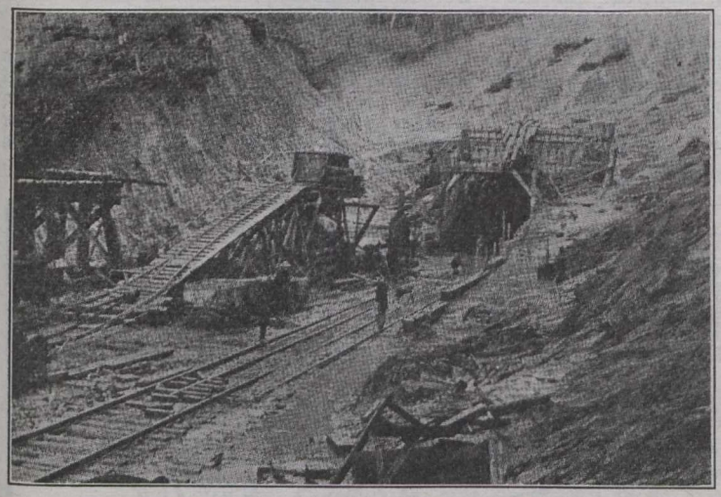
Perhaps the most difficult work on the line was in the 1,250 ft. tunnel at mile 104.5, which had to be timbered as fast as it was driven, for more than 1,000 ft. of its length. All this original timber lining had to be removed to allow the final trimming up of the bore and the placing of the concrete lining. This proved to be dangerous work, because there was much loose rock behind the timbers. In this tunnel there was no alternate route, and the track had to be kept clear for the passage of trains. The method adopted was first to put in 12 by 12 in. angle braces from the side wall posts to the tunnel floor just clear of the track. Excavation for permanent footings was then made, undermining the lower sills, while the angle braces carried the load. Concrete was then poured on foundations thus prepared and was left to harden with an offset for temporary timbering.

On the offset of the permanent footings temporary bents of 12 by 12 in. timbers were built, similar to those shown in the portal view of tunnel 4, these bents being of such size as to give sufficient clearance for trains and at the same time leave room for the lining forms. The roof timbers were then supported on these temporary bents, while original posts, sills and wall plates were removed, and the forms placed and filled up to the springing line of the arch. In some places the nature of the material was such that it was safe to remove the timbering and pour side wall sections as long as 48 ft. at a time, while in other parts of the tunnel the ground was so heavy that 4 ft. sections were as long as could be handled with safety. After the concrete walls had set the roof timbers were removed, a section at a time. The arch was concreted by a similar process. The roof sections gave more trouble than the walls, and the lengths deemed safe without timbering varied from 3 to 32 ft.

Concrete was handled in this tunnel by the use of a "high car" similar to that already described, except that here a short incline led from the "high car" platform to the top of the temporary bents, from which concrete was dumped into side walls or shoveled into roof forms.

The reinforcing in the concrete lining varied with the material traversed, but a typical case in gravel and clay was given a double row of ⅞ in. round bars placed on 6 in. centres and extending from the footing on one side over the arch to the footing on the opposite side. The horizontal bars were ⅝ in. in diameter and were placed on 5 ft. centres. Splices were required to have a 4 ft. lap and be firmly wrapped with wire. Where soil conditions required, the invert was floored with concrete, or concrete struts 4 ft. wide were placed on 12 ft. centres.

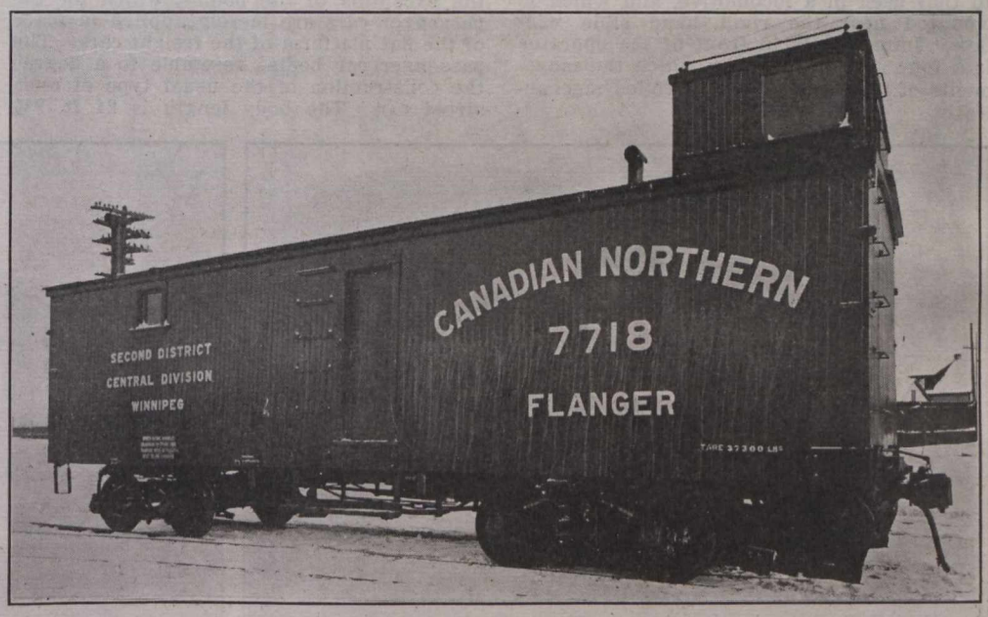
The trimming up and lining of tunnels 1, 3, 4, 5, 6 and 8 were under the supervision of F. R. Giertsen and that of tunnels 9, 10 and 11 under the supervision of G. C. Mulville, assistant engineers, G.T.P.R. R. J. Graham was Superintendent for the contractors, the Bates and Rogers Construction Co., Chicago.—Engineering Record.



Portal of Tunnel 3 During and After Construction, Showing Troublesome Material Encountered.

Standard Flanger Car, Canadian Northern Railway.

The accompanying illustrations show the details of construction and the completed form of a new flanger car, adopted as a standard by the C.N.R. The design was developed in Winnipeg in the winter of 1912-13 as a result of experiments and study under actual service conditions, and so successful did it prove in service that last summer 11 were built there, which, during the last winter proved to be efficient and convenient.



Flanger Car on Canadian Northern Railway.

The requirements originally laid down for the design were as follows:—1. The car to be worked by one man. 2. Compressed air to be used for the operation of the apparatus. 3. The flanger to cut over the entire width of track out to the ends of the ties, and to any depth between the rails thought advisable. 4. The angle of the flanger plough to be such that snow and ice will be thrown clear even when running at moderate speeds. 5. The form of the flanger plough to be such that snow and ice will be thrown over a shoulder of moderate height and not rolled over the top of the plough. 6. The actual cutting blades to be so designed that when they strike any solid object, such as a guard rail or crossing plank, they will bend without damaging the plough or connections. 7. All parts of the apparatus to be of simple construction and as strong as possible.

The flanger apparatus is attached to the rear end of the car, just back of the rear truck. The car itself is, in design, very similar to a caboose. The flanger plough faces are of the shape indicated, mounted on a steel frame. At the rear this frame is suspended on either side by two 20 in. links. At the front it is supported from the 20 in. arm of a bell crank, the other arm of which passes up through the car floor. This bell crank is pivotted in bearings fastened to wooden members attached to the under side of the centre sill ends. Movement of

the bell crank causes the plough to swing in a horizontal plane from the front and rear link supports. The under side of the plough has a shoe on each side directly over the rail, so that when let down it rides the rails on either side. The movement is given to the bell crank lever by means of two opposed cylinders on the floor of the car, a pin through the plunger rod connecting the two, engaging slots in the double levers of the bell crank. These opposed cylinders are supported on a steel plate on the car floor.

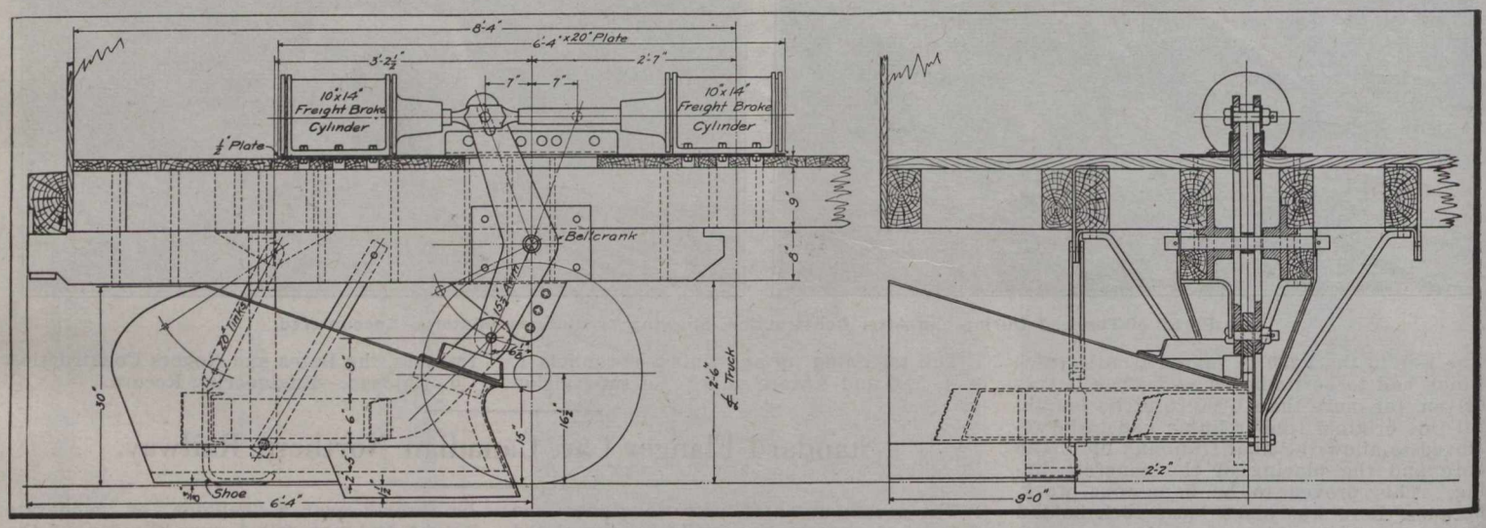
Motors on the Canadian Pacific Railway Laggan-Lake Louise Line.

Four motor cars were built in 1912 at the C.P.R. Angus shops, Montreal, for the short run from the main line at Laggan, Alta., to the company's hotel at Lake Louise, a 3½ ft. gauge line having been built for the intervening 4 miles. These cars were placed in service that summer, and after some slight remodelling, were used again last season, and have proved most satisfactory. They are illustrated herewith. Two were built for passenger service exclusively, and the other two for the handling of freight and baggage between the main line and the hotel.

All the cars are identical in design with the exception of the bodies, which for the passenger cars are merely applied in place of the flat platform of the freight cars. The passenger car bodies resemble to a degree the construction of the usual type of open street car. The body length is 24 ft. 9½ ft. 9 ins. The step arrangement on both freight and passenger cars is identical.

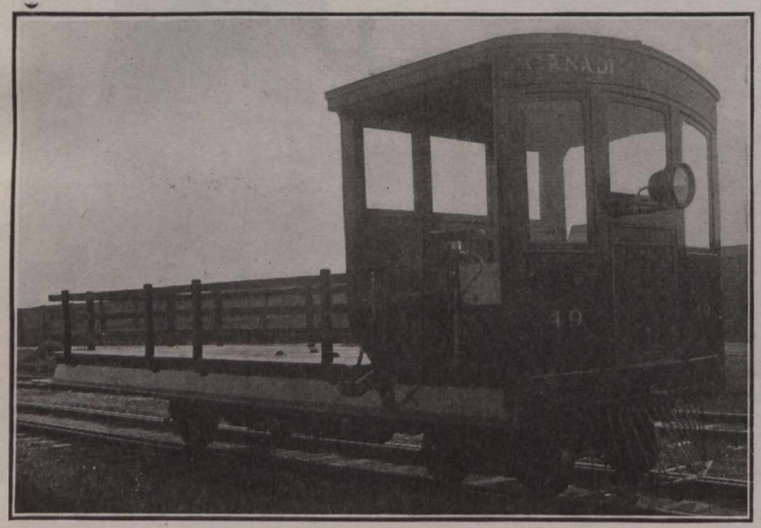
Each passenger car has 7 cross seats at 2¾ ft. centres, which will hold 5, giving a total seating capacity of 35, exclusive of the motorman's accommodation. The sides of the car are made of sheet steel, with brass grab handles. The seats are of rattan, of a similar type to that used in the company's standard tourist cars, except that they extend the width of the car, without the central aisle. The roof of the car is of a modified type of monitor roof, almost flat.

The main frame consists of two 8 in. channels, 3 ft. 0¾ in. back to back at the front, widening out under the body of the car to a width of 4 ft. 4½ ins. back to back of the channels. This frame is cross braced by channels, and a built up front body bolster. Outside the main frame, which does not extend the full length of the car body,

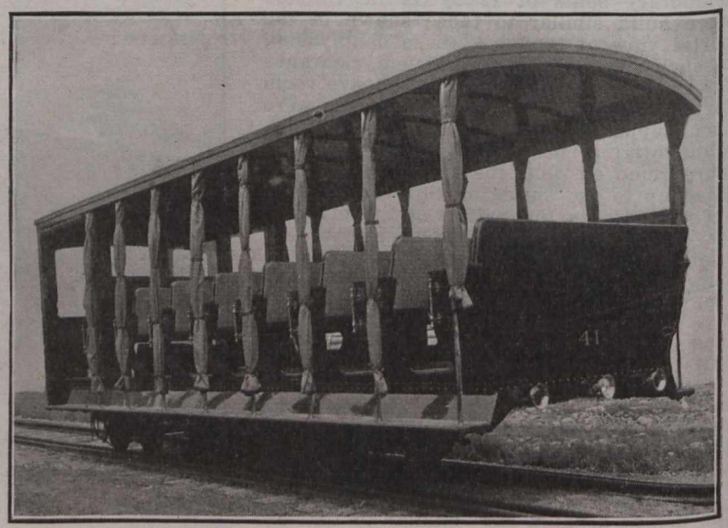


Detail of Flanger Plough on Canadian Northern Railway Flanger Car.

A small cupola is provided on top of the car, directly over the plough end, to accommodate the operator. This cupola has slide windows on each side, as well as front and back, and the operator has a seat similar to that used in a locomotive, and which is mounted near the right hand slide window. Immediately in front of the operator is a four way air cock, by which the movements of the flanger are controlled mechanically.



Freight Motor Car for C.P.R. Laggan-Lake Louise Line.



Passenger Motor Car for C.P.R. Laggan-Lake Louise Line.

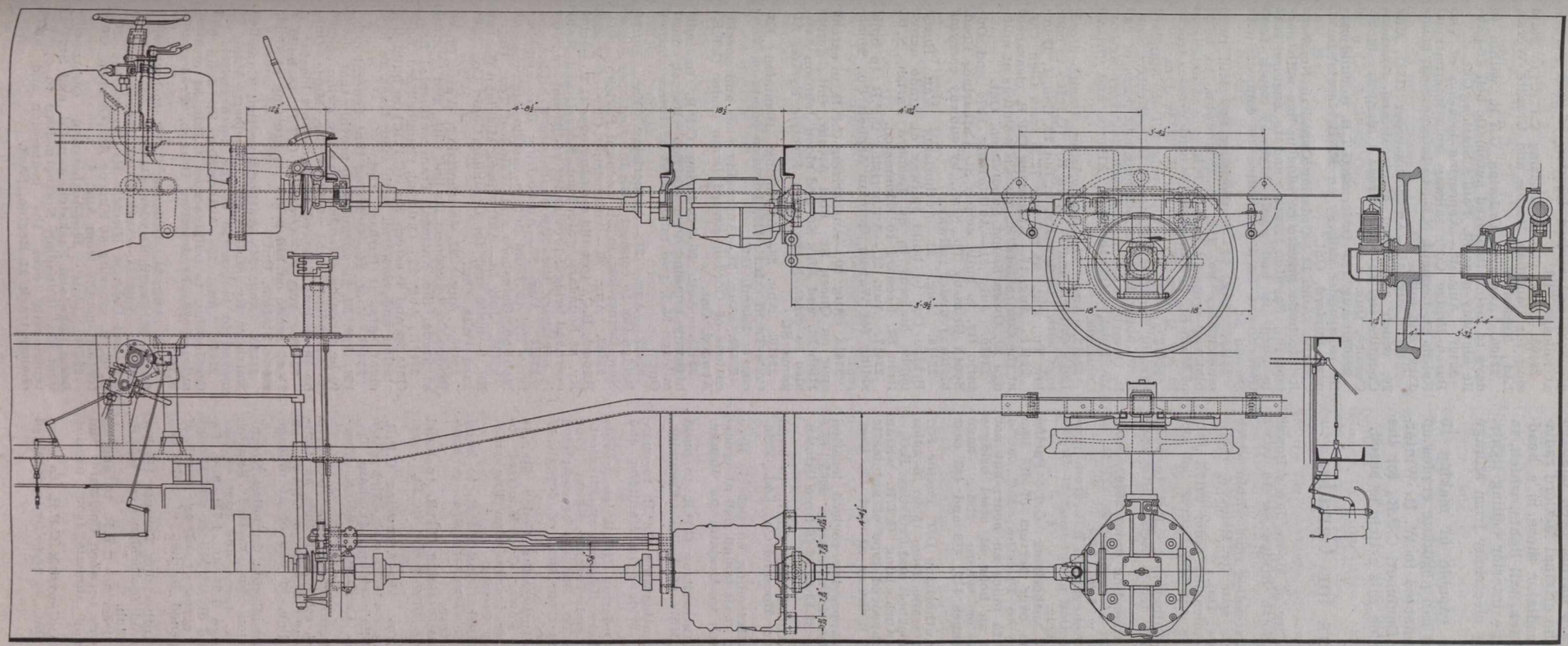
The interior of the car is provided with suitable living accommodation for the operator, and in addition a small bed room has been arranged for the roadmaster when he travels on the car.

We are indebted to S. J. Hungerford, Superintendent of Rolling Stock, C.N.R., for the data from which this article has been compiled. He states that, in his opinion, this design represents about the best development of flanger cars up to the present time.

ins. The floor level of both kinds of cars is 3 ft. above rail level, reached by an intermediary step from the station platform, this step being 22½ ins. above the rail level. The motorman's cab in both types of cars is the same, and the cab, as well as the passenger car body roof, is 6 ft. 10½ ins. above the car floor level, giving an over all height of the car of 9 ft. 10½ ins. The car body width is 7 ft. 10 ins., sloping inward near the bottom for the car steps, which have an outside over all width of 8

there is another pair of channels, 4 ins. deep, extending the full length of the car body, flanges inward, 6½ ft. back to back.

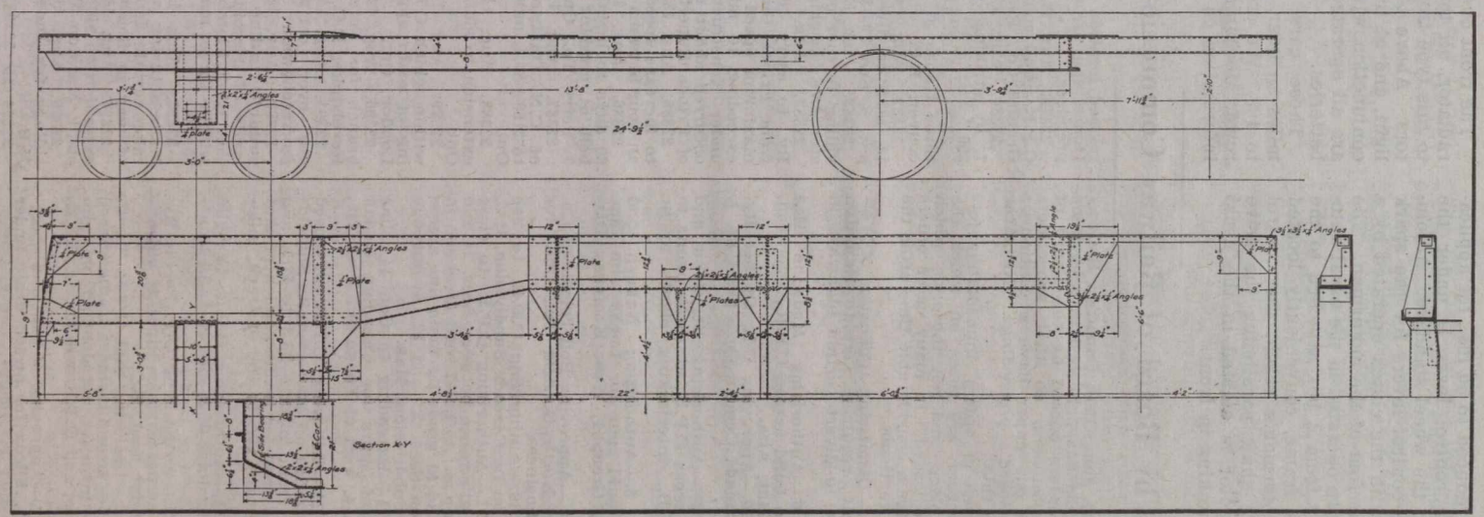
The cars are carried on a pair of driving wheels nearly midway under the body, and on a four wheeled truck under the front part of the car, this latter being pivotted on the built up body bolster mentioned. This truck has two pairs of 18 in. wheels at 3 ft. centres. The drivers, which are 13 ft. 8 ins. centres from the front truck, are mounted in pedestals secured to the underside of the



Plan and Elevation of Power Transmission Gear on Motor Cars for C.P.R. Laggan-Lake Louise Line.

8 in. main frame channels, the frame weight being carried to it through suspended leaf springs. The driving wheels are 30 ins. diameter.

The power and drive arrangement is almost identical with that of the majority of 6 cylinder touring automobiles. As originally built, each of the four cars had a 60 h.p. 6 cylinder Alco motor, but in the subsequent slight remodelling, these motors in the passenger cars were replaced with 66 h.p. 6 cylinder Pierce-Arrow motors, for which it was necessary to change the end arrangement of the cars slightly by lengthening it to take in the longer motor. The motors are carried between the narrowed front portion of the front main frame channels, with the tops projecting up into a protecting hood in the centre of the motorman's cab. The drive is through a central shaft to a change gear box nearly midway between the engines and the driving axle. On this driving axle there is a worm gear, engaging a worm on the driving shaft, the portion of the latter between the change gear box and the worm box having two universal joints to compensate for the vertical movement in the driving axle. The worm box arrangement differs somewhat from that in an automobile, as no differentials are required, the curves negotiated being such as not to require this added feature. The worm box is carried directly on the driving axle, with an equalizing fulcrum from it to the change gear box, which is supported from the underside of two of the cross bracing channels. Next to the engines there is the clutch, supported from the underside of the cross bracing channel at that point.



Plan and Elevation of Underframing on Motor Cars for C.P.R. Laggan-Lake Louise Line.

The motorman's control is similar to that in an automobile, the principal difference being that the usual steering wheel of the automobile is used for the hand brake, the ordinary braking being by air from drums suspended under the car carrying air at 150

lbs., which is reduced to 50 lbs., for application. The air control lever is under the main wheel on the wheel standard. Adjoining it are the control levers for the spark and throttle, with the clutch operated by a lever under the foot of the motorman. The change gears are operated in the usual automobile manner from a box attached to the outside of the frame, conveniently located within the motorman's reach, the control rods from this shaft paralleling the drive shaft. The motor is started in the usual manner, by cranking in front.

The front of the cab carries a Livingstone radiator, all the cars having been changed to this type from the original McCord radiators. Above the radiator there is a headlight, and at the back, tail lights, which, in conjunction with the interior ceiling lights, are all operated by electricity from storage batteries.

These cars are capable of making 15 miles an hour, and can negotiate grades up to 4%. We are indebted to W. H. Winterrowd, Mechanical Engineer, C.P.R., for the information on which this article is based.

Orders by Board of Railway Commissioners for Canada.

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

The dates given of orders, immediately following the numbers, are those on which the hearings took place, and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the dates assigned to them.

22357. Aug. 5.—Dismissing application of Welland County, Ont., requiring Toronto, Hamilton and Buffalo Ry. to divert certain highways in Pelham Tp.

22358. Aug. 6.—Authorizing Medicine Hat Southern Ry. to build across C.P.R., overhead, near Medicine Hat, Alta.

22359. Aug. 10.—Approving C.N. Quebec Ry. clearances at Canada Cement Co.'s plant no. 1, Montreal.

22360. July 28.—Authorizing St. John and Quebec Ry. to cross C.P.R. at three points in Fredericton, N.B., interlocking plants to be provided.

22361. Aug. 8.—Authorizing Nakusp and Slocan Ry. to build spur for Lucky Jim Zinc Mines, Lot 611, Group 1, West Kootenay District, B.C.

22362. Aug. 10.—Approving Bell Telephone Co. agreement with North Gosfield Tp., Ont., for interchange of business.

22363. Aug. 10.—Authorizing C.P.R. to use certain bridges on its Cascade Subdivision, B.C.

22364. Aug. 11.—Authorizing C.P.R. to close portion of road allowance between Secs. 14 and 23, Tp. 17-24, w.p.m.; to build road diversion in Sec. 23; and build at grade its main line across highway between Secs. 22 and 23, at mileage 41, Bredenbury Subdivision, Man.

22365. Aug. 11.—Extending to Oct. 14, time for completion of spurs for Canadian Kodak Co., Lot 1, Con. 4, west of Yonge St., York Tp., Ont.

22366. Aug. 11.—Relieving C.P.R. of speed limitation of 15 miles an hour over its Suffield-Blackie Branch from mileage 26.3 to 57.2, and authorizing it to open for traffic portion of that branch from mileage 57.2 to end of track, mileage 84, Alberta.

22367. Aug. 11.—Authorizing C.P.R. to build siding for Modern Joint of Montreal, Ltd., Montreal.

22368. Aug. 11.—Authorizing G.T. Pacific Ry. to build bridge across Endako River at mileage 340.9, Prince Rupert East, B.C.

22369. Aug. 10.—Declaring that G.T.R. Tariff, C.R.C. 2457, applies to and includes traffic offered to it by C.N. Ontario Ry. for delivery on team tracks at Toronto, and G.T.R. will accept C.N.R. carload traffic.

22370. Aug. 10.—Approving of plan and specification of E. A. Silcox for award drain under G.T.R. in Southwold Tp., Elgin County, Ont.

22371. Aug. 7.—Authorizing C.P.R. to build spur for Constructing and Paving Co., Toronto.

22372. Aug. 10.—Authorizing C.P.R. to open for traffic portion of double track diversion between Percival and mileage 120, Sask.

22373. Aug. 12.—Amending order 21448, Mar. 6, re building of C.P.R. Swift Current northeasterly branch across highway at mileage 98.47, Sask.

22374. Aug. 10.—Ordering tolls of express companies to include collection and delivery in certain thoroughfares reasonably passable for express waggons in Regina, Sask.

22375. Aug. 13.—Authorizing C.P.R. to extend siding for Vaughan Sand and Gravel Co., Toronto.

22376. Aug. 12.—Amending order 22062, June 25, re C.P.R. overhead bridge at George St. Smiths Falls, Ont., by striking out words "less the contribution already made for overhead bridge there."

22377. Aug. 12.—Authorizing C.P.R. to open portion of its Weyburn westerly branch from Shaunavon to Gowanlock, mileage 230.8 to 307.3; speed of trains limited to 18 miles an hour.

22378. Aug. 12.—Authorizing C.P.R. to build revised location of City of Moose Jaw's Power House spur from North Bridge St. to city's premises.

22379. Aug. 13.—Extending time within which C.P.R. shall complete spur for Renfrew White Granite Co., Renfrew, Ont.

22380. Aug. 13.—Amending order 22157, July 7, by striking out words and figures "as no. 255."

22381. Aug. 13.—Authorizing C.P.R. to build three tracks at grade across Nelson St., Vancouver, B.C.

22382. Aug. 14.—Amending order 20807, Nov. 13, 1913, re diversion of road across C.P.R. in s.w. ¼ Sec. 32-18-14, w. 4 m., Alta.

22383. Aug. 12.—Relieving G.T.R. from providing further protection at crossing of Brewster Ave., Lachine, Que.

22384. Aug. 12.—Authorizing G.T. Pacific Ry. to carry traffic over portion of its line from Prince George to Priestley, B.C., at a maximum speed of 25 miles an hour; but not exceeding 10 miles an hour at steel bridges under construction or where slides have occurred about mileages 417, 418 and 443 east of Prince Rupert.

22385. Aug. 13.—Authorizing G.T. Pacific Ry. to increase speed of trains from 15 to 25 miles an hour between Knockholt and Priestley, B.C.

22386. Aug. 13.—Authorizing G.T.R. within 60 days to install improved type of automatic bell at crossing of highway at Lot 16, Con. 9, Perry Tp., Ont.

22387. Aug. 12.—Approving revised location of C.N. Ontario Ry. from station 2065+68.6 to 2156+81.4, mileage 85.13 to 86.85 from Ottawa, Ont.

22388. Aug. 14.—Authorizing C.P.R. to build extension to siding for Rocsand Co., Ltd., Erin, Ont.

22389. Aug. 13.—Extending to Oct. 1, time within which C.P.R. shall install bell at crossing of main approach to Hospital for Insane, London, Ont.

22390. Aug. 14.—Authorizing C.P.R. to build branch for Forest Mills of British Columbia, Revelstoke, B.C.

22391. Aug. 14.—Authorizing C.P.R. to operate over certain bridges in Manitoba and Saskatchewan.

22392. Aug. 18.—Ordering G.T.R. to provide suitable siding where its railway intersects lands of Hamilton and Toronto Sewer Pipe Co., West Flamboro Tp., Ont., to be completed within three months from time of deposit of $5.000.

22393. Aug. 13.—Authorizing Cedar Rapids Manufacturing and Power Co., Montreal, to take certain land for transmission line right of way in Soulanges County.

22394. Aug. 11.—Authorizing C.P.R. to build extension to siding for Lombard Bros. & Marshall. Marston Tp., Que.

22395. Aug. 11.—Authorizing C.P.R. to build sidings for Dominion Bridge Co. in St. John, N.B.

22396 to 22398. Aug. 15.—Approving C.P.R. clearances at siding on National Brick Co.'s premises; W. F. Villa's siding, Dunham Tp., Que.; and E. & T. Fairbanks' siding, Sherbrooke, Que.

22399. Aug. 14.—Refusing Canadian Northern Ry.'s request to put station grounds at Dunrobin, Ont., at mileage 23.6 from Ottawa, on its Ottawa-Capreol line, in lieu of at mileage 22.

22400. Aug. 10.—Dismissing Canadian Northern Ry.'s application for revised location through Tp. 40-26 w. 4 m., and part of Lacombe, Alta., mileage 1.94 to 4.03; and for authority to close and divert Milner and Brooks Sts., and to build across roadway south of Block H, to be opened in lieu of said two streets.

22401. Aug. 17.—Authorizing Toronto Harbor Commissioners to build footbridge over G.T.R. to Parkdale Canoe Club.

22402. Aug. 18.—Ordering C.P.R. to add to fencing of right of way between Coldwater and Orillia, Ont., to stop animals from passing through.

22403. Aug. 18.—Authorizing C.P.R. to close station at Manvers, Ont., same to be maintained as flag station.

22404. Aug. 17.—Approving C.P.R. main line between mileage 72.50 and 74.75, Cascade Subdivision; and revised location of said portion at mileage 74.0.

22405. Aug. 17.—Authorizing C.P.R. to build spur for Canadian Marble and Granite Works, Ltd., Nelson, B.C.

22406. Aug. 18.—Ordering G.T.R. within 60 days to install improved automatic bell at public highway near St. Paul's Station, Ont.

22407. Aug. 18.—Approving location of Van Buren Bridge Co.'s railway from International Ry. in St. Leonard, N.B., to International boundary, one mile.

22408. Aug. 18.—Amending order 21881, May 26, which authorized Montreal and Southern Counties Ry. to build across 4 highways in St. Cesaire, Que.

22409. Aug. 18.—Ordering G.T.R. to build cattle pass under railway on F. H. Lewis' farm, near Burford, Ont.

22410. Aug. 19.—Ordering Canadian Northern Ry. to build private crossing in line with Second St., Paynton, Sask., and to acquire land to open up and grade highway south from Government road allowance to connect with Second St.

22411. Aug. 14.—Authorizing Spy Hill rural municipality no. 152, Saskatchewan, to build highway crossing over C.P.R. where extension of Main St. to Tantallon townsite crosses tracks in s.w ¼ Sec. 16, Tp. 18, R. 32, w. 1 m.

22412. Aug. 17.—Approving C.P.R. Standard Freight Tariff, C.R.C. no. W 1948, effective Sept. 1, to apply between stations and ports of call in Ontario, west of and including Port Arthur; Manitoba, Saskatchewan, Alberta and British Columbia.

22413. Aug. 21.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to connect with Thurlow Ry. in Lot 22, Con. 1, Thurlow Tp., Ont., at mileage 72.36 from Glen Tay.

22414. Aug. 17.—Approving C.P.R. clearances at the Contractors' Supply Co.'s sidings at mileage 20, Owen Sound Subdivision, Ont.

22415. July 31.—Authorizing Erie and Ontario Ry. to build across St. Catharines Road, South Grimsby Tp., Ont., by subway carrying highway under railway.

22416. Aug. 21.—Authorizing Van Buren Bridge Co. to build railway at grade across public highway in St. Leonard Parish, N.B., from St. Leonard to Edmunston.

22417. Aug. 21.—Authorizing C.P.R. to build siding for Warner Quinlan Asphalt Co., Montreal.

22418. Aug. 20.—Authorizing C.P.R. to extend spur on Queen St., Port Arthur, Ont., across High St. and John St. and along Johnson Ave., also to cross Port Arthur Electric Ry. on Algoma St.

22419. Aug. 20.—Approving Dominion Ex. Co.'s Tariff C.R.C. 4439 between points on Vancouver Island, B.C.

22420. Aug. 21.—Approving plan and specifications of Gordon Award Drain under G.T.R., Atwood, Ont.

22421. Aug. 20.—Ordering C.P.R. to build highway crossing over its Soo Branch near mileage 96.5, two miles west of Bruce station, Ont.

22422. Aug. 21.—Authorizing Van Buren Bridge Co. to connect with International Ry. of New Brunswick, in St. Leonard Parish.

22423. Aug. 20.—Authorizing City of Prince Rupert, B.C., to build crossing over G.T. Pacific Ry. at boundary waterfront, Lots D and E, by overhead bridge; provided if additional trackage is necessary the city shall extend bridge.

22424. Aug. 21.—Authorizing Erie and Ontario Ry. to build across certain highways in Moulton, Gainsboro and Wainfleet Tps., Ont.

22425. July 22.—Authorizing Michigan Central Rd. to build spur for Dominion Chain Co., Niagara Falls, Ont.

22426. Aug. 22.—Authorizing Van Buren Bridge Co. to connect its line with, and to cross at grade, the National Transcontinental Ry.

22427. Aug. 22.—Ordering Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build flag station and platform, with spur track to hold eight cars, at Parham, Ont.

22428. Aug. 24.—Ordering that general order 124, Apr. 30, be amended to provide that signal to be given by steamboat to have swing opened on Canadian Canal at Sault Ste. Marie, Ont., be three long followed by two short blasts.

22429. Aug. 24.—Ordering G.T.R. to build a 7½% grade on hill below its crossing at Goldstone Station, Ont.

22430. Aug. 24.—Authorizing that Canadian Northern Ry. station at Ethelbert, Man., be moved to just north of the north switch.

22431. Aug. 25.—Authorizing St. John and Quebec Ry. to build across C.P.R. at or near mileage 20, Fredericton Branch, Fredericton, N.B.

22432. Aug. 24.—Ordering C.P.R. to build spur for E. M. Zentil, Dryden, Ont.

22433. Aug. 21.—Authorizing Toronto Eastern Ry. and Oshawa Electric Ry. to operate over O. E. R. crossing at Simcoe St., Oshawa, Ont., for six months from Aug. 6.

22434. Aug. 24.—Authorizing Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co. (Canadian Northern Ry.) to operate temporarily over the connection and interchange track at Regina, Sask.

22435. Aug. 24.—Approving G. T. Pacific Ry. station site and station at Evelyn, mileage 217.3, Prince Rupert East, B.C.

22436. Aug. 24.—Approving plan, dated Montreal, July 11, 1907, showing protection work proposed to be built for bridge across the Kaministikwia River at Fort William, Ont.

22437. Aug. 24.—Authorizing G. T. Pacific Ry. to carry traffic over portion of its line between Prince George and Priestley, B.C.; speed of trains limited to 25 miles an hour, with exception of portions at steel bridges under construction and near mileages 417, 418 and 443, where slides have occurred, when speed is limited to 10 miles an hour.

22438. Aug. 26.—Authorizing G.T.R. to build siding for B. Blair Co., Woodstock, Ont.

22439. Aug. 25.—Authorizing G. T. Pacific Ry. to build spur for Terrace Saw Mill, Doast District, B.C.

22440. Aug. 26.—Authorizing G.T.R. to build branch line for S. L. Wright, Etobicoke, Ont.

22441. Aug. 24.—Authorizing G. T. Pacific Branch Lines Co. to connect with Regina Municipal Ry. and build interchange track in 5th Ave., Regina, Sask.

22442. Aug. 22.—Relieving C.P.R. from providing further protection at crossing one mile west of Fassett station, Que.

22443. Aug. 22.—Authorizing C.P.R. to use bridge 32.4, Brandon Subdivision, Man.

22444. Aug. 26.—Authorizing C.P.R. to open for traffic one track of double track diversion between Whitewood and mileage 119.0, Broadview Subdivision, Sask.

22445. Aug. 24.—Aoproving C.P.R. clearances at Cochrane's Hardware Ltd. siding, Sudbury, Ont.

22446. Aug. 25.—Authorizing C.P.R. to build 9 grade crossings on its Weyburn-Stirling Branch, between mileage 259.23 and 276.35, Sask.

22447. Aug. 25.—Amending order 22310, July 31, by substituting 21679 for 21879 in recital part.

22448. Aug. 22.—Authorizing C.P.R. to build branch for City of Calgary from main line across Block D, to city's premises.

22449. Aug. 21.—Authorizing Trafalgar Tp., Ont., to build Morden Road, across Hamilton Radial Electric Ry.

22450. Aug. 25.—Amending order 22250, July 22, re C. P. R. siding for Shawinigan Water and Power Co., Montreal.

22451. Aug. 27.—Authorizing Erie and Ontario Ry. to build branch in Con. 2, Moulton Tp., from station 493+29.8, through Lots 18 and 17, to Michigan Central Rd.

22452. Aug. 27.—Approving plan of interlocking plant installed at Canadian Northern Ry. crossing of C. P. R., Stobie Branch, on Lot 4, Con. 5, McKim Tp., Ont.

22453. Aug. 26.—Authorizing Toronto Eastern Ry. to operate for construction purposes only, crossing of G. T. R. Port Perry Branch at Whitby, Ont.

22454. Aug. 14.—Ordering Dominion Transportation Co. to continue use and maintenance of railway wharf facilities at Michipicoten, Ont., to accommodate traffic.

22455. Aug. 19.—Authorizing Algoma Central and Hudson Bay Ry. to operate plant and swing bridge at Little Current, between Goat and Manitoulin Islands, Ont., without first stopping trains.

22456. Aug. 17.—Approving Supplement 6 to Express Classification for Canada 3.

22457. Aug. 11.—Ordering C. P. R. to stop its train 3 on flag signal, at Murillo, Ont., and giving liberty to cancel present arrangement of stopping nos. 7 and 1 there.

22458. Aug. 28.—Authorizing G. T. R. within 60 days, to install improved type of automatic bell at crossing 1¼ miles east of Burlington Jct., Ont.

22459. Aug. 28.—Authorizing C. P. R. to build extension to siding for Brunelle and Besner, Vaudreuil, Que.

22460. Aug. 28.—Authorizing C. P. R. to rebuild bridge 42.2 over Moose River, near Acton, Que.

22461. Aug. 19.—Approving C. P. R. clearances at stone crusher on Harrison and Beatty's Siding, Sydenham Tp., Ont.

22462. Aug. 28.—Authorizing C. P. R. to build private car siding and a freight wharf siding across Gordon St. and road allowance unopened in Bala, Ont., and a siding for H. Weismiller, in Medora Tp., Ont.

22463. Aug. 28.—Amending order 20117, Aug. 16, 1913, re Canadian Northern Ry. crossing of Manitoba and Saskatchewan Coal Co.'s spur in s. e. ¼ Sec. 19, Tp. 2, R. 6, w. 2 m., Sask.

22464. Aug. 31.—Amending order 22225, July 18, substituting Calgary Water Power Co., for Calgary Power Co.

22465. Aug. 29.—Authorizing Esquimalt and Nanaimo Ry. to provide level highway crossing at Alder St., Riverside Townsite, Cowichan Lake, B. C., at expense of British Columbia Public Works Department.

22466. Aug. 27.—Authorizing Erie and Ontario Ry. to cross G. T. R. at grade in Dunnville, Ont.

22467. Aug. 29.—Authorizing Erie and Ontario Ry. to build bridge across Twenty Mile Creek, South Grimsby Tp., Ont.

22468. Aug. 24.—Ordering C. P. R. to acquire land necessary for diversion involved in making roadway required by order 21821, May 11, and pay cost of construction and grading the additional 1,350 ft., remainder of cost to be paid by Brokenshell rural municipality no. 68.

22469. Aug. 29.—Authorizing St. John and Quebec Ry. to cross C. P. R. at Regent St., at Salamanca, and at 2 other points, in Fredericton, N. B.

22470. Aug. 29.—Authorizing C. P. R. to build extension on Hardisty St., at intersection of Leith St., Fort William, Ont.

22471. Aug. 29.—Authorizing Van Buren Bridge Co. to build bridge over St. John River from Van Buren, Me., to St. Leonard, N. B.

22472. Sept. 1.—Approving location of C. N. Ontario Ry. station grounds at Cushing, Que., mileage 6.60 from Hawkesbury, Ont., and rescinding order 15673, Dec. 22, 1911, approving location about a mile east.

22473. Aug. 31.—Authorizing G. T. R. to build branch for Chatham Bridge Co., Raleigh Tp., Ont.

22474. Aug. 31.—Approving G. T. Pacific Ry. standard freight mileage tariff, C. R. C. 22, between its stations in Ontario, Manitoba, Saskatchewan and British Columbia.

22475, 22476. Aug. 31, Sept. 1.—Authorizing C. P. R. to build spurs for Ross-Saskatoon Lumber Co., East Kootenay District, B. C., and Maple Leaf Milling Co., Medicine Hat, Alta.

22477. Aug. 29.—Rescinding plan F-14-15|3A showing standard fence proposed to be used by C. P. R. at highway crossings.

22478. Sept. 1.—Approving plans and specifications of proposed drainage works across track and lands of Canadian Northern Ry. in Sec. 15-13-10, w.2. m., Sask.

22479. Aug. 31.—Authorizing Glengarry and Stormont Ry. (C. P. R.) to build at grade across 16 highways in Lancaster and Charlottenburg Tps., Ont.

22480. Sept. 1.—Authorizing Michigan Central Rd. to take off its local train 109 between Comber and Essex, Ont.

22481. Aug. 31.—Authorizing Erie and Ontario Ry. to build pile trestle across Oswego Creek, Moulton Tp., mileage 8.45 from Smithville, Ont.

22482. Aug. 31.—Approving agreement between Bell Telephone Co. and Waterloo Tp., Ont.

22483 to 22485. Sept. 1.—Authorizing Hydro-Electric Power Commission of Ontario to erect line across G. T. R. at McCabe St., Welland, Lot 2, Con. 1, East Flamboro Tp., and across C. P. R. at Don Mills Rd., Donlands, Ont.

22486. Sept. 1.—Approving agreement between Bell Telephone Co. and Muskoka, Victoria and Haliburton Telephone Co.

22487. Sept. 2.—Authorizing Saskatchewan Government to build highway crossing over Canadian Northern Ry. on centre line of Sec. 22, Tp. 6, R 4, w.2.m., running north and south.

22488. Sept. 2.—Authorizing C. N. Ontario Ry. to build revision of its two tracks across public road at Sydenham, Lot 1, Blocks Q and R, Con. 5, Loughboro Tp.

22489. Sept. 2.—Authorizing Glengarry and Stormont Ry. (C. P. R.) to build bridges 4.99, 16.41, 17.47.

22490. Sept. 4.—Approving Great Northern Ry. standard tariffs C.R.C. 1057 to 1063.

22491. Sept. 8.—Approving deviation of Glengarry and Stormont Ry. (C.P.R.) from crossing of G.T.R. at mileage 26.54, Cornwall Tp. to Cornwall, Ont., 2,000 ft. southwest.

22492. Sept. 3.—Authorizing C.P.R. to build spur for Northern Sand and Gravel Co. at Milner, Man.

22493. Sept. 3.—Authorizing C.P.R. to open for traffic single track diversion, from Indian Head to Qu'Appelle, mileage 50 to 59.8; and second track from mileage 59.8 to 67.7, near McLean, Sask.

22494. Sept. 3.—Extending to Oct. 31, time within which C.P.R. shall install gates at St. Thomas and Bonaventure Sts., Three Rivers, Que.

22495. Sept. 3.—Approving location of Erie and Ontario Ry. proposed branches to its freight and passenger stations at Dunnville, Ont., and authorizing crossing of highways there.

22496. Sept. 3.—Amending order 22034, June 23, re crossing of certain highways in Saskatchewan by Canadian Northern Ry.

22497, 22498. Sept. 3.—Approving Bell Telephone Co.'s agreements with Thedford, Arkona and East Lambton Telephone Co., and Lambton Telephone Co.

22499. Sept. 3.—Approving Dominion Atlantic Ry. revision at Bear River Bridge, Digby County, N.S.

22500. Sept. 8.—Authorizing Glengarry and Stormont Ry. (C.P.R.) to build its track and terminal yards within Cornwall, Ont., and to build at grade across certain highways there.

22501. Sept. 4.—Amending order 22367, Aug. 11, re C.P.R. siding for Modern Joint Co., Montreal.

22502. Sept. 3.—Approving C.P.R. and C.N. Ontario Ry. plan, profile, and book of reference, July 25, showing subway proposed at Dovercourt Road, North Toronto Grade Separation; appointing the Senior Judge of York County arbitrator to adjust any claims for damages; and declaring order to be without prejudice to applicants' rights to urge that any of the properties shown on plan are not injuriously affected by the construction.

22503. Sept. 4.—Authorizing G.T. Pacific Ry. to extend its elevator track across road allowance at Asquith, Sask.

22504. Sept. 8.—Authorizing Toronto Eastern Ry. to build Y on Liberty St., Bowmanville, Ont.

22505. Sept. 5.—Authorizing C.N. Ontario Ry. to build spur on Wakefield St., Parry Sound, for Hawkins Bros.

22506. Sept. 4.—Extending to Nov. 26, time within which Canadian Northern Ry. shall build spur for J. H. Carleton, Winnipeg, Man., authorized by order 22086.

22507. Sept. 3.—Approving Canadian Northern Ry. plan showing station proposed at Hughton, Sask.

22508. Sept. 9.—Ordering Edmonton, Dunvegan and British Columbia Ry. to establish 5 special fire patrolmen with velocipedes between mileage 65 and 167, patrol districts to comprise equal distances along track; one additional patrolman to be assigned for each 15 miles of right of way west of mileage 167, upon which construction work is under way during remainder of fire season; men to be maintained continuously until Nov. 1, except in so far as relief be granted by an authorized officer of the Board; men to patrol between 7 a.m. and 6 p.m. each day, including Sunday, with minimum patrol as far as possible of one round trip a day; each foot patrolman to be equipped with shovel and canvas bucket, and each velocipede patrolman with 2 shovels, 2 canvas buckets and an axe.

22509. Sept. 5.—Authorizing C.P.R. to alter spur for City of Winnipeg on Rachael St. E.

22510. Sept. 5.—Authorizing C.P.R. to build spur for Canadian Lock Joint Pipe Co., Regina, Sask.

22511. Sept. 5.—Approving revised location of portion of C.P.R. main line as built, and construction of double track from mileage 2.98, Tp. 68, Algoma District, to mileage 4.84, Tp. 68, Thunder Bay District, Ont.

22512. Sept. 5.—Approving C.P.R. clearances of gantry crane at Galt, Ont.

22513. Sept. 5.—Authorizing C.P.R. to build spur for Winnipeg Supply and Fuel Co., Winnipeg.

22514. Sept. 5.—Authorizing G.T. Pacific Branch Lines Co. to build spur for Tofield Clay Products Co., Tofield, Alta.

22515. Sept. 5.—Authorizing C.N. Alberta Ry. to build spur for Pembina Coal Co., near Entwistle, Alta.

22516. Sept. 8.—Authorizing C.P.R. to build under Kootenay Central Ry. at mileage 91.98 from Colvalli, B.C.

22517. Sept. 9.—Approving plans B-1-1392, July 3, showing rebuilding of bridge carrying G.T.R. over C.P.R. near Myrtle, Ont., with minimum clearance of 22 ft. 6 ins.

22518. Sept. 9.—Authorizing Glengarry and Stormont Ry. (C.P.R.) to build across highways between Lancaster and Charlottenburg Tps., at mileage 12.81 and 12.85, and to divert road at latter point.

22519. Sept. 9.—Approving amended location of G.T. Pacific Ry. station at Midlake, mileage 365.5, Prince Rupert East, and rescinding order 16278, Apr. 9, 1912, approving location at mileage 365.

22520. Sept. 9.—Ordering G.T.R., within 60 days, to install improved type of automatic bell at highway crossing one mile west of Peterborough, Ont., 20% of cost to be paid out of railway grade crossing fund; trains limited to 10 miles an hour until bell has been installed.

22521. Sept. 8.—Extending to Sept. 30, time within which G.T.R. shall complete subway under its tracks at Ste. Anne de Bellevue, Que.

22522. Sept. 8.—Authorizing Town of Trenton, Ont., to lay sewer under C.N. Ontario Ry. and Central Ontario Ry. at Quinte St.

22523. Sept. 9.—Ordering Boston and Maine Rd., within 60 days, to install improved type of automatic bell at highway crossing near Ayers Cliff, Que., 20% of cost to be paid out of the railway grade crossing fund.

22524. Sept. 9.—Authorizing Erie and Ontario Ry. to cross G.T.R. at grade in Moulton Tp., Ont., crossing to be protected by interlocking plant.

22525. Sept. 9.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to take certain lands in Belleville, Ont., for team yard, and reserving application for closing or diverting streets, and application of city for separation of grades at certain highway crossings.

22526. Sept. 10.—Authorizing Canadian Northern Ry. to open for traffic its revised line across Rainy Lake, Ont., from mileage 226.4 west of Port Arthur, on Island G. 622, westerly to mileage 227.2 at junction with main line.

22527. Sept. 10.—Authorizing C.P.R. to build spur for Richardson Builders, Ltd., Saskatoon, Sask.

22528. Sept. 10.—Extending to Nov. 30, time within which Campbellford, Lake Ontario and Western Ry. (C.P.R.) shall install bell at crossing of Kingston Road, near Belleville, Ont.

22529. Sept. 10.—Approving C.P.R. plan of automatic signals required for gauntlet tracks over Columbia River bridge, mileage 1.6, Shuswap Subdivision, B.C.

22530. Sept. 10.—Authorizing C.N. Manitoba Ry. and Canadian Northern Ry. Oak Point Branch to connect in Sec. 28-28-8, near Deerfield, Man.

22531. Sept. 10.—Authorizing Canadian Northern Ry. to open for traffic its high level freight tracks over Assiniboine River and viaduct over Main St. and trestle connecting with old line at Clark St., and from east end of Assiniboine River bridge to Clark St., Winnipeg.

22532. Sept. 11.—Dismissing Nelson and Fort Sheppard Ry.. (G.N.R.) application for elimination of flag stops at Meadow spur, and Benson and Ross spur in B.C.

22533. Sept. 10.—Rescinding order 14351, July 25, 1911, re Canadian Northern Ry. precautions at crossing of Red River between Emerson and Emerson Jct., Man., and providing other regulations.

22534. Sept. 11.—Authorizing Canadian Northern Ry. to open for traffic its line from Adelpha, Man., mileage 51.84 to 79.70, speed not to exceed 20 miles an hour.

22535. Sept. 11.—Approving location of Esquimalt and Nanaimo Ry. flag station at Craigs, B.C.

22536. Sept. 11.—Authorizing Ops Tp. and Manvers, Ont., at expense of C.P.R., to build highway over Georgian Bay and Seaboard Ry. (C.P.R.), at mileage 9, Port McNicoll Subdivision.

22537. Sept. 12.—Amending order 20859, Nov. 21, 1913, re installation of gates by C.P.R. at crossing of Whyte St., Edmonton, Alta.

22538. Sept. 11.—Approving Edmonton, Dunvegan and British Columbia Ry. location through Tps. 78 and 77, R. 23 and 24, w. 5 m., Alta., mileage 284 to 307.

22539. Sept. 10.—Amending order 21418, Feb. 14, re C.P.R. spur on Harbor Quay, Goderich, Ont., by substituting another plan, and authorizing building of spur across dock spur to G.T.R.

22540. Sept. 15.—Authorizing C.N. Ontario Ry. to build temporary timber crossing, until Dec. 31, over C.P.R. near Pembroke, Ont.

22541. Sept. 14.—Authorizing C.P.R. to build ballast pit spur at grade across highway in Lot 6, Con. 5, Vanhorne Tp., Ont.

22542. Sept. 14.—Approving proposed interlocking plant for C.P.R. double track swing bridge at Harrison Mills, B.C.

22543. Sept. 12.—Authorizing C.P.R. to open for traffic its Kootenay Central Branch from Spillimacheen to Edgewater, B.C., mileage 41 to 59, Chief Engineer to file with Board by Sept. 30, affidavit that public road crossings at mileage 41.2, 42.5 and 48.5 and crossing at Spillimacheen have been completed in accordance with Board's Standard Regulations.

22544. Sept. 14.—Approving Bell Telephone Co.'s Agreement with Huntsville and Lake of Bays Telephone Co.

22545. Sept. 14.—Authorizing Saskatchewan Board of Highway Commissioners to build highway crossing over G.T. Pacific Ry. north of Rutan Siding, Sec. 22-35-27, w. 2 m.

22546. Sept. 15.—Authorizing Erie and Ontario Ry. to cross and use Toronto and Niagara Power Co.'s right of way in Lot 32, Con. 5. Gainsboro Tp., Ont., without prejudice to rights of seniority, if any, of T. & N.P. Co.

22547. Sept. 14.—Approving Bell Telephone Co. agreement with Second Line Drummond Telephone Co.

22548. Sept. 14.—Authorizing Canadian Northern Ry.to build spur across Second St., Fort Frances, Ont., for J. Harty and L. J. Marsh, and rescinding order 15306, Nov. 10, 1911, in same connection.

22549. Sept. 14.—Authorizing Pere Marquette Rd. to maintain station at Tupperville, Ont., as a flag station.

22550. Sept. 12.—Authorizing C.P.R. to alter spur approved by order 20710, Nov. 4, for McCormick Mfg. Co., London Tp., Ont., and approving clearances of same.

22551. Sept. 14.—Authorizing C.P.R. to open for traffic its double track, from mileage 116.8 to 123.8, Whitewood, to Percival, Sask.

22552. Sept. 15.—Approving clearances of C.P.R. standard 30 ft., 40 ft., 50 ft. freight sheds and standard no. 2 ice house.

22553. Sept. 15.—Authorizing British Columbia Electric Ry. Co. to build across C.P.R. in District Lot 347, Port Moody, B.C., all cars and trains to be stopped before making crossing.

22554. Sept. 15.—Extending for six months from date time within which City of Fort William, Ont., shall complete half-interlocking plants at crossings of Canadian Northern Ry. by Fort William Electric Ry. at Victoria Ave. and Vickers St., and at intersection of Franklin St., as required by order 19319, May 15, 1913.

22555. Sept. 15.—Approving International Bridge and Terminal Co. bylaw 2, July 28, authorizing B. G. Dahlberg, General Freight Traffic Agent, to prepare and issue tariffs of the tolls.

22556. Sept. 15.—Approving G.T. Pacific Ry. station and site at Marten Lake, mileage 378.4, Prince Rupert East, B.C.

22557. Aug. 15.—Authorizing C.P.R. to build its Moose Jaw South Westerly Branch at grade across highways between mileage 57.59 and 59.61 from Moose Jaw, Sask.

22558. Sept. 16.—Approving location of Canadian Northern Ry. station at Clouston, Sask.

22559. Sept. 17.—Authorizing St. John and Quebec Ry. to build across C.P.R. spur at mileage 20, Fredericton Branch, for Fraser, Ltd., Fredericton, N.B.

War Time Transportation.

At the time of writing the war has been in progress seven weeks, the first shock has expended itself, and those who were of opinion that we had reached the end of all things, are beginning to realize that the world is still revolving on its axis; that there is still work to do, and a stern necessity for doing it. In the present time, those who worship precedent are wasting their time and the time of the community, as there is no precedent suitable for present day contingencies.

The chief element making for success in military and naval manoeuvres is mobility, and the mobility of armies and navies in the last great wars of 1815 and 1870 cannot for a moment be compared with that which obtains today. The great advance in the means of transportation, of recent years, has not only increased the efficiency of belligerents, but forms the backbone of the immense commerce which has been built up throughout the world. This advance has been equally great in transportation by land and sea, and situated as Canada is, midway between the large manufacturing centres of Europe and the increasing markets of the Antipodes and the Orient, there is, under normal conditions, a constant flow of transoceanic and transcontinental traffic across the Dominion in both directions, in addition to that absorbed and originating locally. Though there is a considerable amount of traffic, which both originates and terminates within the Dominion, it may be taken for granted that the greater portion either originates across one of the oceans, or is intended to cross the water, thus showing the interdependence of the two means of transportation, by land, and water. Anything, therefore, which dislocates the vessel traffic with the Dominion is also detrimental to the interior traffic, and all conceivable means should be adopted to promote and maintain steamship communication on transoceanic routes.

The merchant shipping of the British Empire for 1913 comprised 11,886,300 net tons, heading the list of the countries of the world, and totalling more than the next six countries. The activity of the British navy in the early stages of the war practically cleared all the recognized ocean routes, and the risk of capture by foreign vessels is comparatively limited. This was made abundantly clear recently by the quotations of insurance rates for war risks in London, Eng. It is stated that the rate, practically everywhere but in the North Sea, was at first fixed at 5 guineas; it was later reduced to 4 guineas, and again lowered to 3 guineas, and towards the end of August it was possible to insure almost any voyage by British vessels at 40s. per cent.

While practically all the chief vessels operating to Canada have been requisitioned by the Admiralty for war purposes, the situation is opened to an unlimited number of tramp steamers, and these should be encouraged to come in and handle the traffic, which is of equal necessity for Canada and Great Britain. The only markets which are closed to products of the Dominion are those of continental Europe, and even some of these are available, and the remainder of the world is open. Great Britain is still capable of manufacturing articles which we require, and Great Britain requires Canada's food products; therefore only a combined determined effort is necessary to maintain a steady flow of traffic across the Atlantic and Pacific Oceans by way of Canada. Sir Algernon Firth, President of the Associated Chambers of Commerce of Great Britain, and a member of the British War Risks Insurance Committee, stated recently that at a meeting of the committee some very satisfactory information was given as to the routes then open, and as to further routes to be opened shortly. It was also pointed out that insurance rates had fallen considerably, and that no doubt they would be further reduced shortly, so as not to prohibit any reasonable transactions. A good deal of difficulty had been experienced in shipping goods, not because vessels could not leave ports, but because so many were taken up by the Admiralty, but the situation is now being eased every day and vessels are resuming their sailings.

The Chancellor of the Exchequer said recently:—"It is vital that British shipping in every part of the world should be protected, and a little reflection will show that in order to maintain the stream of supplies of necessaries for the people, we have to keep going the whole mechanism of overseas trade."

Canadian Northern Railway Earnings, Etc.

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

	Gross Earnings	Expenses	Net Earnings	Increase
July	$1,594,300	$1,163,800	$430,500	x$83,800
Incr.	.....	$ 250,700	.....	.....
Decr.	$ 334,500	.....	$ 83,800	.....

x Decrease.

Approximate earnings for August, $1,367,700, against $1,824,800 for Aug., 1913.

Mileage operated in July, 4,670, against 4,316 in July, 1913.

Canadian Pacific Railway, Earnings, Etc.

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

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	$10.481,971.72	$6,703,525.89	$3,778,445.83	x$338 347.35
Incr.	.....	.....	.....	.....
Decr.	$1,511,090.55	$1,172,743 20	$ 338,347.55	.....

x Decrease.

Approximate earnings for August, $9,532,000, against $11,062,000 for Aug., 1913.

Grand Trunk Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, etc., from July 1, 1913:—

	Gross Earnings	Expenses	Net Earnings	
July	$4 724,000	$3,668,200	$1,055,800	.....

Approximate earnings for August, $4,853,740, against $5,154,213 for Aug., 1913.

Grand Trunk Pacific Railway Earnings.

The approximate earnings of the Prairie Section and Lake Superior Branch for August were $470,700, against $462,036, and for the two months ended Aug. 31, $900,453, against $981,592.

S. King, of London, Ont., ex-Superintendent Canadian Car and Foundry Co., Ltd., and now a director of the National Steel Car Co., writes Canadian Railway and Marine World: "I really enjoy reading the articles in your valuable paper, as they are strictly up to date, and contain such concise information covering the territory of this Canada of ours that it keeps one posted on the great advancement and progress which is being made."

Reduction in Elevator Charges. The Dominion Grain Commission has eliminated the charge of 1% for shrinkage on tough and damp grain, from the general tariff, and has reduced the charge for bin-burned and heated grain to ¾c.

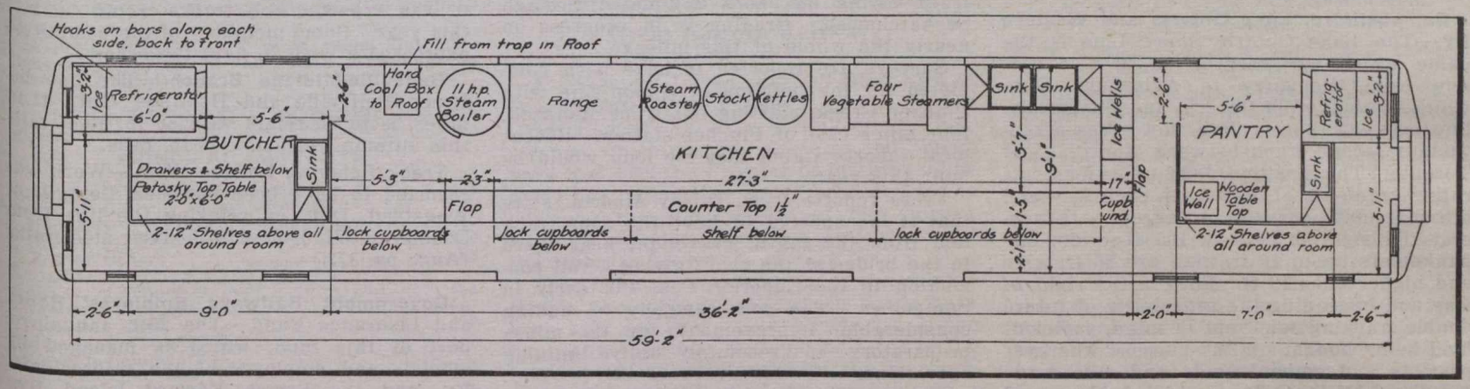
Military Commissary Kitchen Cars on the C.P.R.

In the transporting of troops from various points to the concentration camp at Valcartier, Que., a big problem was presented, for while the transportation itself was a considerable task, the problem of feeding the men through the journey presented greater difficulties, as none of the existing railway equipment could be directly used for the service, the dining car service being entirely inadequate and unsuited to the requirements. The C.P.R. solved the difficulty by converting 12 standard 60 ft. baggage cars into commissary kitchen cars. This conversion was made at the company's Angus shops, Montreal, to the designs of W. A. Cooper, Manager, Sleeping, Dining and Parlor Cars and News Service, and under his personal supervision. The layout of the cars is shown herewith.

Essentially, each of the cars is a well appointed hotel kitchen on wheels, and comprises three main sections, kitchen proper, butcher shop and pantry. The interior corridor arrangement resembles the company's compartment cars, as from each end the passage leads from the central entranceway and along a 2 ft. 1 in. corridor on one side of the car. The two baggage door openings on the corridor side are fitted with permanent screens for ventilation purposes, and the similar openings on the other side have been blocked up.

The butcher shop and pantry are in partitioned off rooms, while between the two car three tanks of water, giving a total capacity of 1,490 imp. gals. All the sinks have a supply of both hot and cold water. The windows and doors are equipped with screens, to keep out insect pests.

For serving the meals the orderlies from each company file in from one end of the car, line up in front of the counter, are allotted the portions for their men, and pass out of the other end as rapidly as served. The operation of the car is said to be most satisfactory, exceeding the expectations, the capacity of each car being 1,000 meals, three times a day. The crew consists of 12 men in charge of a steward, one of the twelve being a boiler man, and the others cooks.



Military Commissary Kitchen Car on Canadian Pacific Railway.

is the main part of the kitchen, 36 ft. 2 ins. long. Along the corridor side of this kitchen is a full length counter, with two flap entrances, with cupboards and shelves below, through the full length. Along the blind wall of the car is arranged the cooking apparatus, consisting of steam roaster, 2 stock kettles, 4 vegetable steamers, a large range, and other facilities. These are nearly midway in the kitchen proper, with two sinks at one end and an 11 h.p. vertical steam boiler, with adjacent hard coal bin, at the other end, for supplying steam to the cookers.

The butcher shop contains a large table, 2 by 6 ft., with a sink in one corner, the rear corner being occupied by a 6 by 3 ft. 2 in. refrigerator, wherein the meat is kept fresh. The pantry at the other end of the car contains a table, sink and a smaller refrigerator. It has two 12 in. shelves all round the room.

The agateware plates used are suspended from the roof, and the shelves and cupboards under the counter are used for storing plates, saucers and dishes of various kinds, and also the knives, forks and spoons. The orderlies' soup and coffee carrying cans are suspended directly over the counter. Vegetables are stored in boxes underneath the car. In addition to an overhead storage of water, there are suspended beneath the

Railway Finance, Meetings, Etc.

Buffalo and Lake Huron Ry.—The available balance for the half year ended June 30, including the amount brought forward from the previous half year, is £15,020, after providing for the interest on the first and second mortgage bonds. From this amount the usual dividend of 5s. 3d. a share, amounting to £13,784, will be paid, leaving a balance of £1,235 to be carried forward to the current half year's account. This railway is operated under lease by the G.T.R.

Canadian Pacific Ry.—A notice has been issued, advising those who hold shares, which may still be registered in the names of German or Austrian subjects, to communicate with the company's London office with regard to the payment of dividends. This is following on the British Government's instructions that dividends which may be payable to German or Austrian subjects shall be withheld by the various companies concerned, and not paid to the holders of such shares, nor to their order.

Central Ry. of Canada.—There has been deposited with the Secretary of State at Ottawa a mortgage deed upon the company's undertaking and assets, made with the City Safe Deposit and Agency Co., London, Eng.

Dominion Atlantic Ry.—A special meeting of shareholders will be held in Montreal, Oct. 6, to consider the advisability of leasing the Intercolonial Ry.'s Windsor branch, and to approve and confirm the lease. The Windsor branch has been for years operated by the D.A. Ry., under an agreement with the Department of Railways on a percentage basis.

Grand Trunk Pacific Ry.—There has been deposited with the Secretary of State at Ottawa a mortgage deed made between the company, the Royal Trust Co., and the Crown, securing an issue of the company's bonds which have been guaranteed by the Dominion Government, under the provisions of the Act of Parliament of last session.

Grand Trunk Ry.—In accordance with the Grand Trunk Act of 1914, the company's accounts are now being made up annually to Dec. 31 in each year, instead of semi annually, but the directors are empowered to declare an interim dividend for the first half year, as they may deem advisable, thus following the practice of other railways. They have accordingly declared the full dividend on the 4% guaranteed stock for the half year ended June 30, payable Oct. 31.

Klondike Mines Ry.—The officers and directors for the current year, elected at the recent annual meeting at Ottawa, are: President, H. B. McGiverin; Vice President, J. P. Ebbs; Secretary, A. Haydon; other directors, J. Latta and C. G. Kekewich.

Lake Erie and Northern Ry.—A meeting of shareholders will be held in Montreal, Oct. 5, to approve resolutions cancelling a mortgage of $500,000, securing second mortgage bonds, and to issue other bonds to secure further construction, to be secured by a new mortgage. This is necessary owing to the leasing of the line to the C.P.R. for 999 years at a rental equal to the interest on bonds issued or to be issued by the company. The shareholders will also be asked to approve of the lease, which will also be approved at the annual meeting of C.P.R. shareholders to be held Oct. 7.

Montreal Central Terminal Co.—There has been deposited with the Secretary of State at Ottawa a mortgage deed upon the company's undertaking and assets, made with the City Safe Deposit and Agency Co., London, Eng.

Temiscouata Ry.—Net earnings for July, $6,208.

Toronto Terminals Ry. Co.—The annual meeting was held at Montreal, Sept. 8. Following are the directors for the current year: H. G. Kelley, President; D. McNicoll, Vice President; J. W. Leonard, Managing Director; Sir Thos. G. Shaughnessy, E. J. Chamberlin, J. E. Dalrymple. The other officers are: H. Philips, Secretary; H. E. Suckling, Treasurer; W. H. Ardley, Auditor; W. C. Chisholm, General Solicitor; J. R. W. Ambrose, Chief Engineer.

White Pass and Yukon Route.—Gross earnings from Jan. 1 to Aug. 21, $1,078,882, against $602,616 for same period 1913.

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

	Acres.
Calgary and Edmonton Ry.	1,440.00
Canadian Northern Ry.	109.34
Canadian Pacific Ry. grants	15.26
Canadian Pacic Ry. roadbed and station grounds	26.75
Total	1,591.35

Canadian Pacific Railway Construction, Betterments, Etc.

Atlantic Division.—The fireproof elevator, with 1,000,000 bush. capacity, at West St. John, has been completed.

At McAdam Jct. the new machine and erecting shop and about a mile of additional storage tracks have been completed.

Eastern Division.—Work is reported to be in progress on the new freight sheds at the Palais, Quebec, where there are to be built two sheds, one 500 by 50 ft., and the other 360 by 55 ft. The buildings are to be fireproof and the contract calls for their completion, Nov. 1. Downing and Cork, Montreal, are the contractors.

Ontario Division.—We have been officially advised that the company has no immediate intention of extending the Georgian Bay and Seaboard Ry. from Bethany Jct. to Belleville, Ont., on the Campbellford, Lake Ontario and Western Ry., or of building an extension of the latter from Shannonville into Kingston, as stated in press reports. The extensions have been surveyed and plans are said to have been filed.

The first half of the rebuilding of the bridge across the Humber River between Lambton and Islington has been completed, and traffic was shifted over to it from the old bridge, Sept. 21. The superstructure of the old bridge was being removed, Sept. 22, preparatory to raising the old piers, and completing the new piers so as to take the new superstructure.

Campbellford, Lake Ontario and Western Ry.—The Lake Ontario Shore Line is the name which has been given to this new line from Glengarry to Agincourt, Ont., which, with the old Ontario and Quebec Ry. line between those points, now gives a continuous second track between Montreal and Toronto. The new line, 182.6 miles long, has ruling gradients of only 0.4% each way and the maximum curve is 4 degrees. In general the right of way is 100 ft. wide, embankments up to 16 ft. high are 16 ft. wide and higher ones 18 ft. Both in the right of way and in grading the probability of future double tracking was kept in mind, sufficient land being bought for the purpose wherever possible and embankments and cuts made for the additional track. All bridges and culverts are of steel and concrete. The principal steel structures are those over the Ganeraska River and the town of Port Hope, 1,800 ft. long; over the Trent River and Canal at Trenton, 1,493 ft. long; over Mud Lake, 964 ft. long, and over Dixie Creek, 916 ft. long; most of these are viaducts with few spans exceeding 90 ft. in length. At Mud Lake, in order to secure a solid foundation, it was necessary to carry the centre pier down to 103 ft. below the water level to reach bed rock; another pier had to be carried down 56 ft., and a third 30 ft.; these three piers were sunk under air pressure, using reinforced concrete caissons with steel cutting edges. Quantities of material used in the work include 7,500,000 cu. yds. of grading, of which 1,300,000 were solid rock, 100,000 yards masonry, and 15,200,000 lbs. steel. The cost was about $11,000,000, or approximately $60,000 a mile, and conformed closely to the estimates made before the work began.

Saskatchewan Division.—The Board of Railway Commissioners has authorized the opening of the Weyburn West branch line between Shaunavon and Gowanlock, Sask., mileage 230.8 to 307.3.

Grading on the extension of the line from Moose Jaw, now terminating at Expanse, has been in progress for some time, about 15 miles having been graded southerly from Expanse by Dubbin and Timson. These contractors were reported recently to be grading on an eight mile section from Assiniboine towards the point reached from Expanse.

The Minister of Railways has approved of a revision of the Swift Current southeasterly line from tp. 11, range 10, west 3rd meridian to tp. 15, range 27, west 2nd meridian, 85 miles.

We are officially advised that, while the route map for a projected line between Dunelm and Instow, Sask., has been approved by the Minister of Railways, it is not contemplated to undertake its immediate construction. Dunelm is nine miles from Swift Current, on the line southeasterly to Vanguard, and Instow is about 28 miles south of Gull Lake, on the main transcontinental line.

Alberta Division.—The Board of Railway Commissioners has authorized the opening for traffic of the Lacombe easterly branch from Monitor to Kerrobert, mileage 149 to 221.3.

The extension of the line easterly from Stirling to the Alberta-Saskatchewan boundary, which is being built as the Weyburn-Lethbridge line, and is now completed and in operation to Foremost, is being pushed ahead from the latter point. G. H. Webster has the contract for grading some 25 miles. This will leave a gap of about 60 miles to the boundary line, to which point track laying has been completed through Saskatchewan. Grading is in progress on nearly the whole of this mileage.

Surveys are reported to have been completed for the building of a loop line with Pincher Creek, starting out from Mannsell, four miles east of Pincher station. Recent local reports stated that the loop would be built this year.

Press reports from Taber, Alberta, state that it is expected to have the spur track laid from the C.P.R. gravel pit near there to the bridge at the river, giving a rail connection to the Superior Coal Co. early in September. The coal company is making considerable improvements at its mines preparatory to resuming active mining operations.

Rogers Pass Tunnel.—Press reports state that at Sept. 10 the progress made at the eastern side of the tunnel at Rogers Pass was as follows:—Pioneer heading, 4,107 ft.; main heading, 1,127 ft.; west side, pioneer heading, 1,127 ft.; main heading, 406 ft. This is considered to be good work when the extreme difficulties are considered.

A tri-weekly train service has been put in operation on the Alberta Central Ry. from Red Deer, on the Calgary and Edmonton branch, C.P.R., to Rocky Mountain House, Alberta, 73 miles.

Kootenay Central Ry.—Track has been laid on over 30 miles of grading beyond Spillimacheen, B.C., on the uncompleted middle section of this line, and it was announced that a train service would be put on 27 miles of this track, Sept. 27. The entire line will extend from Golden, on the main transcontinental line to Coalmount on the Crowsnest Pass line, 160 miles. Spillimacheen, to which point trains are in operation, is 40 miles from Golden. The line is finished from Coalmount northerly for about 40 miles, but has not been opened for traffic. (Aug., pg. 357.)

C. T. Ridalls, Car Foreman, C.P.R., London, Ont., writes:—"Canadian Railway and Marine World is the most reliable paper I receive and I would not be without it."

Railway Route Maps Approved.

The Minister of Railways has approved of route maps as follows:—

Canadian Pacific Ry., Aug. 26.—Revision of Swift Current south easterly line from tp. 11, range 10, west 3rd meridian to tp. 15, range 27, west 2nd meridian, 85 miles.

Canadian Northern Ry., Aug. 26.—Revision of North Battleford—Athabasca Landing line, between tp. 51, range 21, west, and tp. 55, range 24, west 3rd meridian, 33.46 miles.

Canadian Northern Manitoba Ry., Aug. 26.—Through tp. 28, ranges 8, 9 and 10 west principal meridian, Man., 12.37 miles.

Edmonton, Dunvegan and British Columbia Ry., Aug. 26.—Revision in tp. 77, range 19, west 5th meridian, and from tp. 78, range 25, west 5th meridian, to tp. 78, range 7, west 6th meridian, 75 miles.

Grand Trunk Railway Betterments, Construction, Etc.

Bonaventure Station, Montreal. — The Board of Railway Commissioners, Sept. 15, authorized the company to lay two additional tracks from St. Henri into Bonaventure station, Montreal. In granting the application the Board directed that the laying of the additional tracks is to be without prejudice to the city's rights in connection with the track elevation plans under consideration. It was stated at a meeting of the City Council Railway Committee that it was expected the tracks would be laid this year. Some members of the committee expressed a wish to fight the order.

Belleville-Midland Branch. The line between Belleville and Hastings, Ont., 41.10 miles, is to be relaid with 80 lb. steel rails this autumn, releasing 56 lb. rails.

Track Relaying London West.—Work was reported to have been resumed, Sept. 1, at Wanstead, Ont., on relaying the line from London to Windsor, with heavier steel rails. (Aug., pg. 372.)

Government Railways Employes' Relief and Insurance Fund.—The 25th annual report of this fund, which is managed by officials and employes of the Intercolonial Ry. and the Prince Edward Island Ry., shows a credit balance for the year ended June 30 of $47,468.35, against a credit balance of $39,714.53 at June 30, 1913. The receipts from all sources were $94,779.23, and the total expenditures $87,025.46. The sick and accident fund shows a credit balance of $19,425.90; the temporary employes' accident fund a surplus of $20,672, and the death and total disability fund shows the total claims paid for the year were $40,000.

The International Brotherhood of Maintenance of Way Employes held its annual convention at Winnipeg in September. Over 400 delegates were present. A. E. Barker, Portage la Prairie, Man., was elected Grand President. Other Canadians elected to office are: H. Owen, Portage la Prairie, Man., a Vice President; G. Seal, Portage la Prairie, Secretary-Treasurer; R. Low, Windsor, Ont., Past Grand President; M. J. Powers, Toronto, Past Grand Vice President; W. Dorey, Woodstock, N.B., W. V. Turnbull, St. John, N.B., members of advisory board. The next convention will be held at Detroit, Mich., in 1917.

Change in G.T.R. Car Steps.—The G.T.R. and G.T.P.R. have adopted a new design for car steps, viz., a 4 tread step, which reduces the distance from the rail to the top of the first tread to 14 ins., making mounting and dismounting easier in the case of low platforms.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

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

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PRINCIPAL CONTENTS.

Pushing the Canadian Northern Railway Transcontinental Line to Completion.

It is gratifying to note that the war has not made any appreciable difference in regard to the construction of the C.N.R.'s main transcontinental line. The construction forces have not been reduced, except as sections have been completed, and there has been no slackening of speed in the carrying on of the work.

It will be remembered that out of the $45,000,000 of debenture stock guaranteed by the Dominion Government at its regular session in June, $15,000,000 was offered to the public in England in July. This issue had only been offered for about a day when war was declared and in that time 21% was subscribed for by the public, a pretty good indication that the whole of it would have been taken in the three days during which the subscription lists were announced to be open, had not war broken out. The whole issue had of course been underwritten, and the underwriters have not taken undue advantage of the British moratorium, but have already paid over practically the whole amount of the issue.

At the time of writing there is every prospect that very nearly the whole of the track will be laid on the entire main line from Montreal to New Westminster by the end of this year and that what little tracklaying may then remain uncompleted will be finished very soon thereafter.

No Stoppage of Work on the Pacific Great Eastern Railway.

A statement issued over the signature of D'Arcy Tate, Vice President of the Pacific Great Eastern Ry. says:—"Following a conference which Messrs. Stewart and Welch have had with the Premier of British Columbia, I beg to say that it has been decided to continue the construction of our railway without reducing the force on account of the outbreak of war

"The Premier was strongly of the opinion that in view of the fact that our bonds have been sold and that the proceeds are in the bank at Vancouver, it would be most in the interest of the public and of the workingman, who still requires his three meals a day, to prosecute the work as vigorously as possible. 'Full speed ahead' he urged and so it was decided."

Particulars of the progress of construction on this line, which is being built from Vancouver to Fort George, B. C., about 480 miles, will be found under "Railway Development" on another page of this issue.

An Unfounded Report About Train Service Reduction.

The following Canadian Press dispatch was published in a lot of daily papers:—

"London, Ont., Sept. 7.—It was reported here today that commencing a week from today, the C.P.R. is to do away with eight passenger trains on the Ontario division for an indefinite period. The move is ascribed to a falling off in traffic owing to the war. Two trains passing through London are said to be affected."

Such a report as the foregoing spread all over the country does a lot of harm, creating an entirely erroneous impression. As a matter of fact, we are officially advised that under the new time table the only trains to be taken off are nos. 7 and 8 between Toronto and Winnipeg, which had not been established as permanent trains, both being merely in the experimental stage. None of the trains passing through London are interfered with.

The Canadian Press, Limited, would do well to caution its correspondents to exercise more care in the preparation of their dispatches and not to send out foundationless stories.

Dominion Public Works to Go on Without Interruption.

A special dispatch from Ottawa says:—"The government is preparing for the exigencies of the coming winter by making arrangements for the continuance of all big public undertakings now under way. In so far as weather conditions will permit operations will be maintained all winter.

"At Halifax extensive terminals of the Intercolonial Railway and a new entrance of that road are being built. At St. John, N.B., the extensive harbor improvements at Courtenay Bay are going ahead and Quebec, Montreal and Toronto have similar big jobs in progress.

"Then there are the Welland Canal works, the Port Arthur and Fort William works and new docks and harbor works at Vancouver and Victoria, along with the Hudson Bay Ry., and a long list of minor works. Some of these will necessarily be affected to a certain degree anyway by the winter weather, but the general intent is to keep large staffs at work, thus ensuring employment and the circulation of public money."

Reflections on the European Crisis With Regard to Canadian Industries.

By H. R. Hamer, Assistant General Foreman, Locomotive Shops, C.P.R., West Toronto.

Not very long ago, when Great Britain, in common with her allies, declared war on Germany, there were many pessimists in this country who predicted a complete cessation of industrial activities. The pessimist will point out that a great amount of short time prevails, but while admitting this statement to be true, the writer would reply that this state of affairs existed long before the outbreak of war.

At the same time there is room for great improvement in the industries of this country, and it may be said without fear of contradiction, that with Germany excluded from our markets many products heretofore bought from Germany will be manufactured and sold in Canada. Indeed, the tendency (even before the spark which ignited the European conflagration was applied), was toward purchasing more of British, United States and domestic products. This is particularly true with reference to steel locomotive tires, machine tools, tool steel and railway supplies, etc.

The writer—to digress for a moment—has endeavored, by direct questioning of men interested in mechanical production, to come at the reason as to why all of the steel locomotive tires are purchased outside of Canada, and was very much surprised to find that the knowledge of this subject was so limited. Surely there is enough demand in Canada for this commodity to warrant the equipment of a plant to manufacture steel tires. Or if it should prove impracticable to make this article in the Dominion, it would be more in keeping with an imperial spirit to open our doors wider to the exports of Great Britain. In the event of Britain not being able to supply the demand, then let us turn to the country with whom we recently celebrated the completion of one hundred years of peace, rather than pour our money into the coffers of a country, whose sole aim for over twenty years past appears to have been militarism.

But to return to the main subject. Since the opening of hostilities the united press

of Canada has done much, through the individual papers' editorial columns, to calm the fears of the small manufacturers, and this, coupled with the national patriotic spirit, has conduced to steadying what otherwise might have been an industrial panic. Indeed, one may say, that, with the revival of trade, Canada will benefit, together with the United States, in view of the fact that a wider field of industry will be open to them. Many Canadian producers are recognizing the fact, in common with their southern neighbors, that this is an opportunity, to be secured only by prompt action, and diligent application in commencing at once to build up in their respective countries those lines of industry which the German manufacturers previously monopolized.

While pointing out the foregoing, the writer would say that a mushroom growth of trade is not to be expected immediately, for to carry on some of the different industries new machinery must be built and operators trained to run it. As an instance of this, take the manufacture of toys. While admiring the quantity of work turned out in this direction by the German people (it may be stated that a large proportion of their toys are made by hand), it must be remembered that this work is carried on mostly by female and child labor, which tends to bring the cost of production to a very low figure. The large increase in cost which would attend such a venture in Canada would necessitate the finding of means whereby these toys could be manufactured by machinery. Hence the question of new machines.

In passing, it will not be out of place to remark on the falling off in the number of immigrants to this country. This is bound to be affected by reason of certain boats of the different shipping companies being taken over by the Government of Great Britain, as a direct result of the war, but the reader is asked to bear in mind, that with the number of unemployed at present in our cities a decrease in the number of people coming to this country to find positions is to be appreciated rather than otherwise.

In conclusion, the writer would say that, all things considered, Canadian industries look out on a much brighter prospect today than was the case at the corresponding period of a year ago. Prominent business men and manufacturers have come to the firing line, with their determination to make business, strengthened by the very fact that adverse conditions appeared to prevail. With this spirit predominant, our eventual success is assured, and it may be said with the utmost confidence that, with the return of normal conditions abroad, Canada will be one of the foremost competitors reaching out for foreign trade.

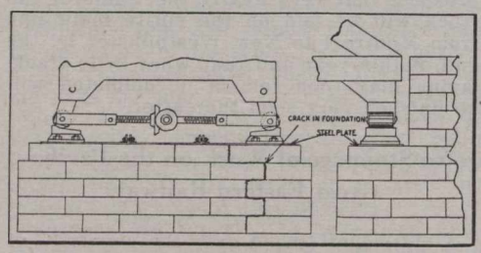
Alleged Frauds on the C. P. R.—About 20 persons, the majority of whom were C. P. R. conductors, with one information clerk, were committed for trial at Toronto, early in September, on a general charge of conspiracy to defraud the company. It is alleged that certain persons obtained tickets allowing them to travel between Toronto and West Toronto, where, on payment of $3 to the conductor, they would be allowed to proceed to Sudbury. The fare from Toronto to Sudbury is $7.70. It is stated that a considerable traffic was carried on in this way, and the company claims to have lost $1,000,000 a year by similar methods.

The President of the British Board of Trade stated in the House of Commons, recently, that he was directing all joint stock companies not to pay dividends which became due after the outbreak of war, to persons resident in the enemy's territories, nor in accordance with their instructions.

Repairs to Masonry on Canadian Pacific Railway Bridge at Sault Ste Marie.

On the end piece of a swing bridge crossing the ship canal at Sault Ste. Marie, Ont., a repair was recently made in a very efficient manner. The bridge is 407 ft. long, over which runs a single track for C. P. R. trains. The swinging and the end piece shoe-jacks operate by electric motors from a centre cabin elevated over the track. From time to time it was found that the bridge tended to tilt to one side, especially the south end, which is on a curve, and finally a serious crack developed in the masonry, which grew worse every day, and in order to keep the bridge safe we had to devise some kind of relief or safeguard to prevent a total rupture.

Arrangements had to be made to make the necessary repairs without interrupting the running of the trains on the track, and at the same time not to interfere with vessels passing through the canal. The accompanying drawing shows the crack in the masonry which amounted to fifteen-sixteenths of an inch, and also shows how the repairs were accomplished. A half inch steel plate was made in three sections, and drilled to



fit on the jackshoe bolts, and one jackshoe at a time was removed and the plate laid in place and the jackshoe replaced. When both plates were secured in position, the centre plate was put in and the bolts screwed down, and when all were in tension the masonry was drawn into its original position, while a mixture of cement was poured into the crack, which made a very good job, as the foundation is now apparently as good as could be desired, and safer than the original structure, as nothing short of an earthquake could move the steel plate that we added to the structure.

Not only so, but it is evident at a glance that a new idea has been added to structures of this particular kind. Masonry under direct vertical pressure is always reliable, but under slightly horizontal pressure of an intermittent kind, such as is caused by the oscillation of a heavy locomotive and attached train rounding a curve, the tendency of the masonry to crack or dislocate is very great, and a reinforcing plate should be used.—J. G. Koppell, electrician in charge of maintenance of electrical equipment, C.P. R. bridges, Sault Ste Marie, Ont., in Railway and Locomotive Engineering.

The International Railroad Blacksmiths' Association's 22nd annual convention was held at Milwaukee, Wis., Aug. 18 to 20, the members being received by local officials of the Chicago, Milwaukee and St. Paul Ry.

Among recent subscriptions to the Montreal Branch of the Canadian Patriotic Fund are:—Shedden Forwarding Co., $10,000; Hugh Paton, President, Shedden Forwarding Co., $10,000; H. S. Holt, director, C.P.R., $10,000; R. B. Angus, director, C. P.R., $5,000; Sir Thomas Shaughnessy, President, C.P.R., $5,000; C. R. Hosmer, director, C.P.R., $5,000; R. W. Reford Co., shipping agents, $5,000; Dominion Transportation Co., $2,500; John S. Metcalf Co., $1,000; J. Car-

The Canadian Pacific Railway Tunnel in the Selkirk Mountains.

A correspondent, who visited this work in British Columbia recently, writes: "By following the road leading from Glacier House to the Nakimu Caves, in the Cougar Valley, a capital view of the new route from where it branches from the present line near the loops can be obtained. From one point four railway tracks could be seen. Three were spirals, now used to climb from water level to the summit, circuitous courses notched out of the mountain side and carried on bridges across from one side of the valley to the other. The fourth was the route which veers off and runs to the site of the tunnel as direct as the physical contour of the valley will permit. Considerable excavation was required to obtain the right grade for entering the tunnel at the western portal, and a large amount of filling has to be done near the turning off point. The latter work has, with the exception of a small portion, been finished. An immense amount of rock and gravel has been scooped out by mammoth steam shovels.

"One of the most remarkable features was the diversion of the Illecillewaet River and the utilization of the old bed for the approach. A trench nearly a mile long was dug to divert the former channel of the river in front of the spot chosen for the entrance of the tunnel, and a culvert was built to run it back into its original course lower down. A similar feat was performed in the Beaver Valley to effect a similar purpose.

"Operations were commenced some time ago on the pioneer shaft at the western end, and three preliminary bores have been driven for the main tunnel. The pioneer bore consists of an entirely separate tunnel driven in a line 50 ft. parallel with the course of the main passage through the mountain. The idea is to permit drillers to concentrate their activities at a dozen different points at once instead of having to confine their efforts to one place, as with the usual method. Drifts are projected from the preliminary shaft in the direction of the main tunnel. At the west side of Mount Macdonald the pioneer bore enters the slope several hundred feet above the cutting. It takes a downward course like the shaft of a mine for the first 300 ft. on a 50% grade. Then it goes straight forward and ahead to the mapped out course parallel with the main tunnel. Within the next few weeks the bores from the west end will be well under way. The pioneer shaft at the eastern portal is now 3,000 ft. into the heart of the mountain, and nearly 1,000 ft. of the main tunnel has been driven.

"An interesting feature of the boring operations in the soft material at the start of the main tunnel at the western end is the use of hay to knit together the earth and water which oozes forth as the excavation proceeds. The hay is placed in handfuls between the wooden supports used to keep the preliminary shafts from falling in. Three of the bores had been started when the writer visited the scene, and it was intended to drive two more before clearing out the tunnel to its full width. A steam shovel will be used for this work until rock is reached, when drills will be used. Work is provided at present for about 600 men at the two camps."

R. S. Richardson, Assistant Superintendent, Intercolonial Ry., Moncton, N.B., in remitting his renewal subscription, says: "Your paper is a very welcome visitor. It is like getting a letter from home each month."

Canadian Northern Railway Construction, Betterments, Etc.

Sir William Mackenzie is reported as having stated, Sept. 5, that the British underwriters of the C.N.R. bonds guaranteed by the Dominion Government, had been able, notwithstanding the war conditions, to arrange for the provision of a considerable portion of the funds required to complete the company's transcontinental line and other works on hand. Sir Donald Mann returned east from a trip over the company's lines under construction as far as Victoria, B.C., and was reported to have said in Montreal, Sept. 18, that construction was proceeeding satisfactorily at all points.

Transcontinental Line. There is now continuous track between Pembroke, Ont., and about 40 miles west of the Yellowhead Pass, in British Columbia, and good progress is being made with the balance of the line. Between Montreal and Hawkesbury, Ont., grading is completed and about 34 miles of track laid. The Back River and Isle de Mille bridges are under construction and are to be completed this year, and the whole of the grading, track laying and ballasting is expected to be done this year. From Hawkesbury the line is completed to Fitzroy Harbor, about 40 miles west of Ottawa. Work has been started on the superstructure of the 1,700 ft. bridge over the Ottawa River, which is expected to be completed in February next. From Fitzroy Harbor to Portage du Fort, about 22 miles of grading have been completed, and track laying and ballasting is to be finished this year. At Portage du Fort, where there is another crossing of the Ottawa River, the bridge is practically completed. From Portage du Fort to the bridge crossing of the C.P.R., about 7 miles east of Pembroke, 18 miles, track has been laid and ballasted, so that the line has been completed from Ottawa to near Pembroke, about 87 miles, except the bridges at Fitzroy Harbor and the crossing of the C.P.R. near Pembroke. The substructures of the bridges at the crossings of the Montreal River and of the G.T.R. at Pembroke are completed. From Pembroke track has been laid to Capreol, the junction with the line from Toronto, and from Capreol west there is continuous track to 40 miles beyond the Yellowhead Pass in British Columbia.

Rapid progress is being made on the Canadian Northern Pacific Ry. in British Columbia. From the present coast terminus at New Westminster track has been laid to east of Cisco bridge, about 141 miles. Between Cisco and Kamloops, about 100 miles, there are 10 large bridges over the Fraser and Thomson Rivers, all but two of which are in place and these are being proceeded with. From Kamloops track has been laid both ways, viz., about 15 miles west and about 130 miles east. From Yellowhead Pass track has been laid for about 40 miles west, leaving a gap of about 170 miles between that point and the end of steel being laid east from Kamloops. The grading of the whole line in B.C. is practically completed, except one small tunnel and two cuttings, and it is expected that the whole of the track from New Westminster to Yellowhead Pass will be laid by Feb., 1915, or possibly earlier.

Montreal Tunnel and Terminal Co.—The plans for the temporary station to be erected on Lagauchetiere St., Montreal, which have been prepared by Warren and Wetmore, New York, provide for a three story building—one story being below the street level—of steel and concrete, having a frontage of 150 ft. and a depth along St. Monique St. of 100 ft. The front will be set back 12 ft. from the sidewalk. Seven swing doors will lead into a vestibule, 21 by 100 ft., at the end of which will be the general waiting room, 60 by 100 ft. and 30 ft. high. On one side will be the baggage and express rooms, and on the other ladies' toilet rooms and men's smoking room. The remainder of the ground floor will be laid out for the company's purposes, and the operating offices will be upstairs. There will be three platforms, serving six tracks, which will form part of the trackage of the permanent station. When this is built the present building will be used for other purposes. The cost of the building is estimated at $250,000, and it is said that it will be ready for occupation by next spring. It is said that tenders are expected to be called for during October.

Canadian Northern Ontario Ry.—A contract has been let for the erection of a cooling plant at Trenton on the Toronto-Ottawa line.

The city of Hamilton is reported to have abandoned its objection to the route asked for through the north end of the city, and to be anxious to have construction work started. The route to be followed from Hamilton will connect with the Toronto-Niagara Power line, following it to Falls View, thence circling Niagara Falls city to a point below the whirlpool, where it is proposed to build a bridge across the river to the United States side.

It is expected that a freight service will be started on the main transcontinental line north of Lake Superior from Capreol, Ont., the junction with the line from Toronto, through to Port Arthur, before the end of this year.

Canadian Northern Ry.—The relaying of the Winnipeg-Emerson line with 90 lb. steel is reported completed, and the ballasting almost finished. The track in Saskatchewan is also being relaid with 90 lb. steel, The section on which work is now in progress is between Roblin and Kamsack. It is expected that about 300 miles of track will be relaid with the heavy steel this season. The released 60 lb. steel is being laid on new branch lines.

Grading is reported started by W. J. Cowan, and a number of subcontractors, south of Kindersley, Sask., on the Delisle extension, which it is ultimately intended will connect at Camrose, Alberta. The line will follow the South Saskatchewan River, on the north bank, to the Alberta boundary, where it will turn north. Seven contracting outfits are reported to be at work on the extension.

The Provincial Secretary of Alberta is reported to have said recently that a contract had been let to the Northern Construction Co. for the building of the line southerly from Macleod, and that the McArthur Construction Co. had been given a contract for building about 25 miles to St. Paul de Metis, on the Oliver branch.

Vancouver Terminals.—We are officially advised that there is no foundation for the reports that plans had been filed for a tunnel from Burrard Inlet to the yards now being laid out at False Creek, Vancouver At present there is no definite information available as to what work is to be done at that point. One of the works to be done is the building of a retaining wall, for which negotiations are in progress with the city council, but we are advised that the details of the agreement have not been worked out, and that the plans have not been prepared, as stated in recent press reports.

Vancouver Island Lines.—It is reported that 100 miles of grading from Parson's Bridge to near the Nitinat River, has been completed and, with the exception of the bridges, is ready for tracklaying. The steel bridges are to be put in as the track is laid at mileages 54, 68, 73, and 75. The grading from mileage 100 to the Alberni Canal, mileage 136.5, is expected to be finished by the end of the year.

The line from Parson's Bridge to Patricia Bay has been graded and is ready for tracklaying, with the exception of the putting in of the steel superstructures of the bridges. Tracklaying is expected to be started on this and the Alberni line in October.

The plans for the wharf at Patricia Bay provide for a dock 441 by 61 ft., with an approach pier, 1,700 ft. long. From Patricia Bay a ferry will be operated to connect with the company's transcontinental line on the mainland. (Aug., pg. 374.)

Grand Trunk Pacific Railway Annual Meeting.

At the annual meeting in Montreal, Sept. 15, President E. J. Chamberlin, who was in the chair, referred to the death of three directors during the preceding 12 months, viz.: Hon. G. A. Cox, W. Wainwright and M. M. Reynolds, and to the retirement, through ill health, of B. B. Kelliher, who was engaged on the preliminary surveys in 1903 and was appointed Chief Engineer in 1905, since when 3,000 miles of railway have been built by the company west of Winnipeg. The present year saw the opening of the line through to the Pacific Coast, and, on Sept. 2, through sleeping car service was established between Edmonton and Prince Rupert. Good progress was reported on the floating dry dock and ship repairing plant at Prince Rupert, a section of which is expected to be ready by the end of November, for repairs to local craft.

The directors for the current year are: E. J. Chamberlin, President; W. H. Biggar, K.C., Vice President and General Counsel; J. E. Dalrymple, Vice President; F. Scott, Vice President and Treasurer; W. H. Ardley, General Auditor; A. W. Smithers, Sir Henry M. Jackson, J. A. Clutton-Brock, Sir Wm. Lawrence Young, H. G. Kelley, E. B. Greenshields, Hon. R. Dandurand, W. M. MacPherson, H. R. Safford and J. R. Booth. The other officers are M. Donaldson, Vice President and General Manager; H. Philips, Secretary; and J. A. Yates, Assistant Treasurer.

Master Car Builders' Association. The following railway officials in Canada have been appointed members of the M.C.B.A. committees:—H. H. Vaughan, Assistant to President, C.P.R., Montreal, car construction; J. Coleman, Superintendent, Car Department, G.T.R., Montreal, arbitration and car trucks; R. W. Burnett, General Master Car Builder, C.P.R., Montreal, car wheels and joint meetings; E. B. Tilt, Engineer of Tests, C.P.R., Montreal, specifications and tests for materials; A. Copony, Master Car Builder, Western Lines, G.T.R., Chicago, specifications and tests for materials; L. C. Ord, Assistant Master Car Builder, Eastern Lines, C.P.R., Montreal, car trucks; H. G. Griffin, General Car Inspector, settlement prices for reinforced wooden cars.

Cuba Rd.—The gross earnings for the year ended June 30 were $5,164,670, and the net income, exclusive of dividends, $1,516,505, against $1,029,258 and $37,448 respectively in 1905, and $2,559,335 and $672,089 in 1910. During last year 6% was paid on the preferred stock, and 6% on the common stock, against a previous 6% and 4% respectively. Sir William Van Horne is President.

Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Great Waterways Ry.—Press reports state that up to Sept. 1, grading had been completed on 95 miles from the point of junction with the Edmonton, Dunvegan and British Columbia Ry., and that 25 miles of track had been laid. The line has been located to Fort McMurray, 180 miles, and it is expected to complete the track laying to Lac la Biche this year. J. D. McArthur, the general contractor, is reported to have said in Edmonton, Aug. 29, that the grading would be completed to Lac la Biche by Oct. 31, and would be continued beyond that place as long as the weather conditions would allow. The line to Fort McMurray he expected would be completed by the end of 1915. (Sept., pg. 418.)

Application is being made to the Alberta Legislature for authority to build a branch from the line now under construction from Lac la Biche, in a generally southeasterly direction to the eastern boundary of the province.

Athabasca Valley Ry.—Application is being made to the Alberta Legislature for an extension of time for the building of this projected railway from near Independence, on the Edmonton, Dunvegan and British Columbia Ry., to Fort Assiniboine, Alberta. J. D. McArthur, contractor for the E.D. and B.C. Ry., and the Alberta and Great Waterways Ry., is the principal promoter of the line. (Dec., 1913, pg. 573.)

Burrard Inlet Tunnel and Bridge Co.—At the annual meeting in Vancouver, B. C., Sept. 10, the following were elected officers and directors for the current year:—President, F. Carter-Cotton; Vice President, Reeve May, North Vancouver; other directors: the Mayor of Vancouver, the Mayor of North Vancouver, the Mayor of West Vancouver, G. W. Vance, G. H. Bridgeman, J. Loutet.

It was expected that the report of R. Mojeski, who has been called in as consulting engineer, upon the three tenders under consideration would be laid before the directors by Sept. 30. He has completed his examination of the plans for the bridge submitted by the firms tendering, made an inspection of the site, and examined the data prepared in connection with the Wolfe-Barry plans for the bridge, which were found to be too expensive. (Sept., pg. 418.)

Dominion Government Ry. to Hudson Bay.—It is reported that operations are being continued without cessation on this line from Pas to Port Nelson, Man., on Hudson Bay, and that good progress is being made not only with the grading and bridgework, but with the tracklaying, and the laying out of the terminals at Pas and Port Nelson. (Aug., pg. 375.)

Edmonton, Dunvegan and British Columbia Ry.—The Minister of Railways has authorized a revision of line in tp. 77, range 19, west 5th meridian, and from tp. 78, range 23, west 5th meridian to tp. 78, range 7, west 6th meridian, 75 miles.

Press reports state that up to Sept. 1 over 70% of the grading had been completed between Sawridge and the proposed crossing of the Big Smoky River, 133 miles. This latter point is about 290 miles from Edmonton, the starting point of the line. (Sept., pg. 413.)

Erie and Ontario Ry.—Rapid progress is being made, according to local press reports, with the building of this railway from Smithville, Ont., on the Toronto, Hamilton and Buffalo Ry., to Dunnville, 15 miles. The fencing is well forward and three large gangs are engaged on the grading, which involves handling about 8,000 cu. yd. to the mile. The maximum grades will be 0.4% and maximum curvature 3 deg. on the main line and 8 deg. on branches to the terminals. Connection has been made with the Michigan Central Rd., at Attercliffe, by switch, and rails, ties and other materials are being delivered. The plans call for building an 87 ft. steel bridge over Twenty Mile Creek; two 160 ft. trestles over Welland River and Oswego Creek, and a passenger station with a freight shed at Dunnville. It is expected to start tracklaying early in October.

The final section of the line to Port Maitland, 4.5 miles, will not be gone on with before next spring. It will involve the building of a bridge across the Grand River in Dunnville. (Sept., pg. 418.)

Intercolonial Ry.—The ratepayers of Moncton, N. B., voted Aug. 31, on the agreement proposed to be entered into between the city council and the I. R. C. relative to the elimination of level crossings in the city, and approved by a majority of 434. The agreement will now be finally approved by the City Council, and the Department of Railways. It is expected that an announcement will be made on an early date as to when the work will be put in hand.

Tenders are under consideration by the Department of Railways for the works at the new steamship shed no. 2, in connection with the Halifax ocean terminals. (Sept., pg. 418.)

Lake Huron and Northern Ontario Ry.—We are officially advised that a contract for the extension of the old 17 mile line from Bruce Mines, Ont., northerly, has been let to the Ontario Northern Construction Co. The contract covers the entire work to be done, and is on a percentage basis. No time is specified for starting work on a large scale, but it is hoped that it will be actually undertaken next spring. It is stated that preliminary work, however, will be gone on with, and that some of this is already in hand. We are officially advised that new ties have been put in, along the whole 17 miles of the original line, and that the entire distance has been reballasted. This work was necessary, as owing to the long time the line was not being operated while it was in the hands of the receiver of the Bruce Mines and Algoma Ry. it got into a badly run down condition. G. P. McCallum is President, and H. Appleton, Vice President and General Manager, Bruce Mines, Ont. (July, 1913, pg. 33*.)

Miramichi Bay Shore Ry.—Press reports state that engineers have completed a survey for this projected railway from Newcastle to Tracadie, N. B., where connection would be made with the Caraquet and Gulf Shore Ry. (May, pg. 214.)

Pacific Great Eastern Ry.—The Minister of Railways for British Columbia has authorized the opening for traffic of the line from Lonsdale Ave., North Vancouver, to Horse Shoe Bay or Whitecliffe, 12.7 miles. The line is under construction from this point to Squamish, and is in operation for nearly 20 miles out of that place, and tracklaying is being proceeded with in the direction of Lillooet, 120 miles from Squamish, to which point grading is fully completed. The track laying and ballasting on this section is expected to be completed by Dec. 30.

J. W. Stewart, President, and P. Welch, representing the general contractors, completed a trip of inspection over the work, Sept. 8. The former is reported as stating that the company is well supplied with funds, and that, provided men can be obtained, the construction gangs will be increased.

The Minister of Railways has approved of route map for a branch line from near Fort George, to the vicinity of Davie Lake. (Sept., pg. 419.)

Pacific, Peace River and Athabasca Ry.—We are officially advised that the engineers in charge of the parties engaged in making surveys for this projected railway from the Naas River, B. C., to Prince Albert, Sask., as stated in our September issue, are:—Messrs. Wilson, Glover, Devey, Hunt, and Crawley. The company has not yet appointed a chief engineer.

Press reports state that about half the initial survey work has been completed, and that it is expected to have the whole route gone over by Nov. 30, and the office work on the reports completed so that the real work of locating the route may be started in the spring. (Sept., pg. 419.)

Pere Marquette Rd.—Press reports state that officials from Detroit, Mich., were in Sarnia, Ont., Sept. 15, arranging with the city council for the erection of a new station. It is stated that the city will provide a site on Clifford St., and that building operations will be started at once. (July, pg. 324.)

Van Buren Bridge Co.—The Board of Railway Commissioners has approved of location plans for the line for this company from the terminus of the International Ry of New Brunswick, in St. Leonard, N. B., to the International Boundary, in the middle of the St. John River, one mile. The State of Maine has approved of the location plans for the bridge and approach on the Maine side of the river in Van Buren, and for its connection with the Bangor and Aroostook Rd. R. Payson, 120 Exchange St., Portland, Me., is President. (Sept., pg. 419.)

Western Dominion Ry.—A start is reported to have been made on a 10 mile section of this projected railway. This section extends from Millarville in the direction of Calgary, Alta., as far as Priddis. Three routes have been located between this point and Calgary, but it had not been decided, Sept. 10, which one would be finally adopted. (Sept., pg. 419.)

Winnipeg.—The Commissioners of the Greater Winnipeg Water District have under consideration tenders for the supply of 8,000 ties for delivery at the terminus of its railway under construction, at Indian Bay, Shoal Lake, Man.

H. Reynolds, Chief Commissioner, returned to Winnipeg, Sept. 10, after a trip of inspection over the work in progress. Track has been laid as far as the Brokenhead River, and the grading work beyond is so far advanced that it is expected to have the line completed by Nov. 30.

It was reported at the meeting of the Commissioners, Sept. 11, that the railway was being operated from St. Boniface to the Brokenhead River, for the transportation of supplies. Over half of the grading has been completed for the entire mileage to Shoal Lake; 29% of the track has been laid, 6% of the ballasting done, and the residences for the divisional engineers at Deacon, Man., have been completed. Tenders for switches and frogs, from the Manitoba Bridge and Iron Works has been accepted. There have been delivered on the right of way 97% of the ties required, and 84% of the steel rails, with large quantities of other construction supplies. (Sept., pg. 419.)

Traffic Orders by the Board of Railway Commissioners.

The dates given for orders are those on which the hearings took place, and not those on which the orders were issued:—

Approval of C.P.R. Standard Freight Tariff.

22412. Aug. 17. Re application of C.P.R., under sec. 327 of the Railway Act, for approval of its Standard Freight Tariff, C.R.C. no. W. 1948, effective Sept. 1, to apply between its stations and ports of call in Ontario west of and including Port Arthur, Manitoba, Saskatchewan, Alberta and British Columbia. It is ordered that said tariff be approved.

Dock Facilities at Michipicoten, Ont.

22454. Aug. 14. Re application of Dominion Transportation Co., under sections 284 and 317 of the Railway Act, for an order directing the Algoma Central Ry. to permit the applicant company to continue to make use of the railway company's landing wharf or dock at Michipicoten, Ont. It is ordered that the railway company be directed to continue the use and maintenance of the said wharf facilities at Michipicoten to accommodate the traffic offering at that point. That Supplement 2 to Tariff C.R.C. no. 114 issued by the railway company May 1, 1913, effective June 5, 1913, be disallowed; and the railway company is directed to restore Tariff C.R.C. no. 114 issued April 8, 1911, effective April 24, 1911; the said restored tariff to become effective not later than Sept. 1, 1914.

Approval of G.T.P.R. Standard Freight Mileage Tariff.

22474. Re application of Grand Trunk Pacific Ry., under sec. 327 of the Railway Act, for approval of its Standard Freight Mileage Tariff, C.R.C. no. 22, applying between its stations in Ontario, Manitoba, Saskatchewan and British Columbia. It is ordered that the said tariff be approved.

Great Northern Railway Lines in Canada.

Vancouver, Victoria and Eastern Ry. and Navigation Co—Track laying is reported to be in progress beyond Coalmount to Brooks, B.C., where connection is made with the Kettle Valley Line, 27 miles, and it is expected to have the work completed early in October.

The new station building at New Westminster, for which plans have been submitted to the City Council, will be situated about 200 ft. from the present structure. It will be 72 by 32 ft., with an overhanging roof. The platform will be 200 by 12 ft. Work is reported to have been started.

Fraser River Bridge.—The British Columbia Government has for some time been carrying out considerable repair work on this bridge, over which the G.N.R. trains are run. The floor has been relaid and heavier steel is being laid in view of the increasing traffic. Repairs are also being made to the roadway, and the bridge is being repainted. (Aug., pg. 374.)

The Western Canada Railway Club has elected Louis Kon, Immigration Agent, Grand Trunk Pacific Ry., as Secretary, to succeed W. H. Rosevear, who resigned on his removal to Montreal. L. Lowe, of the C.P.R. Freight Department, has been elected Treasurer.

The employes of the four leading Canadian railway systems, the Canadian Government Railways, Canadian Northern, Canadian Pacific and Grand Trunk (including the G.T.P.R.) have arranged to contribute a day's pay to the Canadian Patrotic Fund.

National Transcontinental Railway Construction.

Press reports state that it is expected to have all the finishing work on the Moncton-Levis section of the line cleared up early in October. The car ferry terminals at Levis and Quebec are practically finished, and as the ferry has arrived, everything is nearly in order for the opening up of the line right into Quebec, where construction work is in progress on the station building, on the Champlain Market site, for the foundation work of which the contract was let to J. Gosselin, Levis.

We were officially advised, Sept. 17, that a contract had been let to Cavicchi and Pagano, for the construction of the Y at Cap Rouge, and the completion of the St. Malo line.

From Quebec to Cochrane, Ont., the finishing up work is still in hand, as also between Cochrane and Superior Jct. It is, however, so far advanced that it is expected to get everything through by the end of the year.

The question of the operation of the entire line by the Grand Trunk Pacific Ry. is being considered by the Department of Railways. (Aug., pg. 367.)

Grand Trunk Pacific Railway Construction

E. J. Chamberlin, President, left Montreal, Sept. 15, on a trip of inspection right through to Prince Rupert, B.C. He was accompanied by J. E. Dalrymple, Vice President; J. A. Hutchison, Chief Medical Officer, and W. M. Macpherson, one of the directors, and was joined at Fort William by M. Donaldson, Vice President and General Manager. This is the first official trip to be made since the through passenger and freight service from Fort William, Ont., to Prince Rupert was inaugurated on Sept. 13. Up to that date the permanent service had ceased at Edmonton, the service west of that city being conducted in sections according to the state of completion reached by the line.

The last section of the line upon which the Board of Railway Commissioners authorized the operation of trains was from Prince George to Priestly, B.C., 131 miles. The traffic is at present being carried across the Fraser River at Prince George by a temporary bridge, but the permanent bridge is expected to be completed this year. When we received the last official advices the bridge had been completed to the tenth span from the east end, three spans remaining to be erected. The bridge is 2,658 ft. 10 ins. long between parapet walls, and consists of 10 spans of 200 ft. each, 2 spans of 250 ft. each and 1 lift span of 100 ft. The substructure consists of 12 piers and 2 abutments. The bed of the river is of hard clay, on which rest shallow beds of gravel silt and mud, through which the piers are carried through to a solid foundation. The tops of the piers are 4½ ft. across, the floor of the bridge having a width of 50 ft. providing for a roadway on either side of the railway tracks. The 250 ft. spans are at the east end, with a central span for the lift in the centre. These are over the main channel of the Fraser River, while the 9th span is over the main channel of the Nechako River.

On the branch lines the most important work in progress is the laying out of the terminals in Calgary, Alberta. The grading of the site of the old R.N.W.M.P. barracks is being rushed forward by the Wilson Construction Co., and the preparatory work for the erection of a freight shed, 400 ft. long, is being done by the McDougal-Forster Co. These sheds will face Ninth Ave., while the passenger station will face Eighth Ave. A 90 ft. turntable has already been put in position, and a locomotive house is in course of erection. Tracks are being laid in the freight and passenger yards as fast as grading is completed. (Aug., pg. 367.)

Railway Rolling Stock Notes.

The Intercolonial Ry. has received 4 steel pit cars, 75 tons capacity, from Eastern Car Co.

Canadian Explosives, Ltd., has received 1 two-way dump car from Canadian Car and Foundry Co.

The Acadia Coal Co., Stellarton, N.S., has received 100 composite mine cars from Eastern Car Co.

The Intercolonial Ry. is, we are officially advised, in the market for 8 sleeping cars and 4 or 5 first class cars.

The Pacific Great Eastern Ry. has received 40 forty ton steel underframe flat cars from Canadian Car and Foundry Co.

The Moncton and Buctouche Ry. has bought 1 locomotive, 1 first class passenger car and 1 combination baggage and smoking car from the Intercolonial Ry.

The C.P.R., between Aug. 15 and Sept. 15, received the following additions to rolling stock, from its Angus shops: 81 steel frame box cars, 10 refrigerator cars, 5 steel first class cars, 1 class G-1 and 2 class H-1 locomotives.

The Sydney and Louisburg Ry.'s private car Catalone, which is used by J. H. Plummer, President, Dominion Steel Corporation, Ltd., of which the S. & L.R. is a subsidiary, has undergone a thorough overhauling by National Steel Car Co. at Hamilton, Ont.

The Prince Edward Island Ry. received recently from the Intercolonial Railway 3 passenger cars and 1 baggage car, which were taken on scows from Mulgrave, N.S., to Charlottetown, where their standard gauge trucks were replaced by narrow gauge ones.

The Intercolonial Ry. has received 2 switching locomotives from Canadian Locomotive Co.; 10 Pacific type locomotives from Montreal Locomotive Works; 180 box cars, 80,000 lbs. capacity, and 4 special pit cars, 150,000 lbs. capacity, from Eastern Car Co.

The Intercolonial Ry. is building 4 baggage and 2 postal cars in its Moncton shops. They will have steel underframing with wood superstructure. The baggage cars will be 60 ft. long with Simplex 4-wheel trucks, and the postal cars will be 65 ft. long with Simplex 6-wheel trucks.

The C.P.R., between Aug. 15 and Sept. 15, ordered the following rolling stock: 7 refrigerator cars, 3 double track flangers, 4 single track flangers, from its Angus shops; 3 steel double track snow ploughs, 2 steel single track snow ploughs with long hoods, and 1 steel single track snow plough with short hood, from Canadian Car and Foundry Co.

The G.T.R. has received 1 suburban car, 2 suburban second class and baggage cars and 2 first class cars from Canadian Car and Foundry Co.; 3 baggage cars from National Steel Car Co.; 9 first class cars and 1 second class and baggage car from American and Foundry Co.; 6 dining cars, 5 parlor cars and 1 parlor-buffet car from Pullman Co.

Intercolonial Ry. Employes are giving one day's pay to the Canadian Patriotic Fund, the amounts to be deducted from the pay cheques received in October.

Mainly About Transportation People.

E. W. BEATTY, General Counsel, C.P.R., returned to Canada, Sept. 11, after a short business trip to London, Eng.

A. CATONI, agent, C.P.R., Paris, France, has closed the office there and removed to London, Eng., for the present.

JOHN McKAY, who died at Penticton, B. C., recently, was a superintendent of construction in the early days of the C. P. R. in British Columbia.

HUGH PATON, President, Shedden Forwarding Co., Montreal, and the company, have each subscribed $10,000 to the Canadian Patriotic Fund.

JOHN MIDDLETON, one of a Canadian Northern Ry. survey party, was killed near Lytton, B. C., recently by falling about 70 ft. from a ledge of rock.

Mrs. W. G. ANNABLE, wife of the General Passenger Agent, Atlantic Service, C. P. R., has returned to Montreal after spending the summer at Prout's Neck, Me.

C. J. Wainwright, son of the late WILLIAM WAINWRIGHT, President, G. T. R. and G. T. Pacific Ry., was married at Montreal, Sept. 2, to Miss M. E. D. Stafford.

JAMES WILSON, an engineer engaged on the Government railway to Hudson Bay, was drowned while endeavoring to shoot the Sheel Rapids on the Nelson River, Aug. 25.

J. J. WARREN, President, Kettle Valley Ry., who has made his home in Penticton, B. C., during the past two years, has returned to Toronto, where he will in future reside.

D. G. Goleman, son of D'ALTON C. COLEMAN, General Superintendent, Alberta Division, C. P. R., Calgary, died there, recently, aged 6.

H. E. SUCKLING, Treasurer, C.P.R., was present at the annual meeting of the Society of Financial Railway Officers, at Lenox, Mass., recently.

SIR THOMAS SHAUGHNESSY, K.C.V.O., with Lady and Miss Shaughnessy, returned to Montreal, Sept. 16, from their summer home at St. Andrews, N.B.

D. MEADOWS, Assistant Master Mechanic, Michigan Central Rd., St. Thomas, Ont., has been elected Treasurer of the Travelling Engineers' Association.

R. G. PRICE is Master Car Builder, Quebec Central Ry., not Car Foreman as mentioned in the article on the Q.C.R. shops at Sherbrooke, in our September issue.

Miss M. Forget, eldest daughter of SIR RODOLPHE FORGET, President, Quebec Ry., Light, Heat and Power Co., was married to A. Martin, at Ste. Irenee, Que., Sept. 9.

W. H. ELLIS, Professor of Chemistry, Faculty of Applied Science, Toronto University, has been appointed acting Dean of the Faculty, vice the late John Galbraith.

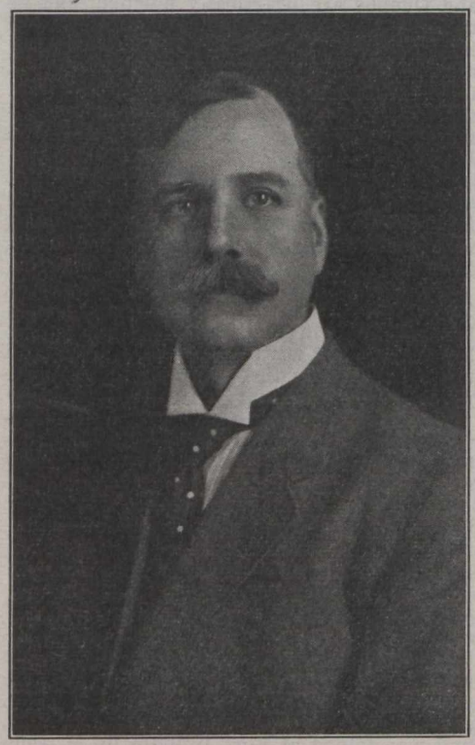
J. C. BITHELL, Assistant Bridge and Building Master, Angus Shops, C. P. R., Montreal, has joined the Canadian contingent now preparing for active service in Europe.

Miss Jean Mackenzie, niece of SIR WILLIAM MACKENZIE, was married at Quebec, Sept. 9, to Lieutenant W. K. G. Colquhoun, of the Princess Patricia Light Infantry.

SIR THOMAS TAIT, who spent the summer at Rockland, Me., returned to Canada early in September, when he visited Toronto, with Lady and Miss Tait, before returning to Montreal.

Lieut. Commander Bernard Harvey, of H.M.S. Cressy, which was sunk by a German submarine recently, was a son of the late A. W. HARVEY, who was the principal of one of the chief shipping firms at St. Johns, Nfld.

COLONEL JAMES MACDONNELL, a Vancouver contractor, has, with a few associates, undertaken to raise and equip a



W. H. Ardley,
Comptroller, Grand Trunk Railway and Grand Trunk Pacific Railway.

J. A. MacGregor,
Superintendent, District 4, Alberta Division, Canadian Pacific Railway.

mounted corps to be added to the Canadian overseas force.

D. POTTINGER, I.S.O., ex Deputy Chairman, Government Railways Managing Board, accompanied by Mrs. Pottinger, returned to Canada, Sept. 15, from a trip to Great Britain.

SIR WILLIAM MACKENZIE left Toronto, Sept. 16, on a business trip to Western Canada, and was expected to return by the end of the month. He was accompanied by Lady Mackenzie.

Miss Kate Reford, youngest daughter of the late ROBERT REFORD, of Robert Reford Co., shipping agents, was married at Montreal, Sept. 5, to W. H. Clark-Kennedy, of Knockgray, Scotland.

M. H. WESTBROOK of the G. T. R., Battle Creek, Mich., has been elected a member of the committee on shop efficiency, of the International Railway General Foremen's Association, for the current year.

W. S. COOKSON, Assistant General Passenger Agent, G.T.R., Montreal, attended the American Association of General Passenger and Ticket Agents convention, at Boston, Mass., Sept. 15 and 16.

C. DIXON, of the Comptroller and Treasurer's office, Intercolonial Ry., was presented at Moncton, N. B., Sept. 5, with several articles of furniture on the occasion of his marriage, which took place Sept. 8.

K. NAKAMURA, a Japanese civil engineer, in the service of the South Manchuria Ry., who is on a tour of the world, absorbing information on railway matters, completed a trip over the G.T.R. system recently.

Capt. J. M. EAKINS, Manager, Canada Grip Nut Co., St. Johns, Que., has sailed with the Canadian contingent to Europe, as officer in charge of the ammunition column of the second brigade.

CAPT. H. St. G. LINDSAY, Dominion Superintendent of Pilotage, Quebec, has been transferred temporarily to the Militia Department, to act as inspector of vessels and attend to other matters connected with military transport.

SIR WILLIAM VAN HORNE, K. C. M. G., returned to Montreal from St. Andrews, N. B., at the end of August. He is reported to have experienced considerable relief from the rheumatism, which troubled him for several months.

GEORGE H. HANNA, General Manager, Montreal Warehousing Co., Montreal, died suddenly while out walking, Sept. 13, aged 67. He had been associated with the company for about 45 years, having joined its service as a clerk.

LIEUT. WALLACE ROBB, of the Canuck Supply Co., Montreal, has been appointed provisionally to command the heavy battery ammunition column of the artillery unit in the overseas force, which has been assembled at Valcartier.

CAPT. T. C. IRVING, Jr., A.M. Can. Soc. C.E., Toronto, Vice President Robert W. Hunt & Co., Ltd., bureau of inspection, tests and consultation, has gone to the front in command of an engineer's corps, and two of his brothers have also gone.

PERCY WILGER, latterly Assistant District Engineer, National Transcontinental Ry., Cochrane, Ont., is reported to have been appointed Professor of Civil Engineering at Queen's University, Kingston, Ont., succeeding the late A. K. Kirkpatrick.

M. J. HAYES, General Foreman, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., has been elected a member of the committee on rods, tires, axles and crank pins, of the International Railway General Foremen's Association, for the current year.

T. J. HUTCHINSON, Foreman Painter, G. T. R., London, Ont., was elected President of the Master Car and Locomotive Painters' Association of the United States and Canada, for the current year, at the annual convention at Nashville, Tenn., Sept. 8.

COL. W. P. ANDERSON, Chief Engineer, Department of Marine, was in Victoria, Sept. 9, on his annual trip of inspection of the works under the Department's control. On the following day he proceeded to Prince Rupert and other northerly points.

The partnership between JAS. A. MACDONELL and C. S. GZOWSKI, of Vancouver, B. C., railway and general contractors, has been dissolved by mutual consent. The firm's obligations will be discharged by Mr. Gzowski, who will carry on business on his own account.

Among the junior officers of the H.M.S. Berwick, which recently captured a German cruiser in the North Atlantic, are V. Brodeur, son of Hon. L. P. Brodeur, a former Minister of Marine; and D. St. George Lindsay, son of Capt. H. St. G. Lindsay, Superintendent of Pilots, Montreal.

R. J. PARKE, M. Can. Soc. C. E., who died at Toronto recently, after several weeks illness, acted as consulting engineer to the Dominion Government in connection with the lighting of the Welland Canal. He was also associated with the Canada Wire and Cable Co., Toronto, and the British Aluminium Corporation.

Dr. B. L. RIORDAN, who died at Toronto, Aug. 29, aged 55, was for 15 years, Divisional Surgeon for Ontario for the G. T. R., and had also been for several years, Chief Surgeon for the Toronto and York Radial Ry. He was a former President of the International Railway Surgeons of America.

W. E. REDWAY, who died at Toronto, Sept. 19, was born in England, entered the shipbuilding business early in life, and was elected a member of the Institute of Naval Architects in 1884, in which year he came to Canada. He was for many years associated with the Doty Engine Co. and the Polson Iron Works, and was practising as a consulting naval architect laterly.

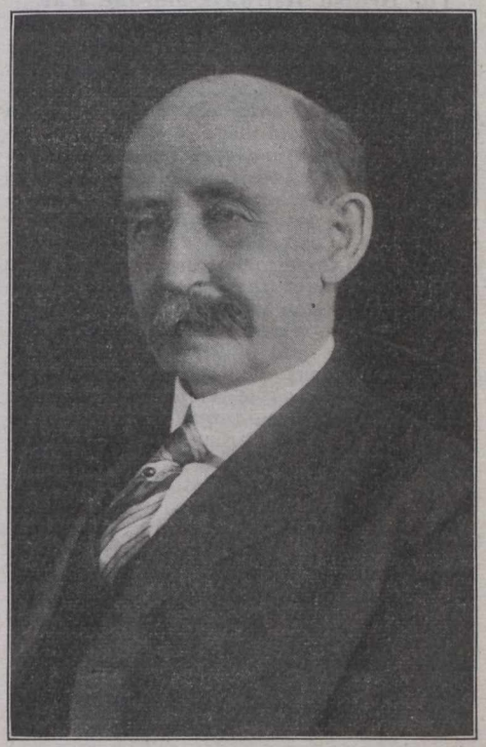
SIR JOHN GIBSON, whose term of office as Lieutenant Governor of Ontario, which was extended for a year, has now terminated, is a large stock holder in and one of the directors of the Dominion Power and Transmission Co., which owns the Hamilton St. Ry. and the various suburban lines radiating from Hamilton. He is President of the National Steel Car Co., Hamilton.

The estate of the late WILLIAM WAINWRIGHT, Vice President, G. T. R., and G. T. Pacific Ry., Montreal, has been probated at $496,247, of which $291,057 is in stocks. Other items include life insurance $36,434; cash $47,070; bonds $84,000. The estate is divided amongst six sons and four daughters. Probate has also been entered in England covering estate there, valued at £301.

SAMUEL McELROY, who was appointed Trainmaster, Canadian Northern Ry., Rainy River, Ont., recently, was born at Lindsay, Ont., May 1, 1875, and entered railway service May 1, 1900, since when he has been, to July 31, 1902, fireman G.T.R., Lindsay, Ont.; Nov. 16, 1902, to Nov. 3, 1905, brakeman, Canadian Northern Ry., Winnipeg; Nov. 3, 1905, to June 30, 1914, conductor, same road, Rainy River, Ont.

A. G. CLARK, accountant. HENRY KINGSCOTE, cashier, and H. KINGSCOTE, accountant's assistant, of the C. P. R. staff at Vienna, Austria, were, on the outbreak of war between Great Britain and Austria, arrested and imprisoned, but were subsequently released through the intervention of the United States Embassy. They are, apparently, still in Austria, having been sent with farmers to assist in gathering the crops.

A. J. IRONSIDES, who has been appointed District Master Mechanic, C. P. R., Edmonton, Alta., entered C. P. R. service as a wiper at Montreal in 1901. He has been, from Nov. 1902 to Aug. 1906, fireman, Brandon, Man.; Aug. 1906 to June 1907, locomotive driver, Brandon, Man.; June to Dec. 1907, locomotive driver, Kenora, Ont.; Dec. 1907 to Apr. 1908, locomotive driver, Schreiber, Ont.; Apr. 1908 to Feb. 1909, locomotive driver, Brandon, Man.; Feb. 1909 to Aug. 1912, locomotive driver, Sutherland, Sask.; Aug. 12, 1912 to Aug. 1, 1914, District Master Mechanic, Saskatoon, Sask.



H. A. Woods,
Assistant Chief Engineer Grand Trunk Pacific Railway.

James A. Yates,
Assistant Treasurer, Grand Trunk Railway and Grand Trunk Pacific Railway.

CHARLES THOMAS RIDALLS, whose appointment as Car Foreman, C. P. R., London, Ont., was announced in our last issue, was born at St. Heliers, Jersey, Channel Islands, Feb. 8, 1864, and was, from May 1886 to Dec. 1890, car repairer, Michigan Central Rd., St. Thomas, Ont.; Dec. 1890 to Oct. 1, 1904, car builder, same road, St. Thomas, Ont.; Oct. 1, 1904 to May 29, 1905, Car Foreman, same road, St. Thomas, Ont.; June 1, 1905 to Oct. 1, 1908, Assistant Car Foreman, Angus Shops, C. P. R., Montreal; Oct. 1, 1908 to July 23, 1914, Car Foreman, C. P. R., McAdam Jct., N. B.

LT.-COL. THE HON. J. S. HENDRIE, C.V.O., M.L.A. for West Hamilton, and a member of the Ontario Government without portfolio, who has been appointed Lieutenant-Governor of Ontario, is a son of the late Wm. Hendrie, of Hamilton, who founded the Hendrie Cartage Co., and was engaged in contracting for many years. Col. Hendrie, who was born Aug. 13, 1857, is President of the Hamilton Bridge Works, has been a member of the Hydro Electric Power Commission of Ontario since its establishment and has been several years chairman of the Ontario Legislature's railways committee.

SIR STEPHEN W. FURNESS, who died in England, Sept. 6, aged 42, as the result of a fall from an hotel window, was a member of the London Advisory Board of Canada Steamship Lines, Ltd., and a director of Furness Withy and Co., Ltd., which carries on a general navigation business with various parts of the world, including Canada. He was also associated with the British Maritime Trust, Ltd., which controls a large investment in Canada Steamship Lines, Ltd., and was connected with many other navigation, shipbuilding and iron companies. He was a nephew of the late Lord Furness, a former Honorary President of the Richelieu and Ontario Navigation Co., now Canada Steamship Lines, Ltd.

D. MORICE, freight and customs agent, G. T. R., Niagara Falls, Ont., completed 50 years service with the company on Sept. 3. His staff decorated his office with flowers and flags, and H. G. Kelley, Vice President, and other prominent officials, who were on an inspection tour, called and congratulated him. He was born at Brantford, Ont., where he started railway work as messenger in the Superintendent's office, gradually rising to chief clerk. In 1870 he was transferred to the Superintendent's office at Stratford, and in 1879 was appointed passenger and freight agent there. In 1885 he was transferred to Niagara Falls, remaining there until Oct., 1891, when he was appointed Division Superintendent of the Southern Division at London. From Nov. 1892 to July 1896 he was Superintendent of the Middle Division at London, and then Terminal Superintendent at Toronto until July 1896, when on account of ill health he was transferred to his present position at Niagara Falls.

J. A. BOSWELL, who died at Long Beach, California, Sept. 4, was born at Columbus, Ohio, Dec. 23, 1840, and entered transportation service in 1861, with the Pennsylvania Rd. He entered express service in 1865, with the United States Ex. Co., and came to Canada, May 1, 1888, joining the Dominion Ex. Co., since when he was, to June 1, 1889, Assistant Superintendent, Toronto; June 1, 1889, to Sept. 1, 1903, Superintendent, Ontario Division, Toronto; Sept. 1, 1903, to June 30, 1912, Superintendent, Eastern Division, Montreal. After his retirement on the latter date, he spent much of his time in California. His body was brought to Toronto, the funeral taking place from the house of his son in law, W. H. Burr, Auditor, Dominion Ex. Co., the pall bearers all being officers of the company, viz.:—W. S. Stout, President; V. G. R. Vickers,

General Superintendent, Eastern and Atlantic Divisions; W. Walsh, General Superintendent, Ontario Division; G. Ford, General Superintendent, Western Division; J. J. Murray, Superintendent, Toronto; H. P. Sharpe, General Agent, Toronto. Mr. Boswell is survived by his widow, by one daughter, Mrs. W. H. Burr, Toronto, and one son, Arthur Boswell, Route Agent, Dominion Ex. Co., Hamilton, Ont.

Hospital Cars on the Canadian Northern Railway.

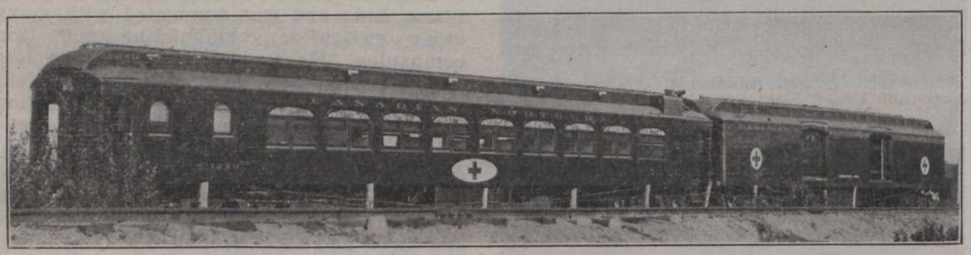
The Canadian Northern Ry. has equipped two of its cars for service as a hospital unit in conjunction with the Canadian military concentration camp at Valcartier. One is a standard colonist car, used as the ward, and the other is a baggage car, used as the hospital commissary. Both cars are now in service at Valcartier, Que., where they are located on a camp siding.

The interior of both cars has been painted white, having been given three coats of a hard drying highest grade enamel. The floor is of a sanitary material, fitted with hospital corners to allow for flushing with hose and water, and is covered with carpet. The finish throughout is flush and easily cleaned.

The colonist car is 72½ ft. long over body, of the standard C.N.R. type, and contains 18 sections, providing accommodation for 36 patients in the upper and lower berths. There is a small kitchen at one end of the car, which is to be used as the hospital kitchen, and across the aisle from this kitchen section is a small baggage storing space. This end of the car in the ordinary colonist car also contains the women's toilet and lavatory, and at the other end the men's lavatory and heater room. This provides a double lavatory accommodation for the hospital. The car is equipped with suitable bedding, including mattresses, sheets, pillows, pillow cases, pillow slips, blankets, headboard curtains, berth curtains, etc. Electric light, with dynamo and storage battery auxiliary, have been applied, using 10 c.p. lamps. Each window is fitted with an air intake ventilator, such as is standard for all C.N.R. cars, and in addition 12 automatic exhaust ventilators have been applied in the deck. Water is supplied by an air pressure gravity system, such as is in use on C.N.R. equipment. Combination hot water heating is used, so arranged as to operate independently as a unit, or receive steam from an outside source. The changes in the car were made at the Crossen Car Co.'s works, Cobourg, Ont.

The hospital commissary car is a standard 60 ft. baggage car, provided with electric light, steam heat, etc., as in the other car. It is used as a local hospital commissary and office car for the medical attendants. It is also possible that it may be used as an operating car, as the military authorities are making internal changes in its arrangement.

While it would be possible to use the hospital car as a transport for taking serious cases into the base hospital, in Quebec, up to the time of writing it was being used as a purely local unit, standing on one of the camp sidings. Both cars are marked on the outside with the red cross.



Hospital Ward Car and Commissary Car, Canadian Northern Railway.

The British Railways and the War.

The Imperial Government, under the provisions of the Regulation of the Forces Act, 1871, passed an order in Council, Aug. 4, declaring that it was expedient that the Government should have control over all the railways within Great Britain and Ireland. Following is a copy of a typical circular notifying the public of this movement. It was issued by the General Manager, Great Western Ry., and reads as follows:—"The Government have, for the time being, taken over the control of the railway in connection with the mobilization of the troops and general movements in relation to naval and military requirements. The management of the railway and the existing conditions of employment of the staff will remain unaltered, and all instructions will be issued through the same channels as heretofore."

The actual working of the various lines under the new conditions is vested in a committee of general managers, representing the following great trunk lines:—Caledonian, Great Central, Great Northern, Great Western, London and Northwestern, Lancashire and Yorkshire, London and Southwestern, Midland, North Eastern, South Eastern and Chatham, London, Brighton and South Coast, the official chairman being the President of the Board of Trade, representing the Cabinet, and the active chairman is the General Manager of the London and Southwestern Ry.

The object in view was to provide adequate facilities for the movement of troops and the carrying of supplies to the seaboard for shipment to the seat of war. While this Government traffic has the preference under the new conditions, the committee has been able to maintain practically the previously existing services almost in their entirety. There have been from time to time dislocations of the services on certain lines, but they have been only temporary. The committee of general managers are all members of the Engineer and Railway Staff Corps, which was first formed in 1865, and became part of the Royal Engineers of the Territorial Force in 1908. This corps has been for years working out all the necessary details for such an emergency as this, and it is due to the investigations made in the past that the railways have been able to render such efficient service as they have done.

The statistics show that 23,718 running miles of railway are affected, owning 22,998 locomotives, 72,888 passenger cars, and 780,520 freight cars of all kinds. It is estimated that over 20,000 men employed upon the railways have left their employment to join the colors. Their places have been filled in most cases by promotions all along the line, and by taking on untried men and boys in the lower ranks. The companies are making provisions for the families left, by the payment of allowances during the absence of the men, and by providing pensions for those killed, and will provide positions for those who return.

One very notable thing accomplished is the provision of a complete hospital train by the Great Eastern Ry. It consists of eight 50 ft. bogie class cars, and one 48¼ ft. car. One car contains compartments for nurses, doctors, attendants, stores and pantry; another contains a treatment room and pharmacy, and a third contains the guard's compartment, stores, etc. The remaining space contains beds for 120 patients.

Passenger Rate Advances in the United States.

Eastern railways in the United States have filed with the Interstate Commerce and the respective State Commissions notices that beginning Oct. 1, the charge for open and interchangeable mileage books will be at the rate of 2¼c. per mile instead of 2c., as heretofore. This increase is made to carry out the suggestion of the I.C. Commission that additional revenue "demanded," as the Commission says, "in the interest of both the general public and the railways," should be obtained by carriers in trunk line territory by other than increases in freight rates.

In its decision in the 5% advance freight rate case the Commission found that there had been a very general and substantial increase in railway expenses, the Commission saying: "It is probable, in the case of every railway showing a largely increased operating ratio, that the increased ratio is due, in a large measure, to its passenger service." Although there has been no increase in passenger rates, there has for many years past been a constant improvement in passenger service. Very large expenditures have been made necessary to provide steel cars, improved stations, automatic signals, and other features which have added so pronouncedly to the comfort, safety and convenience of passengers.

A Concord, N.H., dispatch of Sept. 23 says the New Hampshire Public Service Commission has refused applications of the G.T.R. and Boston and Maine Rd. to increase passenger fares from 2 to 2¼c. per mile in those states.

The Moncton and Buctouche Ry. has made an arrangement with the Intercolonial Ry. for the use of the latter's passenger station at Moncton, N.B. Moncton and Buctouche Ry. trains, which formerly had their southern terminal at the company's station in the east end of Moncton, now depart from and arrive at the I.R.C. station and run over the I.R.C. between Moncton and Humphreys, about 2 miles east of Moncton, where there is a junction with the M. & B.R.

The G.T.R. employes in Montreal are contributing one day's pay, amounting to about $12,000, to the local branch of the Canadian Patriotic Fund. Similar gifts are being arranged for at various traffic centres along the lines, the money to be donated through the Local Patriotic Funds Organization. With the G.T.P.R. employes' co-operation, the contributions by the officers and general staffs will probably amount to nearly $100,000.

Col. Alex. Bertram, of the John Bertram and Sons Co., Dundas, Ont., and Thomas Cantley, General Manager, Nova Scotia Steel and Coal Co., New Glasgow, N.S., are members of a Government commission appointed to enquire into the feasibility of manufacturing, in Canada, shells for British field artillery.

Transportation Appointments Throughout Canada.

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

Canada Steamship Lines, Ltd.—H. FOSTER CHAFFEE, Passenger Traffic Manager, having resigned, the position has been abolished for the present. JOHN F. PIERCE. Assistant General Passenger Agent, will have jurisdiction over all matters pertaining to passenger business, reporting to W. E. Burke, Assistant Manager. Office, Montreal.

Canadian Northern Ry.—J. W. FINDLAY, heretofore General Foreman, Parry Sound, Ont., has been appointed Road Foreman of Locomotives there.

O. GRANT has been appointed General Foreman, Parry Sound, Ont., vice J. W. Findlay.

Canadian Pacific Ry.—H. C. GROUT, heretofore acting General Superintendent, Atlantic Division, has been appointed General Superintendent, vice W. Downie, who has been on 12 months leave of absence, and who has now retired from the company's service. Office, St. John, N.B.

J. K. McNEILLIE, Superintendent, District 2, Eastern Division, has been appointed acting General Superintendent, Eastern Division, during the absence of G. Hodge on leave of absence. Office, Montreal.

J. C. BITHELL, Assistant Bridge and Building Master, Angus Shops, Montreal, has joined the Canadian contingent for active service in Europe. We were advised, Sept. 8, that no appointment of a successor had been made.

W. COULTER has been appointed Assistant Superintendent, Montreal Terminals.

A. LINDSAY, heretofore Assistant Yardmaster, Fort William, Ont., has been appointed General Yardmaster there, vice A. F. Hawkins, appointed Trainmaster at Medicine Hat, Alta., as announced in our last issue.

W. J. RENNIE, heretofore assistant chief clerk to Assistant Freight Traffic Manager, Winnipeg, has been appointed chief clerk, vice K. Elliott, promoted.

C. G. WASHBON, heretofore Trainmaster, Souris, Man., has been appointed Trainmaster, Brandon, Man., vice H. E. Haanel.

J. N. MURPHY has been appointed Trainmaster, Souris, Man., vice C. G. Washbon, transferred to Brandon, Man.

H. E. HAANEL, heretofore Trainmaster, Brandon, Man., has been appointed Trainmaster, District 1, Saskatchewan Division, vice J. H. McDiarmid. Office, Regina.

R. F. CHAPMAN, heretofore Chief Dispatcher, District 3, Saskatoon, has been appointed Chief Dispatcher, District 1, Saskatchewan Division, vice R. R. Jelly. Office, Regina.

J. H. SCOTT has been appointed Chief Dispatcher, District 3, Saskatchewan Division, vice R. F. Chapman, transferred. Office, Saskatoon.

G. F. BURGESS, formerly Road Foreman of Locomotives, Macleod, Alta., and latterly acting as District Master Mechanic, Cranbrook, B.C., during the absence of G. Glasford on leave, has been appointed Road Foreman of Locomotives, Medicine Hat, Alta., vice E. J. Lemieux, whose appointment as District Master Mechanic, Lethbridge, Alta., was announced in our last issue.

W. E. HAYWARD, heretofore Roundhouse Foreman, Vancouver, B.C. has been appointed Night Roundhouse Foreman at Alyth, Calgary, Alta.

A. J. IRONSIDES, heretofore District Master Mechanic, Saskatoon, Sask., has been appointed District Master Mechanic, Edmonton, Alta.

A. MALLINSON, heretofore District Master Mechanic, Nelson, B.C., has been appointed District Master Mechanic, Cranbrook, B.C., vice G. Glasford.

E. C. OVIATT, Travelling Passenger Agent, Battle Creek, Mich., has had his office moved to 7 Fort St. West, Detroit, Mich., the Battle Creek office having been closed.

J. V. MURPHY, heretofore District Passenger Agent, Nelson, B.C., has been appointed General Agent, Portland, Ore.

Central Vermont Ry.—FRANK SCOTT, Vice President and Treasurer, G.T.R. and G.T. Pacific Ry., has also been appointed Vice President in charge of finances, C.V.R., vice M. M. Reynolds, deceased. Office, Montreal.

Duluth, South Shore and Atlantic Ry.—J. A. MICHAELSON has been appointed District Freight Agent, Grand Rapids, Mich., vice M. C. Kimball, deceased.

Esquimalt and Nanaimo Ry.—T. S. WILSON, heretofore Assistant Roadmaster, has been appointed Roadmaster, vice W. Newman, deceased. Headquarters, Victoria, B.C.

Grand Trunk Pacific Ry.—H. A. WOODS has, as Assistant Chief Engineer, been appointed in charge of the Engineering Department, vice B. B. Kelliher, Chief Engineer, resigned. Office, Winnipeg.

The following station agents have been appointed:—Bashaw, Alta., J. R. White; Endako, B.C., R. A. Pake. The station at Tete Jaune, B.C., has been closed.

Grand Trunk Ry.—G. A. HARRISON, heretofore Soliciting Passenger Agent, Montreal, has been appointed City Passenger and Ticket Agent, Sherbrooke, Que.

A. T. FOLGER, Manager, Chateau Laurier Hotel, Ottawa, has resigned, and will be associated with the management of the Olympia, a new hotel in Winnipeg.

Dr. GORDON RICE has been appointed Division Surgeon, Ontario Lines, succeeding his late partner, Dr. B. L. Riordan. Office, Toronto.

A. E. PERNFUSS, heretofore acting City Passenger and Ticket Agent, Berlin, Ont., has been appointed City Passenger and Ticket Agent there, vice G. D. LaCourse, deceased.

The following station agents have been appointed:—Tottenham, Ont., C. H. Harvey; Toronto (Exchange, passenger), H. S. Wood; Sarnia Tunnel, Ont., passenger, W. R. Clements; Blair, Ont., R. W. Loftus; Sarnia, Ont., freight, G. A. Bond; Chatham, Ont., A. Dewar; Windsor, Ont., J. C. Pritchard; Brule Lake, Ont., K. N. Cameron.

F. J. McKEE, heretofore acting Superintendent Terminals, has been appointed Superintendent Terminals, Port Huron, Mich., vice J. F. Jones who asked to be relieved on account of ill health.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—J. A. MICHAELSON has been appointed District Freight Agent, Grand Rapids, Mich., vice M. C. Kimball, deceased.

Pere Marquette Rd.—F. W. BLAIR, one of the three receivers, has resigned.

American Association of General Passenger and Ticket Agents.—The 59th annual convention was held at Boston, Mass., Sept. 15 and 16. The name was changed to the American Association of Passenger Traffic Officers, this being considered as more applicable to present conditions. G. Fort, Passenger Traffic Manager, Union Pacific Rd., Omaha, Neb., was elected President, and A. Hilton, Passenger Traffic Manager, St. Louis and San Francisco Rd., St. Louis, Mo., Vice President, for the current year.

Halifax Ocean Terminals, Intercolonial Railway.

The work to be done under the contract for which tenders are under consideration by the Department of Railways, for the pier and shed no. 2 on the ocean terminals at Halifax, N.S., covers the erection of a pier with sheds thereon, and is part of the first unit to be completed. Full details of the general lay out of the terminals with plans were given in Canadian Railway and Marine World, June, 1913, pg. 265; Sept., 1913, pg. 421; Oct., 1913, pg. 462, and Nov., 1913, pg. 535.

The pier will be 2,000 ft. long, with a 45 ft. depth of water at low tide. Four lines of railway tracks will be laid on the pier one on each side of the shed and two running through the centre. The shed will be over 700 ft. long; the greater part of the lower floor will be open for the handling of baggage to and from the trains and steamships. At the shore end of the building will be the various offices for receiving and examining baggage and storing the same, and customs offices. The trains will run alongside the steamships on both sides of the pier, and the lower floor will have ample connections with the upper floor for the convenience of passengers.

The upper floor will be devoted entirely to the immigration traffic. At the water end the first section will contain the steerage quarters with offices for the medical officers, Canadian and U.S. immigration officers, detention rooms, etc. The waiting room, where the division of the passengers will take place, will have an area of 1,400 sq. ft. There are to be two main steerage assembly rooms, separated by passageway 10 ft. wide, each 162 by 54 ft., giving a floor area of 8,400 sq. ft. Next to the steerage waiting room will be the booking hall, and then the area set apart for first and second class passengers. In this section will be provided offices for the workers of the various church agencies, the Salvation Army and the Nova Scotia Immigration department. In the rear of this will be a general waiting room, with customs offices and detention room for Chinese. The shore end of the buildings will contain offices and quarters for the permanent immigration staff, on the one side, and on the other a dining room, 75 ft. by 36 ft. A space 49½ ft by 504 ft. long on either side of the building will be devoted to baggage purposes, and will be connected by chutes to the lower floor. From the inside of the various sections stairway accommodation to the lower floor will be provided.

The buildings are to be roofed with concrete, and the partitions are to be of 4 and 6 in. terra cotta, and 3 by ⅞ in. boards on one side of 4 by 3 in. dressed scantlings on the upper floor, and of terra cotta blocks on the lower floor.

J. Kennedy, Montreal, is Consulting Engineer for the Department for the entire work, and A. F. Dyer is Resident Engineer in charge.

Canadian Ticket Agents' Association.—In connection with the annual outing to be held at Chicago, Oct. 6 to 8, Chicago representatives of railways operating in Canada have formed a reception committee composed of C. G. Orttenburger, G.W.P.A., Canadian Government Railways; G. A. Walton, G.A.P.D., Canadian Pacific Ry.; J. D. McDonald, A.G.P.A., Grand Trunk Ry.; C. C. Clark, G.A.P.D., Michigan Central Rd., and F. H. Tristram, A.G.P.A., Wabash Rd. G. W. Vaux, G.A.P.D., Union Pacific System, and formerly of the G.T.R., is secretary-treasurer of the committee.

Electric Railway Department

The Car Barns on the Toronto Civic Railway.

The eastern and western divisions of the Toronto Civic Ry., which the city is operating in its outlying districts, on Gerrard St., and Danforth Ave., and St. Clair Ave. respectively, are so separated from each other that independent means of handling the equipment on each line are required. When the system was described in Canadian Railway and Marine World for Oct., 1913, there existed only one barn, that on the Gerrard St. line, near its eastern terminus, which was briefly referred to. It consists of a light frame structure, sheathed with galvanized iron, and partakes of the nature of a temporary expedient until the proposed permanent barn may be built. Since then, a permanent building of modern design has been built for the St. Clair Ave. line, and has been in service since last spring, while for the Gerrard St. and Danforth Ave. lines, plans have been prepared for barns larger than the St. Clair Ave. one. and tenders have been invited.

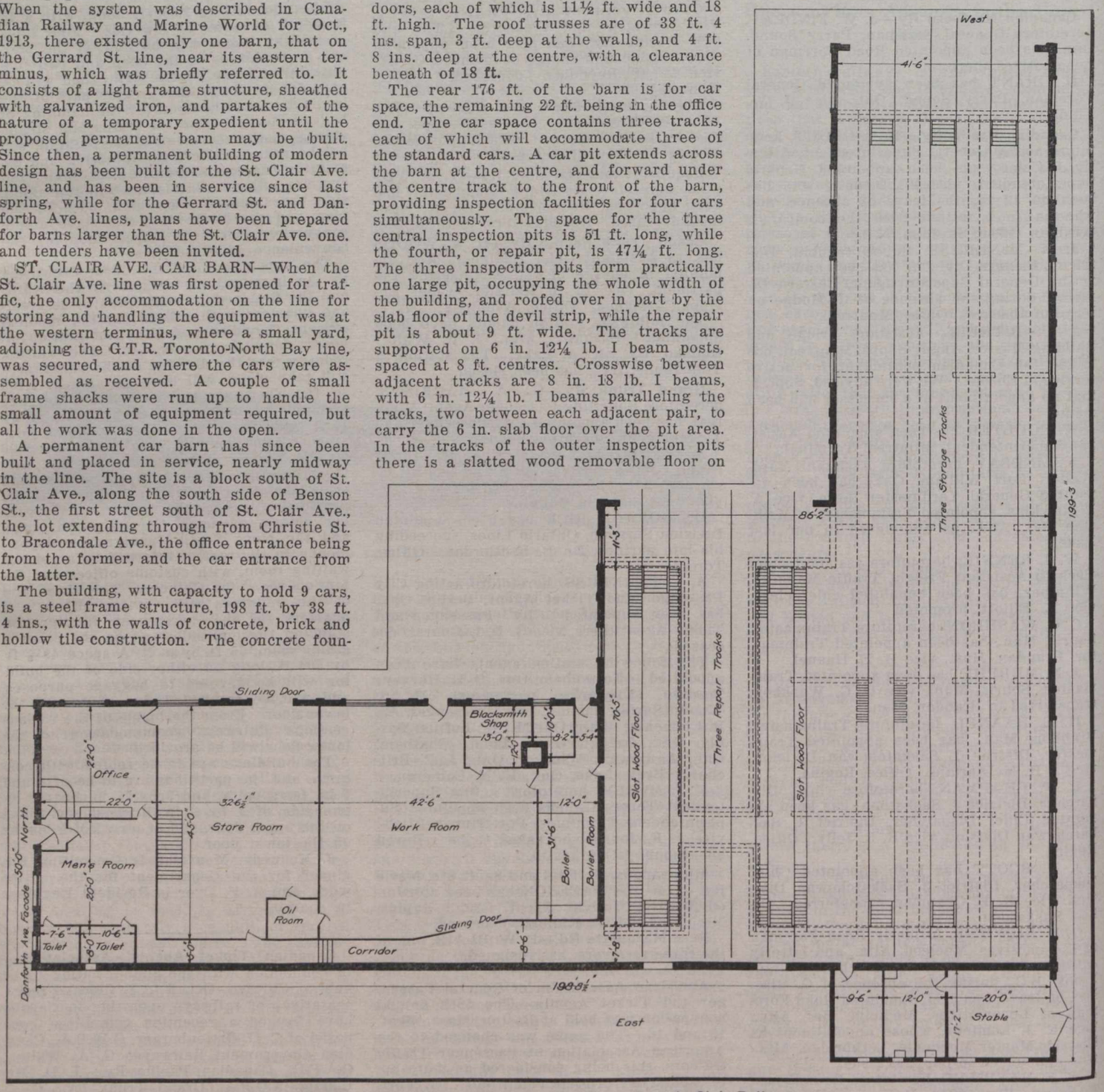
ST. CLAIR AVE. CAR BARN—When the St. Clair Ave. line was first opened for traffic, the only accommodation on the line for storing and handling the equipment was at the western terminus, where a small yard, adjoining the G.T.R. Toronto-North Bay line, was secured, and where the cars were assembled as received. A couple of small frame shacks were run up to handle the small amount of equipment required, but all the work was done in the open.

A permanent car barn has since been built and placed in service, nearly midway in the line. The site is a block south of St. Clair Ave., along the south side of Benson St., the first street south of St. Clair Ave., the lot extending through from Christie St. to Bracondale Ave., the office entrance being from the former, and the car entrance from the latter.

The building, with capacity to hold 9 cars, is a steel frame structure, 198 ft. by 38 ft. 4 ins., with the walls of concrete, brick and hollow tile construction. The concrete foundation extends to a depth of 4 ft., with a 14 in. brick wall, 4½ ft. high, surmounted by a concrete coping, 6 ins. deep. The wall above this line is of hollow tile, faced with red brick, the total height of the main walls being 21 ft.

The roof is carried on trusses at 18 ft. centres, supported on 8 by 6 in. I beams at 29 lbs., while at the car entrance end there are four columns, each an 8 in., 18 lb. I beam, forming guides for the steel rolling doors, each of which is 11½ ft. wide and 18 ft. high. The roof trusses are of 38 ft. 4 ins. span, 3 ft. deep at the walls, and 4 ft. 8 ins. deep at the centre, with a clearance beneath of 18 ft.

The rear 176 ft. of the barn is for car space, the remaining 22 ft. being in the office end. The car space contains three tracks, each of which will accommodate three of the standard cars. A car pit extends across the barn at the centre, and forward under the centre track to the front of the barn, providing inspection facilities for four cars simultaneously. The space for the three central inspection pits is 51 ft. long, while the fourth, or repair pit, is 47¼ ft. long. The three inspection pits form practically one large pit, occupying the whole width of the building, and roofed over in part by the slab floor of the devil strip, while the repair pit is about 9 ft. wide. The tracks are supported on 6 in. 12¼ lb. I beam posts, spaced at 8 ft. centres. Crosswise between adjacent tracks are 8 in. 18 lb. I beams, with 6 in. 12¼ lb. I beams paralleling the tracks, two between each adjacent pair, to carry the 6 in. slab floor over the pit area. In the tracks of the outer inspection pits there is a slatted wood removable floor on each side of the track, 8 ft. long, and 2½ ft. wide, used for the dropping of pairs of wheels. The track section over this portion is fitted with a sliding joint, so that the movable rails may be slid back on supporting beams, to the back wall of the slatted wood recess. The full length of the repair pit is similarly provided with slatted wood floor sections, two 8 ft. track sections, between supporting columns, being removable, so that parts may be dropped from any position under the car. A hydraulic jack, mounted on a small hand truck, is provided in the pit for dropping car parts. Owing to the open construction of the pit, the jack



Ground Plan of Danforth Avenue Car Barn, Toronto Civic Railway.

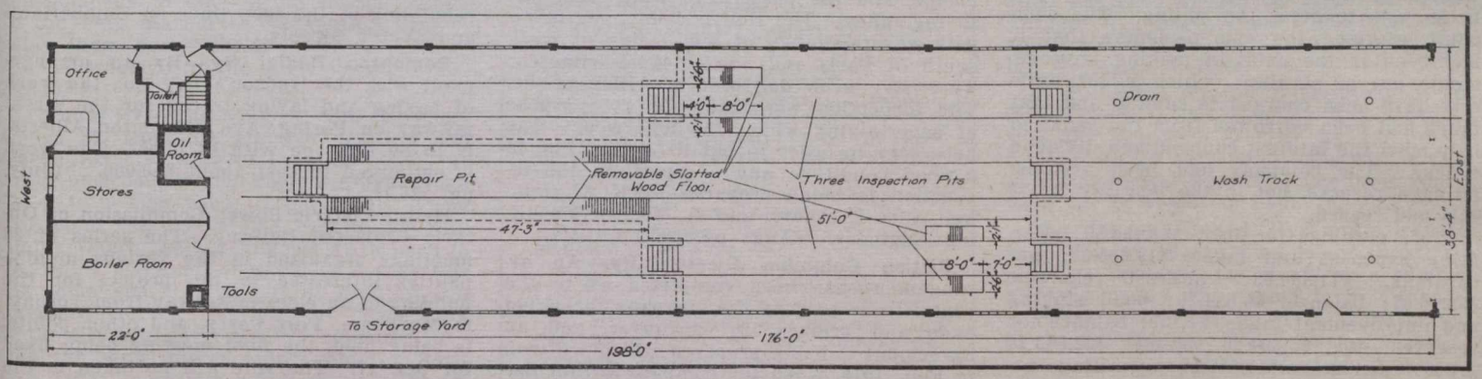
can be moved from point to point as required. Concrete steps lead from the floor of the pit to the main barn floor.

The floor of the pit is concrete, as is also the rear or car entrance end of the barn, the flooring of the west end being of wood. At the entrance end of the barn, the first car length of the three tracks has two drainage sumps in the concrete floor. The central track is used as the wash track, a hose from a connection on the south side of the building being employed for that service. The floor of the pits is drained by means of floor wastes at suitable intervals. The first car length outside the barn is similarly concreted, and has drainage sumps, so that, under favorable conditions, car washing may be done in the open. The balance of the distance from the barn to Bracondale Ave. is paved both between and outside the rails to the full width of the barn. The tracks in the barn are 11½ ft. centres. Along the south side of the barn there is a service track, 23 ft. centres from the south inside track, over which supplies can be brought to the repair section, which is in the southwest section of the barn, inside the large sliding doors at that point. The tool equipment consists of a small drill press and emery grinder, but even with this limited equipment, full car repairs are made.

The office and auxiliary rooms, having a ceiling height of 9 ft., are located at the west end of the building, and consist of the inspection pit section there will be three tracks, the full length of the barn, each holding three cars, with a pit extending under the full area. The pit will be 4¾ ft. deep, with a concrete flooring. At the main floor level, a concrete floor will be provided between adjacent tracks, carried on 6 in. 12¼ lb. I beams, paralleling the track, and embedded in the reinforced concrete slab floor, these longitudinal members resting on cross 8 in. 18 lb. I beams, spanning adjacent track columns, which are 6 in. 12¼ lb. I beams at 6 ft. centres. In this section of the shop there will be a side grating in the central track near the east end for a wheel grinding machine, the track in this section being removable in the manner explained for the removable track in the St. Clair Ave. barn.

In the repair pit section, the track will have full length pits, connecting with each other through a cross passage. The pit adjoining the inspection section will connect with, and form a part of, the latter's pit. Alongside the rails, in the outer tracks, there will be slat wood floors, with removable rail sections.

In the Danforth Ave. wing there will be a passageway extending along the east side from the repair pit section to the work shop, store room and men's room in the front. In a corner of the men's room there will be two lavatories, and on the other side of the wing the main office. Back of the office there will be a store room, with a fireproof



Ground Plan of St. Clair Avenue Car Barn, Toronto Civic Railway.

office, lavatory, stores room, boiler room, oil room and entrance way. The boiler room, oil room and entrance way open to the barn. The oil room has a 9 in. brick wall, and a 6 in. reinforced concrete roof, with fireproof door. The partitions between the other rooms are of metal lath and plaster construction. Over the stores, office and oil room, there is an upper store room, and a waiting room for the car crews, reached by a stairway from the entrance way. This upper floor is carried on two 8 by 6 in. 29 lb. I beams, supporting floor beams of 12 in. 31½ lb. I beams.

DANFORTH AVE. CARN BARN—The site for this barn is an L shaped piece of land, opening out on Danforth and Hillingdon Avenues, the car entrance being from the latter, from tracks branching off from the Danforth Ave. tracks, while the office, workshop, storerooms, etc., are in the small arm of the L, facing on Danforth Ave.

This barn will be of larger capacity than that on St. Clair Ave., accommodating 11 cars. In addition, there will be a larger pit area as well as an increased shop accommodation. The building will be a steel frame structure, with concrete foundations and hollow tile walls, stuccoed on the outside, differing in the latter from the St. Clair Ave. barn. As shown on the accompanying plan, practically the whole of the car barn proper will have a pit beneath it, similar in construction to that in the St. Clair Ave. barn in most particulars, but more extensive. In oil room in a corner, and from the store room there will be a stairway leading up to an additional store room in the second story, which will extend for the entire width of the building from the workshop to the Danforth Ave. end of the building. Back of the lower store room, there will be a work room, containing all the machinery and other necessary equipment, the nature of which has not yet been decided on. A corner of this room will form the blacksmith shop. Between the work room and the repair track section will be the boiler room.

Both barns will be heated by hot air, forced through underground concrete ducts by a fan. The offices will also be equipped with auxiliary electric heaters, for use when heat is not required in the main barns.

We are indebted to G. A. McCarthy, Chief Engineer and Manager, for the information on which the foregoing description has been based and for the plans.

Lifting Jacks on Street Cars, for quickly releasing any person caught under a car, will be a feature of the safety policy of the Philadelphia Rapid Transit Co. The emergency release service has been improved. Nine emergency districts, each with at least one emergency station, have been established in the city. The equipment of the service includes seven horse-drawn wagons, two auto wagons, two auto wreck wagons, 13 wreck cars and four tower cars—a total of 28 emergency vehicles.

Sherbrook Railway and Power Company's Annual Report.

Following is the directors' report for the year ended June 30, presented at the annual meeting at Montreal, Sept. 28:

The gross earnings were $141,990.29; operating and maintenance, $87,969.78; net earnings, $54,020.51, against $126,646.23 gross revenue; $74,718.31 operating and maintenance; $51,927.92 net earnings, for the year ended June 30, 1913. While the gross income shows a gain of 12.13%, the net earnings only show a gain of 4.03%. This is due to the fact that the operating expenses were $87,969.78, against $74,718.21, an increase of 17.7%. While the increase in gross earnings was considerable, but for the delays in installing the machinery and electrical apparatus of the Canadian Connecticut Cotton Mills Co., the Canadian Brakeshoe Co., and the Panther Rubber Co., the earnings from these contracts would have been considerably larger, whereas very little was realized from them during the year. The extended field of the company's operations and the preparation of these contracts accounted for the increases in the operating expenses. In the operating statement an item has been charged for taxes, which have been in dispute for the last three years. The earnings of the street railway system were affected by a scarlet fever epidemic in Sherbrooke, although every precaution was taken in regard to fumigating the cars. The industrial depression which affected the whole of the Dominion during the past 18 months affected both the street railway earnings and the power revenue, as several manufacturers reduced their power requirements. The prospects, however, for increased earnings in 1915 are as favorable as can be expected, although they must be necessarily affected to some extent by the war.

During the past year the company acquired the assets and undertakings of the Burroughs Falls Power Co., Ltd., at Ayers Cliff, Que., which adds another electric lighting system to those already owned, and a further interest was acquired in the Lennoxville Light and Power Co., which controls the lighting and power business of Lennoxville and Huntingdon. The acquisition of these companies should still further increase the revenue of the company. During the financial conditions of the past year your directors were unable to sell sufficient securities to cover the entire cost of these extensions and purchases, and advances were obtained from the company's bankers to cover the balance required. The company has contracted for the greater part of the power available from its present development, and the earnings should show a satisfactory increase as soon as normal conditions again prevail. The power plant and lighting system have been kept in a high

state of efficiency, and a considerable amount has been expended in the upkeep of the street railway. The directors take pleasure in recording their appreciation of the efficient services rendered by N. C. Pilcher, General Manager, and the officers and staff.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry., and allied companies.—Gross earnings for July $690,023; operating expenses, maintenance, etc. $527,004; net earnings $163,019; against $755,943 gross earnings; $549,947 operating expenses, maintenance, etc.; $205,996 net earnings for July, 1913.

Cape Breton Electric Co. has an application before the Nova Scotia Utility Commissioners asking for sanction to a proposed bond issue. The application states that the company does not propose in the meantime to issue the bonds but to give them as collateral for advances. The Commonwealth Bank of Massachusetts and the Canadian Bank of Commerce have, it is stated, advanced $75,000 to the company. In case the company is called upon to pay the advances at once the bonds would be sold now, but it is hoped that this will not have to be done. The company stated that its last issue of similar bonds was at 91%. If marketable at all now this percentage would not likely be realized, so it is hoped to be able to defer the selling. The company informed the commissioners that it had been in the habit of making improvements out of earnings, which might properly have been charged to capital, and that funds had been borrowed from the banks to help meet the interest coupons and dividend checks. The company had been accumulating a reserve, but in the last two years this had ceased.

Gross earnings for July, $31,466.50; operating expenses and taxes, $19,665.57; net earnings, $11,800.93; interest charges, $5,216.67; balance, $6,584.26; bond sinking and improvement funds, $1,190; balance for reserves, etc., $5,394.26, against $32,543.24 gross earnings; $17,615.56 operating expenses and taxes; $14,927.68 net earnings; $4,891.67 interest charges; $10,036.01 balance; $1,190 bond sinking and improvement funds; $8,846.01 balance for reserves, etc., for July, 1913. Aggregate gross earnings for seven months ended July 31, $200,199.75; net earnings, $80,374.54; interest, bond sinking and improvement funds, $45,622.51; net balance, $35,745.04, against $205,758.62 aggregate gross earnings; $83,688.33 net earnings; $42,652.82 interest, bond sinking and improvement funds; $41,040.51 net balance for same period 1913.

Galt, Preston & Hespeler St. Ry.—A Berlin, Ont., press dispatch, Sept. 19, stated:—"The special committee of the City Council and the Light Commission has decided on what the city will request of the G. P. and H. St. Ry., before the new franchise for running rights over Berlin streets is granted. The present franchise expires in October. After that the city will grant a five-year franchise at $75 monthly for a half-hourly service during afternoon for two years, and after that time half-hourly service all day. The city also wants running rights over the company's tracks in the east end for the municipal railway. After the expiration of the five-year franchise the monthly rental to be $200."

London Street Railway. At a meeting of shareholders August 25, authority was given to issue additional bonds for $50,000.

Saskatoon Municipal Ry.—Traffic receipts for July, $14,758.18 against $14,657.65 for July, 1913; operating expenses, including interest charges and sinking fund, $15,046.87. Statistics—Car mileage, 63,507 miles; earnings per car mile, 25.239 cents; operating expenses per car mile, 23.693 cents; passengers carried per car mile, 4,628; average fare per passenger, 5.023 cents.

Gross earnings on the Sutherland line, $1,201.25; operating expenses including capital charges and depreciation, $992.10. Gross earnings per car mile, 19.852 cents; operating expenses per car mile, 14.743 cents; passengers carried per car mile, 3,072.

Toronto Ry., Toronto and York Radial Ry. and allied compaines.—Gross earnings for July, $866,221; operating expenses, maintenance, etc., $430,194; net earnings $436,927, against $811,966 gross earnings; $401,954 operating expenses, maintenance, etc.; $410,012 net earnings, for July, 1913. Aggregate gross earnings for seven months ended July 31, $5,892,147; net earnings $2,847,694, against $5,467,452 aggregate gross earnings; $2,659,445 net earnings, for same period, 1913.

Winnipeg Electric Ry.—Gross earnings for July $346,630; operating expenses $194,356; net earnings $152,274, against $336,821 gross earnings; $183,689 operating expenses; $153,132 net earnings for July, 1913. Aggregate gross earnings for seven months ended July 31, $2,438,182; net earnings $1,030,124, against $2,309,195 aggregate gross earnings; $1,030,121 net earnings for same period 1913.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford St. Ry.-Grand Valley Ry.—The Commission having charge of this railway made a trip of inspection over the Grand Valley section from Brantford to Galt, Ont., Aug. 29. The culverts and bridges particularly were examined, and with one exception are said to have been found in a satisfactory condition. The exception is the bridge over the G.T.R. subway at Blue Lake, which it was decided to close for traffic. Cars are run to each end of the bridge, and the passengers walk from one to the other. The line is being put in repair, several gangs of men being at work south of Paris and north of Glenmorris. Ties have been delivered at Blue Lake. The inspection was made for the purpose of ascertaining what further work was necessary in order to put the entire line in a good condition, and a report on the inspection is being prepared by K. N. Bunnell, City Engineer, and —. Jones, Consulting Engineer. (Aug., pg. 385.)

British Columbia Electric Ry.—An arrangement has been completed as to the rental to be paid by the company for street ends and bridges in Vancouver, and an agreement is being prepared which will run to Feb., 1919, when the company's franchise expires. The rentals to be paid are as follows:—For Connaught St. bridge, $3,000 a year; for Georgia-Harris St. bridge, $3,600 a year; for Prior St. end, $750 a year; for Union St. end, $875; towards cost of traffic policeman opposite the station at Granville St. bridge, $1,200 a year.

The Georgia-Harris bridge is expected to be completed in Nov., and the City Council is placing the order for the special connections necessary to connect it with the street car tracks. (Sept., pg. 431.)

An arrangement has been made with the C.P.R. by which the company will build a line on South Cambie St., Vancouver, as far as King Edward Ave., thence to Main and Oak Sreets, to connect with existing lines. It is not expected, however, that work will be started on the new line until the spring. (Sept., pg. 431.)

Chestermere and Calgary Suburban Ry.—The Alberta Legislature is being asked to grant an extension of time for the building of this projected electric railway from Calgary to Chestermere Lake, Alberta. Griffiths, Ford, Wright and Miller, Calgary, solicitors for the applicants. (May, 1913, pg. 235.)

Cornwall St. Ry., Light and Power Co.—The ratepayers of Cornwall, Ont., will vote, Oct. 14, on a bylaw granting the company an extension of its franchise for an electric railway. The original franchise was granted, Dec. 28, 1895, to W. R. Hitchcock and his associates, who transferred it to a company, which subsequently was taken over in the interests of the bondholders, and a new company formed. The bylaw provides for an extension of the franchise for 20 years upon the same terms as the original bylaw and the amendments thereof, with the following exceptions:—The payment of $300 by the town to the company is to cease, and the company is to pay all taxes on the assessed value of its property. Certain regulations for traffic are made in new sections, and provision is also made for the rebuilding of the loop lines on Cumberland and Water Streets.

Edmonton Radial Ry.—By an arrangement with the Hudson's Bay Co., the work of paving and laying tracks for the street railway on Portage Ave., Edmonton, Alberta, is to be gone on with at once. The work is estimated to cost about $40,000. (July, pg. 335.)

Hydro Electric Power Commission of Ontario Projected Railway.—The series of 30 meetings organized in the various municipalities interested in the project for the building of an electric railway from Toronto to Markham, Port Perry, and other points, is being held, the final meeting being fixed for Oct. 17. The vote will be taken in the various municipalities Oct. 19. The question to be submitted to the ratepayers will be whether authority shall be given to the various councils to raise the amounts mentioned in our July issue, pg. 337, by debentures, which will make up the $3,954,914, which is the estimated cost of the building and equipment of the 77.55 miles of line proposed. (Sept., pg. 431.)

London Street Railway.—We were officially advised recently that two small paving jobs of about 700 or 800 ft. each were being finished up. In one case the work is paving only, and in the other the track is being replaced with new ties and 80 lb. A.S.C.E. rail, moulded scoria block being used in alternate courses to form flangeways. The foundation of both the track and the paving in this case is concrete, as the subsoil is clay. (July, pg. 335.)

London and Port Stanley Ry. Electrification.—A difficulty occurred at the beginning of September between the London Railway Commission and the Pere Marquette Rd., which is carrying out certain parts of the work of electrifying the L. and P.S. Ry., as a result of which the Commission ordered the company to vacate the line within 30 days. The matter, however, was adjusted, and reconstruction work was resumed, Sept. 8. It was subsequently announced that new rails have been laid on the entire line; that most of the new ties have been put in, and that much of the ballasting has been done. The traffic was not interfered with during the few days the

difficulty existed. (Sept., pg. 430.)

The Moncton Tramways, Electricity and Gas Co.'s car barn at Moncton, N.B., was completely destroyed by fire, Sept. 14, the damage to building and contents being placed at $10,000. The barn will be rebuilt at once. (Aug., pg. 385.)

Morrisburg and Ottawa Electric Ry.—The Morrisburg and Ottawa Construction Co. has been incorporated under the Ontario Companies Act, with a capital of $40,000 and office at Ottawa, to carry on railway contracting, and other allied businesses. The provisional directors are:—A. J. Fraser, M. J. Brennan, Miss L. E. Milks, Miss L. B. Younghusband, Ottawa; and G. D. Mumford, New York. These are merely nominal directors, for the purposes of incorporation. The company is apparently being formed in connection with the New York syndicate with which negotiations have been in progress for some time for building the line from Morrisburg to Ottawa, 55 miles. (Sept., pg. 431.)

Sudbury and Copper Cliff Suburban Electric Ry.—The following directors have been elected: J. J. Mackey, President; J. H. Morin, Vice President; M. J. Powell, Secretary; D. M. Morin, C. McCrea, T. E. Smith. The work done by the provisional directors has been confirmed.

Sarnia St. Ry.—The Sarnia, Ont., City Council passed a bylaw recently authorizing the company to take up its tracks leading to the Pere Marquette Rd. station, and to relay them down Christina St. to Clifford St., and westerly on the latter street. (May, pg. 232.)

Toronto Ry.—The King St. cars run along Queen St. from the junction of King and Queen Streets, west of the Don River, as far as Scarboro Beach Park, through which there is a loop back to Queen St. From this point there is a line east to the city limits, where the old Victoria Park used to be, which has been operated as a stub line for some years. The city is grading and paving Queen St., from Scarboro Beach Park to the city boundary, and in connection with this the stub line is being rebuilt. Rails and other materials have been delivered. It is said that when completed the King St. cars will run over it, instead of turning back from Scarboro Beach Park as now. Commissioner of Works Harris is reported as stating, Sept. 17, that work on the line would be started at once. (Sept., pg. 432.)

Transcona, Man.—By arrangement with the Transcona, Man., Town Council, J. H. Kern, who holds the franchise for the building of an electric railway in Transcona, to the boundary of the City of Winnipeg, is required to start active construction on the line in the spring of 1915. It is said that certain preliminary work is being done, however, and that ties have been delivered along the route. (Sept., pg. 432.)

Winnipeg Electric Ry.—The Winnipeg City Council decided Sept. 8 to reject the plans submitted by the company for bettering the traffic conditions at the St. James' subway. (Sept., pg. 432.)

The Victoria General Motor Bus Co. has been incorporated under the British Columbia Companies Act., with a capital of $50,000, and office at Victoria, to carry on the business of "transferring and transporting from place to place, persons, goods, wares and merchandise of all kinds by motor buses, automobiles, motor trucks," and other vehicles with "either motor, steam, horse or other power." The directors are:—T. Grayson, T. N. Hibben, A. D. Lewis, J. D. Pemberton and L. M. Earle. C. F. E. Crawford is Secretary pro tem.

Personal Paragraphs.

J. J. HACKNEY has been reappointed Commissioner of Public Utilities by the Port Arthur, Ont., City Council.

H. DOUGHTY, formerly Superintendent Regina Municipal Ry., has been appointed Assistant to Traffic Superintendent, Winnipeg Electric Ry.

Capt. C. W. McLEAN, of the Royal Horse Artillery, who is reported to have sailed from Bombay for England recently, for active service with the Canadian contingent, is a son of Col. H. H. McLean, M. P., President St. John Ry., St. John, N. B.

Trouble With Militia in London.—On Sept. 18, a small detail, of some 6 or 8 men of the 7th regiment, were returning from some outside point to the armories at Waterloo and Dundas Sts., London, Ont., marching westward on the right hand side of the street, clear of the car track, while a street car was going in the same direction. Having no stop to make at Waterloo St., the motorman continued at full speed, apparently not bearing in mind that the militia men might turn across the track into the armories. The result was that when they did make such a turn the car was too close to them to be stopped in time. They, however, heeded the motorman's warning and jumped out of the way, so that none of them were struck. The militia authorities did not blame the company, but threatened to lay information against the motorman, but when it was pointed out by the management that he had violated the company's rules and would be disciplined accordingly, no proceedings were instituted. Subsequently the motorman was dismissed from the service, it being claimed that he had shown an inclination to recklessness on some other occasions.

Canadian Electric Railway Association.

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

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

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

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

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

Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co.

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

H. M. Hopper, General Manager and Purchasing Agent, St. John Railway Co.

Wilson Phillips, Superintendent, Winnipeg Electric Railway Co.

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

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

OFFICIAL ORGAN—Canadian Railway and Marine World, Toronto.

Quebec Ry., Light, Heat and Power Co.—It is stated that the report for the year ended June 30 will show a gross revenue of over $1,525,000; operating expenses, $910,000, and net earnings approximately $615,000, compared with $629,000 the previous year. From this the bond interest of about $500,000 is met, leaving a surplus of about $115,000, or equal to 1.15% on the common stock.

Electric Railway Notes.

The Toronto City Council has abandoned the negotiations of buying the Toronto Ry.

The Montreal Tramways Co. has received 18 cars from Canadian Car and Foundry Co.

The Montreal Tramways Co. has decided to equip the rear platform of all its double truck cars with folding doors and steps.

The Kingston, Portsmouth and Cataraqui Electric Ry. turned all its gross receipts on Sept. 19 to the Canadian Patriotic Fund.

The Edmonton Radial Ry. has received two single end p.a.y.e. double truck city cars, completing the order for 35, placed with the Preston Car and Coach Co.

The autumn schedule of cars on the Winnipeg Electric Ry. show that a number of stops on the Princess St., Portage Ave. and Main St. lines have been eliminated.

The Ontario Railway and Municipal Board has approved the London St. Ry.'s plans for 4 single truck p.a.y.e. cars ordered from the Preston Car and Coach Co.

The Dominion Government has purchased from the Quebec Ry., Light, Heat and Power Co., 22 acres of land adjoining the military camp at Valcartier, Que., at a price to be fixed by the Court of Exchequer.

The Railway and Lighting Rifle Association has been formed by employes of the Toronto Ry., Toronto and York Radial Ry., and Toronto Power Co. W. R. McRae, Master Mechanic, Toronto Ry., is secretary.

R. P. Lewis, Traffic Superintendent for the Winnipeg City Council, has arranged with the Winnipeg Electric Ry. for the rerouting of cars on several lines with a view to giving better service. The new routes were put in operation Sept. 16.

The Detroit United Ry., press reports state, has purchased Stag Island, near Sarnia, Ont., and will lay it out as a summer pleasure park. The island is in Canadian territory, and can be easily reached by one of the D.U.R.'s interurban lines.

The members of the Montreal Electrical Society visited the Montreal Tramways Co.'s Youville shops, Sept. 5. D. E. Blair, Superintendent of Rolling Stock, explained the layout of the shops and the work done there. J. N. Mochon, President of the Society, acknowledged the courtesy extended.

Mayor McNamara, of Edmonton, Alta., in speaking in New York recently, referred to the electric railway operated by the city, and said that much of the loss was caused by the lines, owing to "log rolling" having been extended far out into unoccupied territory, where landowners hoped that there would be population some time.

A recent report of the U.S. Census Bureau states that in the ten years, 1902-12, the number of passengers carried by electric railways increased by nearly 108%, the revenues by more than 130%, and the capitalization by 104%. The increase in passengers carried, revenue, and capitalization for 1913, is stated to be in the same proportion.

Particulars of the Toronto Ry. Employes Union's application to the Ontario Railway and Municipal Board, for an order to compel the Toronto Ry. to abolish the running board on open cars, and to substitute centre aisles, were given in Canadian Railway and Marine World for July, pg. 338. When the case came up again Sept. 24, the Toronto Ry. was not represented, and it was further adjourned to Oct. 2.

The Port Arthur and the Fort William, Ont., City Councils have approved of a new

schedule of fares for the electric railways within their cities, and on the line connecting the two cities. The new fare is a straight 5 cent one, and the tickets are five for 25 cents. Limited tickets for workmen and school children's tickets will remain as at present. The new schedule is expected to go into effect Oct. 1.

A suggestion having been made to R. J. Fleming, General Manager, Toronto Ry., that militiamen in uniform should be carried on the cars free of charge, he is reported to have said:—"Do the bakers give these men their bread? Do the butchers give them their meat? Do the landlords give them their rent? Do the other railways give them transportation? We are perfectly willing to sit in with the other people and do our share of helping the soldiers."

An application by the City of Toronto was heard by the Ontario Railway and Municipal Board at Toronto, Sept. 16, to compel the Toronto Ry. to build and operate a line on Bloor St. West between Dundas St. and Pacific Ave. On behalf of the city, it was urged that the district to be served was much in need of street car facilities, and citizens were put to inconvenience and loss of time under present conditions. H. S. Osler, K.C., for the company, contended that the company had abandoned all the rights it ever had on the street in the locality in question. A decision was promised in the near future.

Pitt River Bridge, B. C.—The construction of the traffic bridge across the Pitt River, between Pitt Meadows and Port Coquitlam, B.C., is being pushed forward. The piling for the approaches has been completed, and the concrete work is being gone on with. No. 1 pier is completed; no. 2 caisson is down and sealed; no. 3 caisson has been sunk; no. 4 caisson is being sunk, and no. 5 caisson is ready for sinking. The substructure work is expected to be finished by the end of the year. The steel superstructure of the old C. P. R. bridge, a short distance away from the site of this bridge, was bought, and will be erected in the spring. The bridge will carry tracks for a projected electric railway.

Special Corps of Engineers.—The Canadian General Electric Co. has raised from its mechanical staff a corps of 25 electrical and mechanical engineers which it has placed at the Dominion Government's disposal during the war and which it will maintain during that period. After being sworn in at Toronto, Sept. 16, they assembled at the company's general offices, where they were received by several of the directors and addressed by the President, Frederick Nicholls. Nine of them have gone to Esquimalt, B.C., 8 to Quebec and 8 to Halifax, N.S.

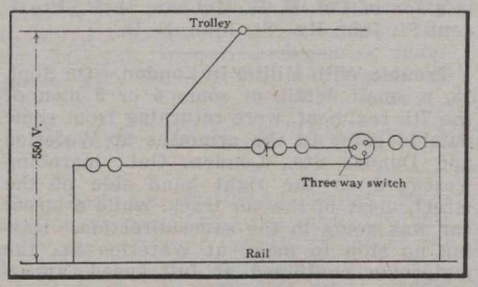
Rubber Tires for Street Cars.—In order to reduce the noise of street cars, and particularly the flat wheel nuisance, it was suggested at a recent meeting of the Tramways Association, in Newcastle, Eng., that street cars be provided with rubber tires. It was argued that the wear on the rails would be much reduced, and the life of the rubber tire would exceed that on motor trucks and busses, which are credited with an average life of 20,000 miles. It was also argued that a higher rate of speed would be possible with the flexible tire.

The American Electric Railway Association's annual convention will be held at Atlantic City, N. J., Oct. 12 to 16.

Condensation from Concrete Roofs may be materially reduced by an adequate system of ventilation.

Three-Way Switch on Seven-Lamp Car Circuit.

The accompanying diagram shows a wiring scheme which was adopted on the Montreal & Southern Counties Ry. when the writer was its power house construction foreman. These cars have standard interurban closed bodies 49 ft. 4 ins. long and 8 ft. 1 in. wide, and are of the combination smoking and passenger type. Three lamps are in the smoker and two lamps are on each end platform. However, only five



Wiring arrangement for three-way switch on Seven-lamp Circuit.

lamps are in use at the same time, as only one platform is illuminated, according to the direction of running. On completing a run the motorman actuates the three-way switch to cut out the two lamps at the end which served as the conductor's platform and then he cuts in the lamps at the conductor's new position. Six cars were equipped in this way owing to the fact that they were originally over-illuminated.—J. G. Koppel, Electrical Engineer of Bridges, Duluth, South Shore and Atlantic Ry., Sault Ste. Marie, Ont., in Electric Railway Journal.

Conflict of Authorities re Wireless Telegraph Equipment on Vessels.—It is reported that U.S. authorities are taking action against the British s.s. Roxburgh, for an infringement of the law requiring all ocean going vessels not to leave U.S. ports without a wireless telegraph installation, the maximum penalty being $5,000. When ordered by the authorities at Baltimore, Md., to have his vessel equipped before sailing for Bordeaux, France, the captain is stated to have pointed out that the British Government had ordered that no British merchantmen were to carry wireless equipment during the war, and he at once wired his owners for instructions, they replying to the effect that the British Government's order must be obeyed. The facts have been placed before the U.S. District Attorney.

The Prince Edward Island Car Ferry.—Sir W. G. Armstrong Whitworth & Co., Ltd., Newcastle-on-Tyne, Eng., who are building the car ferry for service between Cape Tormentine, N.B., and Carleton Point, P.E.I., which was to have been launched on Aug. 21, have written Canadian Railway and Marine World that the European war has entirely altered the programme. The machinery, which was being built for the car ferry, has had to be put on one side, to enable them to execute urgent contracts for turbine machinery for the British Admiralty, which has to be completed with all speed, to the exclusion of everything else, and they have informed the Dominion Government that the launching of the car ferry has been indefinitely postponed.

The C. P. R. has contributed $100,000 to the Canadian National Patriotic Fund, in addition to placing a steamship at the Government's disposal as a hospital ship, the equipment of which has been undertaken by Canadian women.

Lake Superior Corporation's Annual Report.

The report for the year ended June 30 contains information of a general nature in regard to the subsidiary companies.

The Algoma Steel Corporation made 325,680 tons of steel rails, against 289,343 the previous year. Its pig iron output was 311,904 tons, against 326,073, and merchant mill 15,576 tons, against 26,295.

Algoma Central and Hudson Bay Ry.—The directors regret that they are not able to announce increased earnings. The railway has been finished to its junction with the Canadian Northern Ry., and completion of the remaining 50 miles to its terminus at Hearst on the National Transcontinental Ry. is expected early in October. Owing to the fact that the Canadian Northern and the National Transcontinental are not yet in operation, there has been practically no traffic north of the C.P.R., and in addition, owing to delay in the development of the Algoma Steel Corporation's mines to their full capacity, the railway has not obtained its expected ore traffic. This particular traffic must necessarily be the most important part of its business for some time to come.

The directors report that during the storm of Nov., 1914, the s.s. Leafield was lost with all hands. The loss was fully covered by insurance. This vessel has been replaced by the J. A. McKee, and in addition the railway has secured on advantageous terms the s.s. E. D. Carter, 10,000 tons. The A.C. & H.B. Ry. Co. now owns or controls seven modern steamships, all of which are profitably employed. The work of equipping the railway with proper terminals has been rapidly progressed with, and the coal bridge and dock are now operating at Sault Ste. Marie. The dock has a storage capacity of 125,000 tons.

Algoma Eastern Ry.—The directors report increased earnings. Traffic was heavier than for the previous year. The entire construction of this railway, including the terminals at Little Current, has been completed, and the coal bridge and dock at Turner are in operation. Considerable tonnage has been booked for unloading at Turner, and the revenue to be derived therefrom should considerably assist the earnings of the railway.

International Transit Co. and Trans-St. Mary's Traction Co. continue to maintain their earnings. There is under discussion the extension of the franchises of the former.

Motor Omnibuses for North Toronto.—The inauguration of the motor bus service in North Toronto, arranged for by Robins Limited, has been postponed. The bodies for the busses, which will provide seats for 26 passengers, are being built by the Preston Car and Coach Co., Preston, Ont. The chassis, etc., are being procured from England, and it is stated that as soon as they arrive the busses will be completed and the service started.

Among the foreign built vessels which have been transferred to the United States register recently, under the act passed on Aug. 18, are:—The s.s. Moldegaard, built at Bergen, Norway, in 1906, and rebuilt at Brooklyn, N.Y., in 1913, formerly owned by the Ocean Freight Line, Ltd., Toronto; the s.s. Oceana, built at Dumbarton, Scotland, in 1891, owned by the Bermuda Atlantic Steamship Co., Toronto, and the s.s. Robert Dollar, built at Port Glasgow, Scotland, in 1911, owned by the Dollar Steamship Lines, Ltd., Victoria, B.C.

Marine Department

Lock Gate Lifter for the Trent Valley Canal.

The Department of Railways and Canals has had a steel pontoon lock gate lifter built, to lift and place in position the lock gates on the Trent Canal in Ontario. Its capacity of 50 tons and clearance of 37 ft. above the deck will enable it to step any of the mitred gates throughout the entire length of the canal. The general design comprises a structural steel collapsible derrick mounted on a steel pontoon, with separate steam engines for each operation.

The pontoon supporting the derrick is made of steel plating with extra strong steel frame work, there being two longitudinal and three transverse trusses, so as to provide for the severe loads it will have to bear. The hull is constructed with rounded bilges and each end has a rake of 45 degrees. The length is 55 ft., beam 27½ ft., depth 9 ft.

The derrick is built of structural steel in two units. When in working position the derrick is erect as shown in fig. 1. In transporting the lifter from one lock to another the upper part of the derrick is lowered where necessary, as shown in fig. 2, which allows of its passage under overhead bridges along the canal. The operation of raising and lowering the derrick is performed by a 6 by 6 double cylinder engine, mounted on one of the back legs. Two swivel hook padlocks are suspended, one from each overhanging top of front legs of the derrick, each carrying 8 parts of ⅞ inch steel cable. The main engine has 9 by 9 double cylinders, double drums, and is link reverse. The operating levers are brought to one position for the convenience of the enginemen.

The pontoon is kept on an even keel by two movable ballast cars under deck. Each car is moved by a steel screw operated by independent 6 by 6 reversing engine. These engines are controlled by pendulum governors, automatically shifting the ballast to the proper position to put the pontoon on an even keel, whether it is under load or light, with the derrick upright or folded. In addition to the automatic control the ballast car engines can be operated from the engine room above deck. Dial indicators are provided to show the position of the ballast cars at all times.

We are informed that the machine has already stepped the gates for locks 1, 2, 3, 4, 5 and 6 of the Ontario-Rice Lake Division of the canal, and that the total time for stepping each leaf, from picking it up in the water to releasing it in the gate recess, varied from 20 to 40 minutes, according as an upper or lower gate leaf was handled, respectively. At lock 3 the lower gates are 37 ft. high over timbers and represent the heaviest gates the lifter is designed to handle.

Fig. 3 shows the gate lifter in the operation of stepping a gate.

The whole outfit was manufactured by M. Beatty & Sons, Ltd., Welland, Ont.

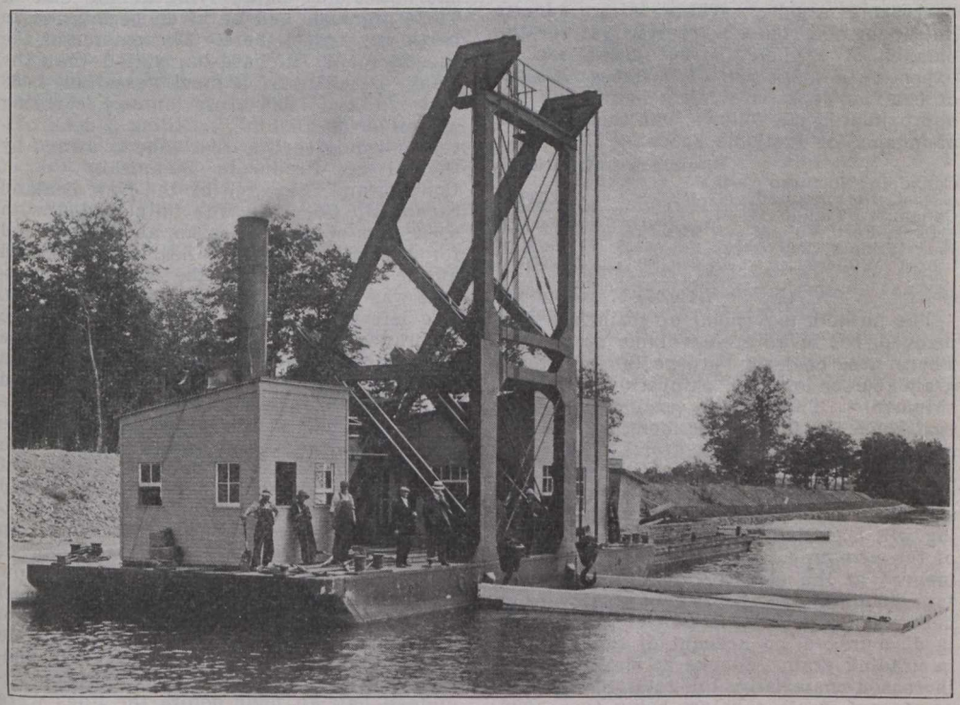


Fig. 3. Steel Pontoon Gate Lifter taking hold of a leaf of the lower gates of lock 4, Trent Canal.

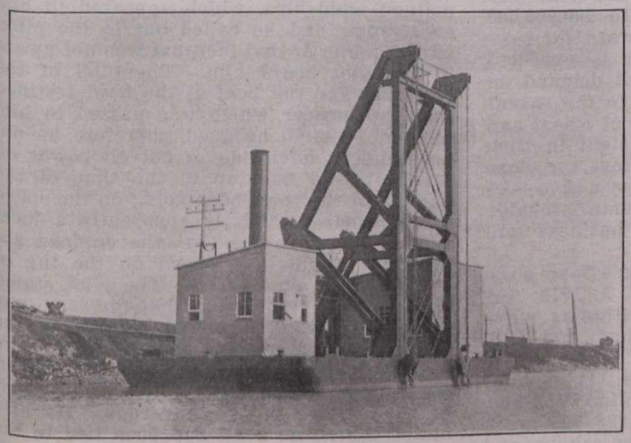


Fig. 1. Gate Lifter, showing top of derrick raised.

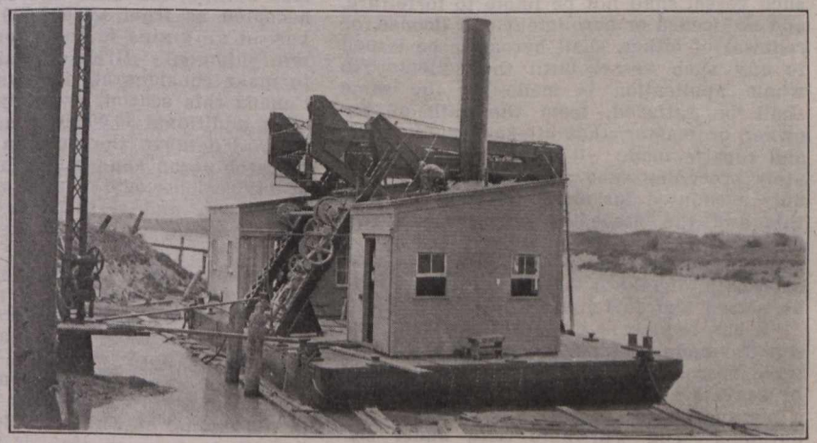


Fig. 2. Gate Lifter, with top of derrick lowered for passing under bridges.

Dominion Government Vessels for Hudson Bay.

In connection with the Government work at Port Nelson in Hudson Bay, the following vessels have been purchased,—s. s. Durley Chine, from the Alum Chine Steamship Co., London, Eng.; s. s. Sharon, from The Ottoman Line, Ltd., Newport, Eng.; s. s. Sheba, formerly owned in Monmouthshire, Eng.; sailing vessel Bargany, from Carl Beck, Twedestand, Norway, and sailing vessel Benmore, from the Fenchurch Trading Syndicate, London, Eng.

The sailing vessels were purchased for the carrying of coal from England direct to Port Nelson, where they will be used as bulkheads in connection with the harbor work. In addition to the purchase of the foregoing steamships, the Government has chartered the Newfoundland whaling steamships Bellaventure and Bonaventure, both of which are well accustomed to the waters and conditions on Hudson Bay.

The Laing Boat Co., Ltd., has been incorporated under the Quebec Companies Act, with capital of $20,000 and office at Lachine, to build, own and operate all kinds of vessels, hydroplanes, airships, etc.

Duty on Repairs to United States Vessels in Foreign Ports.

Mention was made in Canadian Railway and Marine World for September of a press report that the Victoria B.C. Board of Trade had received a communication from the U.S. Government to the effect that no duty would be charged on repairs done to U.S. vessels in Canadian ports. On enquiry the Secretary of the Victoria Board of Trade advised us that the U.S. Consul there had written him that as he understood it there is no duty or charges whatsoever on repairs to U.S. ships in foreign ports.

We then communicated with the U.S. Treasury Department at Washington, D.C., asking for full information in regard to the matter and received the following answer from the Assistant Secretary:—

"In reply to your enquiry whether duties, if any, are levied on repairs made to U.S. vessels while in Canadian ports, and whether repairs made to ocean going vessels in foreign ports are dutiable, I have to advise you that the Revised Statutes, Sec. 3,114, provides that:—'The equipments, or any part thereof, including boats, purchased for, or the expenses of repairs made in a foreign country upon a vessel enrolled and licensed under the laws of the United States to engage in the foreign and coasting trade on the northern, northeastern and northwestern frontiers of the United States, or a vessel intended to be employed in such trade, shall, on the first arrival of such vessel in any port of the United States, be liable to entry and the payments of an ad valorem duty of 50% on the cost thereof in such foreign country; and if the owner or master of such vessel shall willfully and knowingly neglect or fail to report, make entry, and pay duties as herein required, such vessel, with her tackle, apparel, and furniture, shall be seized and forfeited.'

"The Revised Statutes, Sec. 3,115, provides that:—'If the owner or master of such vessel shall, however, furnish good and sufficient evidence that such vessel, while in the regular course of her voyage, was compelled, by stress of weather or other casualty, to put into such foreign port and purchase such equipments, or make such repairs, to secure the safety of the vessel to enable her to reach her port of destination, then it shall be competent for the Secretary of the Treasury to remit or refund such duties, and such vessel shall not be liable to forfeiture, and no license or enrollment and license, or renewal of either, shall hereafter be issued to any such vessel until the collector to whom application is made for the same shall be satisfied, from the oath of the owner or master, that all such equipments and repairs made within the year immediately preceding such application have been duly accounted for under the provisions of this and the preceding sections, and the duties accruing thereon duly paid; and if such owner or master shall refuse to take such oath, or take it falsely, the vessel shall be seized and forfeited.'

"It has been held by the Department that repairs made in foreign port upon a registered vessel engaged bona fide in commerce by sea are not dutiable, and that repairs to a pleasure yacht in a foreign port are not dutiable. You will note that, under sec. 3,115, the condition precedent for exemption is that the vessel 'while in the regular course of her voyage was compelled, by stress of weather or other casualty, to put into such foreign port for repairs.' It has also been held that repairs made to a vessel in a foreign port after she had been in winter quarters in that port are not exempt, although such repairs were necessary to secure her safety."

Shipping Report From Fort William.

F. & W. Jones, grain, vessel and marine insurance brokers, Fort William, Ont., wrote, Sept. 15:—Coal arrivals continue steady, there have been 16 cargoes since the first of the month, all of which were bituminous, no anthracite has been unloaded during this half of the month. Dispatch continues satisfactory, there have been only slight delays occasioned by direct loading into cars. There has also been slight delay at one dock when piling at back of dock, owing to difficulty in getting more than one rig to work. Western rail shipments are now normal and stocks are decreasing rapidly. There is no definite line-up of "en routes" reported yet for the balance of the month, but docks are all expecting a brisk run of business. Stocks of coal on docks are fairly heavy and are approximately as follows, but there is still abundance of available space:—

	Bituminous.	Anthracite.
Canadian Northern Coal Dock, Port Arthur	450,000	210,000
Canadian Pacific Coal Dock, Fort William ...	620,000	250,000
Fort William Coal Dock, Fort William	370,000	34,000
	1,440,000	494,000

The autumn movement of grain has commenced, but in no great volume up to date. There are, however, prospects of heavy grain surrenders by shippers for nearby shipments. Twenty-nine cargoes have gone east since the first of the month, three only of which were in U.S. bottoms. The prospects of any great increase in the percentage of U.S. bottoms is not very promising at time of writing. Dispatch in grain loading will materially improve with the arrival of the new crop. Sunday working has commenced at the elevators in order to facilitate loading. Night working, however, except when a vessel can be cleared at night, is discouraged, on account of the difficulty in grading grain. Stocks at elevators have increased materially, the total of all grain at present in all elevators being over 1,000,000 bus. in advance of same time last year. The following is standing of stocks at time of writing:—

	Stocks.	Receipts.	Shipments.
Wheat ...	3,736,852	4,162,094	1,631,129
Oats	330,375	397,361	159,808
Barley ...	213,720	146,891	65,092
Flax	2,074,766	31,789	311,508

The crop outlook remains unchanged from last writing, the total figures are generally accepted as from 180,000,000 to 200,000,000 bus. of all grains to come forward for eastern shipment. Great Britain is expected to make considerably increased demand on Canada this season, probably to the extent of an additional 30,000,000 bus. of wheat and oats. To move the crop in sight in time to catch ocean connections before the close of navigation would mean a very active lake movement, and it is more than probable that a large winter storage business will result.

A comparison of last season's lake shipments, commencing with Sept. 1, 1913, and ending Aug. 31, 1914, is interesting as showing the percentage of Canadian and U.S. bottoms. There were 1,135 cargoes, 350 of which were U.S. bottoms. The total amount of grain carried was 191,911,432 bus. of all grains, of which 92,030,398 bus. were in U.S. bottoms or 49% of the whole, and 99,881,034 bus. in Canadian bottoms.

Shipments by vessels, Port Arthur and Fort William, crop year 1913-1914:—

		Canadian Vessels.	U.S. Vessels.	Total.
Cargoes		788	350	1,135
Wheat	bush.	64,121,076	62,105,746	126,226,882
Oats	"	25,276,164	14,351,323	39,627,488
Barley	"	5,942,638	4,031,185	9,973,824
Flax	"	2,218,179	9,927,058	12,145,237
Other grains	"	1,322,977	1,615,086	2,938,063

The Stranding of the s.s. Anglo-Brazilian in Montreal Harbor.

An investigation into the stranding of the s.s. Anglo Brazilian in Montreal harbor, on Aug. 26, was held at Quebec, on Sept. 8 and 9, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. F. Nabb and Pilot Angers, acting as nautical assessors. Fourteen witnesses were examined, including the Montreal Harbor Master, Capt. Bourassa, who stated that the day prior to the departure of the Anglo Brazilian he saw that sufficient room was given for hauling her out the next day, and did not notice any barge lying at the end of Tarte pier, nor had he given permission to berth any vessel there. The master of the vessel, F. W. Richardson, stated that the Anglo Brazilian is a steel vessel of 4,668 tons net, and 7,486 gross tonnage, carrying a crew of 38 all told, including 3 deck officers, all duly certificated. She is owned by the Nitrate Producers Steamship Co. of London, and chartered by the New Zealand Steamship Co. She was fully loaded with 9,000 tons of general cargo, and was bound for Australian and New Zealand ports, and at the time of leaving the wharf at Montreal was drawing 27 ft. 2 ins. fore and aft. She left the wharf at 6.15 a.m. in charge of Branch Pilot C. B. Hamelin, and with the assistance of two tug boats, as usual, was hauled from the wharf into the stream, and at a little distance above the berthing place which she had just left the bow tow rope parted and the vessel swung around with her bow to the south, under the effect of the current, and grounded on a bank and hung by the middle. Prior to the rope parting, and when endeavoring to head up stream, he noticed a scow at the end of Tarte pier, and in order to clear the scow the helm was starboarded and the vessel shortly afterwards took a sheer, and before she could recover the tow rope parted. He also stated that the steering gear and rudder were all right, as they had been examined half an hour before the lines were cast off. The gear is of the telemotor type. When the pilot reported something wrong with the gear the engineer was ordered to make an examination and reported everything was all right.

The master of the tug Aurelie G., which was the stern tug, said that he noticed at a certain stage, when the ship was heading up river to turn around, that the rudder remained amidships, which appeared to him as strange, and he called out to the pilot, advising him of that fact, but was not aware if the pilot heard him. The pilot of the Mathilda, the tug boat at the bow, testified that the hawser which was passed to him did not seem to be good, therefore he did not think it advisable to put all power on his boat, and had, up to the time of the parting of the rope, been going on the speed of four bells, which is apparently a local custom and signifies that the engines are working to obtain a speed on the tug of slightly over slow speed. The pilot stated that it is his impression that for some moments something occurred to impede the working of the steering gear, and therefore can only account for the ship not recovering more promptly to that fact, also to that of the parting of the tow rope. He also stated that if no scow had been tied to the end of the Tarte pier he would have passed at the usual distance from the end of the pier, and would consequently have benefitted in space as well as in the eddy forming between Tarte and Laurier piers. The evidence of the other witnesses did not materially differ from that given by the preceding ones.

The court is unanimous in exonerating the captain and officers of the Anglo Bra-

zilian, as well as the pilot, for the stranding. It has been conclusively demonstrated that everything was done that could have been done in such moments, and that the grounding was due to the parting of the tow rope at a critical moment. We have made a special examination of the steering gear and ropes, and we found that at the time of the visit on board the steering gear did not come up to our expectations; but we found it was due to a hot bearing, caused by a little dirt having been left the day previous during the overhauling by the 4th engineer. Moreover, the machinery and rudder worked in a satisfactory manner afterwards. We have ascertained that the ropes shown, and which were used on the occasion of the grounding, were good and sound. The first one shown seemed to have had somewhat more usage than the last one, which broke, and which was, in our opinion, the direct cause of the casualty. With regard to the scow tied at the end of Tarte pier, we recommend that the bylaws governing the duties of the Harbor Master, and vessels within the harbor limits, should be stringent. The fact of the scow being berthed at the end of the pier, without the knowledge of the Harbor Master, and contrary to the bylaws of the Harbor Commissioners, reduced the already narrow space in which vessels leaving Tarte and Laurier piers and vicinity have to manoeuvre. We suggest that no vessels of any description be allowed at the end of any berths, as in view of the narrowness of the spaces such berthing is fraught with danger to the vessel so berthed and exposes others passing by to meet with delay, if not disaster. Whilst we do not attribute this accident to the fact that the scow was tied to the end of Tarte pier, yet we affirm it would have been better if such had not been there.

The Vancouver Dry Dock Project

The construction of the dry dock at Vancouver, being undertaken by the Dominion Shipbuilding, Engineering and Dry Dock Co. is proceeding, contracts having been awarded for excavation, concrete work and steel construction. About 300 men are reported to be working on the first stages. The foundation piers for the first group of three large buildings have been built, all being of reinforced concrete. The area covered is 150 by 850 ft. Two of the buildings will be 150 by 250 ft. and the third about 100 by 150 ft. The outside row of piers for the foundations are 6 by 4½ ft., and the inner row 4 by 4 ft., all by 6 ft. high. As soon as the whole site has been cleared, the shore of Lynn Creek, which is the eastern boundary of the site, will be cleared, after which, the channel will be straightened and deepened by dredging.

It is announced that the Dominion Government has approved the plans, and granted the full subsidy under the act granting aid in the construction of dry docks, viz,—4% on an expenditure of $5,500,000, for 35 years, and it is stated that the financing of the project was all arranged for in London, Eng. before the outbreak of war. The dock is to be of the first class and most modern type, capable of handling the largest ocean going vessels and British warships. It will be 1,150 ft. long by 100 ft. wide, divisible into two sections, one of 650 ft. and one of 500 ft.

The officers of the company are,—President and Managing Director, Capt. H. Mowatt, formerly Marine Superintendent, C. P. R. Steamships, Liverpool, Eng.; Vice President and Assistant General Manager, R. Fowler, Vancouver; Chairman European Board, H. Grayson, Managing Director, H. and C. Grayson, Ltd., shipbuilders, Liverpool, Eng.; financial agents, Frey and Co., Vancouver, New York and London.

T. A. Frey left Vancouver recently for New York and London, to represent the local interests at a meeting of the board in London.

A Projected United States Government Merchant Marine.

The United States Congress committee of Naval Affairs completed and reported a bill recently authorizing an appropriation of $30,000,000, to enable the President to build or purchase thirty naval auxiliary vessels, which may be converted into merchantmen for use in the overseas trade during the war in Europe, or like emergencies. The bill provides that such vessels shall be acquired by the Panama Steamship and Railway Co., a Government owned concern, and that the company shall operate them in the U.S. coastwise trade, or between U.S. ports and those of Central and South America, and in the overseas trade, in the discretion of the President. It is further provided that vessels may be taken from the navy and put into merchant service, and transferred back to the navy. To provide funds for this purpose, the President is authorized to sell $30,000,000 of the bonds issuable under the law on account of the Panama Canal.

The mainspring of the project was the recent admission by the Hamburg American Line and the North German Lloyd, that they were willing to consider any reasonable offer for their vessels which are held at various ports in the U.S. Later, it transpired that some little difficulty might arise should the U.S. purchase these vessels, and some friendly conversations have taken place between the U.S. authorities and the British Ambassador, in which the latter pointed out that under the Declaration of London of 1909, it was stated that the transfer of an enemy's vessel to a neutral flag, effected after the outbreak of hostilities, is void unless it is proved that such a transfer is not made in order to evade the consequences to which an enemy's vessel, as such, is exposed, and that under international law the transfer of German vessels to the U.S. flag does not, under the circumstances, relieve them from the risk of cap ture by British vessels, but that owing to the friendly relations between the two countries, and Britain's keen desire to do nothing to interfere with such relations, the British Government was prepared to declare that the vessels would not be considered subject to capture under certain conditions. The most important of these conditions would be, that they shall not be used for carrying food, contraband or semi-contraband supplies to points where they would, or could be shipped to Great Britain's enemies, and that some assurance be given that on the close of the war, the vessels shall not be returned to German owners.

In addition to the foregoing steps towards the formation of a merchant marine, the President has signed an order suspending from operation certain sections of the navigation laws, and admitting foreign built merchant vessels to U.S. registration. Several U.S. companies which operate vessels under foreign flags, chiefly British, have signified their intention of transferring their vessels, and a considerable number have recently been transferred.

The C. P. R. s. s. Charmer is undergoing some repairs and a general overhaul at Victoria.

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

No.	Name	Port of Registry	Where and When Built		Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
131204	Deliverance	Liverpool, N.S.	Liverpool, N.S.	1914	110 8	32 0	10 4	280	54	65n.h.p. sc.	Southern Salvage Co., Liverpool, N.S.
134252	Goldfield	Winnipeg, Man.	Selkirk, Man.	1912	75 4	15 9	6 0	56	38	13 " "	Phoenix Brick, Tile & Lumber Co., Winnipeg, Man.
131222	Homer Warren	Owen Sound, Ont.	Bay City, Mich.	1901	180 0	28 0	9 0	447	304	73 " "	Peninsula Tug and Towing Co., Wiarton, Ont.
134248	Hudsons Bay Terminals, Lighter, No. 1	Toronto	Toronto	1914	122 0	21 5	9 0	268	129	19 " "	Minister of Railway and Canals, Ottawa, Ont.
134249	Hudsons Bay Terminals, Lighter, No. 2	"	"	1914	122 0	21 5	9 0	268	129	19 " "	" " " "
134365	M & F Dredge No. 14	Sorel, Que.	Collingwood, Ont.	1914	223 0	37 6	13 0	888	332	87 " "	Minister of Marine and Fisheries, Ottawa, Ont.
134366	M & F Dredge No. 15	" "	" "	1914	223 0	37 6	13 0	888	332	87 " "	" " " "
134329	Nipisiquit	Chatham, N.B.	Bathurst, N.B.	1914	75 0	18 4	8 4	94	22	16 " "	Bathurst Lumber Co., Bathurst, N.B

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

No.	Name	Port of Registry	Rig	Where and When Built		Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
131206	Blandford	Liverpool, N.S.	Schr.	Liverpool, N.S.	1914	120 9	32 0	11 5	293	Blandford Shipping Co., Liverpool, N. S.
131287	Charles Boone	St. Catherines, Ont.	Dredge	Welland, Ont.	1914	100 0	40 0	9 7	529	C. S. Boone Dredging & Construction Co., Toronto.
134103	P. D. Co. No. 1	Vancouver, B.C.	Scow	Portland, Me.	....	73 5	28 0	5 2	103	Pacific Dredging Co., Vancouver, B. C.
134173	Wilfred Marcus	Shelburne, N.S.	Schr.	Shelburne, N.S.	1914	100 0	25 5	10 0	123	G. V. Buffett, M.O., Grand Bank, Nfld.

Atlantic and Pacific Ocean Marine.

The Allan Line Steamship Co. has contributed £500 to the Prince of Wales fund in connection with the war.

James Bailey, for 35 years Marine Superintendent for the Cunard and Thomson Lines, died at Montreal, Sept. 15, after a short illness.

The s. s. Monkshaven, under charter to the Dominion Coal Co., in the coal trade between Sydney, N. S., and Montreal, ran ashore at Matane, Que., towards the end of August.

Campanello Steamships, Ltd., has been incorporated under the Dominion Companies Act, with $100,000 capital and offices at Toronto, to own, operate and manage steam and other vessels, etc.

The Cunard Line s. s. Aquitania, the latest addition to that company's fleet, was seriously damaged in a collision with the Leyland Line s. s. Canadian, off the Scotch coast recently, while engaged as a British transport.

The Cunard Line s. s. Campania, which has just completed a charter to the Anchor Line, has been placed in service again by the Cunard Line, owing to the withdrawal of the s. s. Aquitania by the British Government for war purposes.

Furness Withy and Co.'s s. s. Shenandoah arrived at St. John, N. B., Sept. 3, and reported having run aground at Little Musquash during a dense fog. She however backed off without assistance. The damage consists of a large hole in her port bow below the water line.

The British s. s. Floriston, outward bound from Montreal for Avonmouth, Eng., was reported Aug. 1, to have been beached near Port Saunders, Nfld., with her bows stove in, after having been in collision with an iceberg in the Belle Isle Strait. It is stated that she is a total loss.

The C.P.R. s.s. Missanabie, a full description of which was given in Canadian Railway and Marine World for August, has been completed, and has successfully undergone a series of trials. She is announced to sail from Liverpool for Montreal, Oct. 7, on her maiden voyage, and from Montreal to Liverpool, Oct. 22.

The C.P.R. has given notice that as the British Admiralty has requisitioned all the vessels of its Pacific fleet, the service across the Pacific Ocean has been suspended until further notice. The C.P.R. had five vessels on its trans-Pacific service, viz.: Empress of Asia, Empress of Russia, Empress of India, Empress of Japan and Monteagle.

Canadian Northern Steamships, Ltd., has chartered the Uranium Steamship Co.'s s. s. Uranium for its service between Canada and Bristol, during the period its vessels the Royal George and Royal Edward have been taken over by the British Government for war purposes. The Uranium is a one class vessel, the fare having been fixed at $55.

The White Star-Dominion Line has announced that it will receive any nationality for third class passage to Liverpool only, except Germans and Austro-Hungarians. In the case of Russians and Finns, each passenger is required to have $35 in his possession to cover the expense of passage from Liverpool to destination.

The White Star s. s. Oceanic ran ashore on the north coast of Scotland, Sept. 9, and became a total loss. All those on board were saved. She was built in 1898, and from her completion in 1899, until she was taken over by the British Government and converted into an auxiliary cruiser on the outbreak of war, she has operated between Southampton, Eng., and New York.

The Department of External Affairs is dealing with the claims of dependents of passengers who were lost in the Empress of Ireland disaster. Claim forms have been supplied to those concerned, and have been transmitted to the secretary of the Empress of Ireland British Relief Fund, through the Secretary of the High Commissioner of Canada, London, Eng.

The Allan Line steamships, Alsatian, Calgarian, Corsican, Ionian and Victorian, having been requisitioned by the British Admiralty for naval auxiliary purposes, the following vessels are being employed on the various routes:—Montreal-Glasgow route, Numidian, Pretorian and Scandinavian; Montreal-Liverpool route, Grampian, Hesperian, Scotian and Tunisian; Montreal-London route, Corinthian and Sicilian; Boston-Glasgow route, Pomeranian and Sardinian; Philadelphia-Glasgow route, Carthaginian and Mongolian. The last sailing of the Allan Line vessels from Montreal this season is scheduled for Nov. 22, by the s.s. Sicilian.

In connection with the recent arrival of the National Transcontinental Ry. car ferry Leonard, at Quebec, Aug. 18, as mentioned in our last issue, it is interesting to note that both her departure from Birkenhead, Eng., and her arrival on this side, were accomplished in perfect safety, and without any untoward incident. The fact that a vessel of such a type, which cannot manoeuvre, and the speed of which is limited, crossed the ocean unmolested, during war time, is evidence that the ocean routes are well controlled. No doubt the departure of the vessel from England was kept quiet, as a London, Eng., paper of Aug. 22, four days after the arrival of the vessel at Quebec, stated that her departure "will probably be somewhat delayed owing to the war."

Maritime Provinces and Newfoundland.

The Department of Public Works will receive, to Oct. 7, tenders for the construction of an extension to the breakwater at Negro's Head, N. B.

At a meeting of shareholders of the Cabot Steam Whaling Co., Ltd., at St. John's, Nfld., Sept. 5, it was resolved that the company be wound up voluntarily, with the directors as liquidators.

The Public Works Department has completed the improvement in the channel of the South River, the most southwesterly of the streams emptying into Murray Harbor, P.E.I., and this is now navigable for about 1½ miles above the entrance up to the bridge in Murray Harbor village, which is the terminus of a branch of the Prince Edward Island Ry. The channel is from 70 to 80 ft. wide, with a depth of 10 ft. at low water. A considerable trade is done with the village, by vessels of from 20 to 75 tons, and by the Three Rivers Steamship Co.'s s.s. Enterprise.

Province of Quebec Marine.

D. Seath, Secretary-Treasurer, Montreal Harbor Commissioners, attended the annual convention of port authorities at Baltimore, Md., Sept. 8 to 10.

The ferry steamboat Le Progres, built for the Corporation of Three Rivers, was given her trial trip Sept. 8, prior to being placed in service.

During August, 1,463 vessel passages were made through the Lachine Canal, against 1,569 in Aug., 1913. The tonnage was 780,352 against 785,865, the tons of cargo 664,313 against 652,601, and the number of passengers carried 28,869 against 39,583.

Canada Steamships Line s.s. Louis Philippe, under construction at Levis, for service between Montreal and Longueuil, was launched during September.

The Dominion Iron and Wrecking Co., Ltd., has been incorporated under the Dominion Companies Act, with $20,000 capital and office at Quebec, to deal in new and second hand bridges, locomotives, iron, steel, etc., contracting and wrecking equipment, steam and other vessels.

The Marine Department, following an investigation into alleged padding of pay lists, has made a number of changes in the Quebec Marine Agency. The accountant, time keeper and a clerk have been dismissed. The District Engineer, P. E. Parent, has resigned and has been succeeded by J. A. Smith, formerly Assistant Engineer.

Lieut. G. O. R. Elliott, R. N. R., heretofore Assistant Marine Superintendent, C. P. R. and Allan Line, Quebec, has been appointed Chief Examining Naval Officer for the port of Quebec, succeeding Commander Attwood, who has returned to England on active service. Lieut. Holloway, R. N. R., who brought the National Transcontinental Ry. car ferry Leonard from England in August, will act as his assistant.

The general and special regulations, approved by order in council, Apr. 20, 1911, for the government of public harbors in the Dominion, have been amended by the additional provision that all vessels drawing less than 14 ft. shall, when navigating the St. Lawrence River between Lanoraie and Varennes, either up or down bound, use the channel known as the north or Repentigny channel, unless they desire to stop at points on the ship channel, in which case that channel may be used.

A collision occurred on Sept. 18, at the Beaujeu Banks, about a mile below Crane Island, 25 miles below Quebec, between the Dominion Coal Co.'s s.s. Lingan and the Dominion Government s.s. Montmagny, sinking the latter vessel, and occasioning the loss of 15 lives. The Montmagny was carrying the wife of the lighthouse keeper at Belle Isle with her seven children, and the wife of the lighthouse keeper at Flower Island with her five children, all of whom were lost, together with the second officer of the vessel, who was attempting rescue. The Montmagny was built at Sorel, Que., in 1909, and not at Paisley, Scotland, as mentioned in the daily press. She was screw driven by engine of 148 n.h.p, and her dimensions were: length 212.6 ft., breadth 34.8 ft., depth 19.5 ft.; tonnage, 1,269 gross, 723 register. The s.s. Lingan is owned by Furness, Withy and Co., and is under charter to the Dominion Coal Co. She was built at Middlesbrough, Eng., in 1912, her dimensions being: length 388¼ ft., breadth 52 ft., depth 29¾ ft., with a carrying capacity of 7,600 tons, and speed of about 12 knots.

Ontario and the Great Lakes.

The first cargo of the present season's grain crop was brought down from Fort William, Aug. 27, by the C. P. R. s. s. Athabasca, for Jas. Richardson and Sons, Ltd., of Kingston.

The U. S. Government is reported to have awarded a contract to the Reid Wrecking Co. of Sarnia, for raising lightship No. 88, which was wrecked in the Great Lakes storm of November, 1913.

The Dominion Government s. s. Lambton, while at Fort William recently, took on ma-

terial for the establishment of a fog horn station at Battle Island, about 100 miles northeast of Fort William, on the north shore of Lake Superior.

Canada Steamship Lines s.s. J. H. Plummer, with package freight from Montreal to Toronto and Hamilton, went aground at Lake Ontario Park, near Kingston, Sept. 18. She was released Sept. 21, and it is stated that the damage is not serious.

The Canadian Shipbuilding and Dry Dock Co., Ltd., has been incorporated under the Ontario Companies Act, with $2,000,000 capital and office at Owen Sound, to build and operate dry docks, steam and other vessels, and to carry on a general shipbuilding and navigation business.

W. Sanford Evans, Chairman of the Government commission appointed to gather statistics relating to the proposed Georgian Bay canal scheme, with the Secretary, J. D. Hepburn, was in Montreal Sept. 10, collecting information from the local business interests.

The Department of Marine has placed a lighthouse on the western extremity of the Main Duck Island in Lake Ontario. It is an octagonal tower with sloping sides, of reinforced concrete construction, 80 ft. high from the base to the lantern vane. The light is of 100,000 c.p. of the third dioptric order, flashing every 10 seconds.

It is reported from Fort William that S. Buchanan, Superintendent, Upper Lake Service, C.P.R., has stated that the company has booked sufficient business to warrant the operation of its vessels on Lakes Superior and Huron until well on in December. In previous years the C.P.R. has suspended operations on the Great Lakes generally in November.

The Board of Railway Commissioners has amended its regulations governing the operation by railway companies of draw, swing or bascule bridges over navigable waters, to provide that the signal to be given by a steamboat, to have the swing opened on the Canadian Canal at Sault Ste. Marie, shall be three long, followed by two short, blasts of the whistle.

Following on the resignation of H. Foster Chaffee, Passenger Traffic Manager, Canada Steamship Lines, Ltd., Montreal, John F. Pierce, Assistant General Passenger Agent, has been given jurisdiction over all matters pertaining to passenger business, reporting to W. E. Burke, Assistant Manager. The position of Passenger Traffic Manager has been abolished for the present.

The s. s. Forest City, which has been operating in the neighborhood of Port Arthur and Fort William in a local passenger traffic during the summer, was damaged by colliding with the bank in the Mission River, Sept. 5, and while being tied up was further damaged by striking a sunken pile, both paddle boxes being smashed. She has been docked at Port Arthur, where she will be laid up for the winter, when repairs will be undertaken.

The U. S. Lake Survey reports the levels on the Great Lakes in feet above tidewater for August, as follows,—Superior 602.76; Michigan and Huron 580.64; Erie 572.59; Ontario 246.33. Compared with the average August levels for the past 10 years, Superior was 0.10 ft. above; Michigan 0.42 ft. below; Erie 0.12 ft. below, and Ontario 0.44 ft. below. It was anticipated that during September, Superior would be 0.1 ft. higer; Michigan and Huron 0.2 ft. lower; Erie 0.3 ft. lower and Ontario 0.4 ft. lower.

W. Livingstone, President of the Lake Carriers' Association, Detroit, Mich., has issued a notice to captains of vessels controlled by the association, directing a more rigid observation of the rule adopted by the association last year, requiring vessels to make a definite inside course while westbound, and an outside course when eastbound, in order to avoid the danger of collision in foggy or thick weather. He states that complaints continue to be received that vessels are disregarding this rule, and points out that every master is expected to observe it to the letter in all weathers.

The Temiskaming Navigation Co., Ltd., Haileybury, is being wound up, by an order of the court, with J. Hardy, Toronto, as interim liquidator. The company was incorporated under the Ontario Companies Act, with $99,000 capital, and head office at Toronto, in 1906. It is reported that of the capital stock, $50,400 was subscribed and fully paid up. There are at present $28,000 of overdue debts, and the immediately realizable assets amount to $7,000. The other assets which cannot be realized at once consist of vessels, real estate and other goods. The company operated the steamboats Jubilee, Meteor, Silverland and Temiskaming.

The Lake Nipissing Shipping and Transportation Co., Ltd., has been incorporated under the Ontario Companies Act, with $40,000 capital, and office at Toronto, to own and operate steam and other vessels and to carry on a general navigation business. This company has been formed to take over the four vessels formerly operated by the French River and Nipissing Navigation Co., Ltd., viz.:—Elgin L. Lewis, Highland Belle, Northern Belle, and Dundonald, full details of which were given in our last issue. The President of the company is F. E. Macdonald, the Secretary-Treasurer, H. H. R. Macdonald, and J. W. Bain is a director, all of Toronto.

The s.s. William Henry Mack, which was purchased from the Jenkins Steamship Co., Cleveland, Ohio, by Lake Commerce, Ltd., Toronto, recently, has been transferred to the Canadian register, and renamed Valcartier. She was built at Cleveland in 1903, of steel on the channel system, with steel tank top where no ceilings are fitted, five bulk heads, three of which are watertight, steel boiler house, complete electric lighting plant, and steam pump wells. She is equipped with triple expansion engines with cylinders 20, 33½ and 55 ins. diar. by 40 ins. stroke, 1,170 i.h.p. at 85 r.p.m., supplied with steam by two Scotch boilers, 12 ft. 10½ ins. diar. by 13 ft. long, with four furnaces, having 108 sq. ft. grate area, 4,229 sq. ft. heating surface, working pressure of 175 lbs. Her dimensions are: length 354 ft., breadth 48 ft., depth 28 ft.; tonnage, 3,781 gross, 2,923 register. The vessel left Fort William with her first load of grain under her new ownership, Sept. 17, for Port McNicoll. J. J. Burke is agent for the company at Fort William.

The ice breaking steamship J. T. Horne, owned by James Whalen, Fort William, left there Sept. 8, for Montreal, from whence, it is reported that she will be taken to Europe. It is stated that she has been acquired by the Russian Government, for $168,000, and that she is to be utilised in Russian waters in conjunction with the icebreaker Ermack. She was built at Port Arthur in 1913, of steel, with steel boiler house, and the hull is divided into five bulkheads, three of which are watertight. There is a complete electric light plant, and she is equipped with triple expansion engines with cylinders 18, 30 and 48 ins. diar. by 40 ins. stroke, 1,000 i. h. p. at 130 r. p. m. Steam is supplied by one Scotch boiler 15 ft. 4½ ins. diar. by 11 ft. 5 ins. long, 3 furnaces with a grate area of 75 sq. ft., and a total heating surface of 2,941 sq. ft., working pressure 185 lbs. per sq. in. Her dimensions are, length 114 ft., breadth 28 ft., depth 16 ft.; tonnage, 428 gross, 291 register. She has been used as a tug, icebreaker and fire tug in Thunder Bay.

Manitoba, Saskatchewan and Alberta.

The steamboat Mont Cashel, owned by E. D. Moore, Winnipeg, was practically destroyed by fire, at Winnipeg, Sept. 9. It is believed that the fire was the work of incendiaries. It is stated that the vessel will probably be rebuilt in readiness for operation next season. She was built at Winnipeg in 1912, and was screw driven by engine of 60 n. h. p. Her dimensions were, length 147.8 ft., breadth 28.5 ft., depth 11 ft.; tonnage 508 gross, 346 register.

A press report from Winnipeg states that the construction of two large docks on the Red River, at Winnipeg, will be started in the immediate future by the Dominion Gov-

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during August.

Articles			Canadian Canal	U. S. Canal	Total
Copper	Eastbound	Short tons	676	9,515	10,191
Grain	"	Bushels	1,239,632	997,192	2,236,824
Building stone	"	Short tons	.....	.....	.....
Flour	"	Barrels	347,460	1,000,940	1,348,400
Iron ore	"	Short tons	4,251,419	1,641,848	5,893,267
Pig iron	"	"	.....	.....	.....
Lumber	"	M. ft b.m.	3,557	63,136	66,693
Silver ore	"	Short tons	.....	.....	.....
Wheat	"	Bushels	2,189,217	1,998,114	4,187,331
General merchandise	"	Short tons	18,479	20,314	38,793
Passengers	"	Number	3,491	5,507	8,998
Coal, hard	Westbound	Short tons	54,107	238,952	293,059
Coal, soft	"	"	275,440	1,808,341	2,083,781
Flour	"	Barrels	.....	.....	.....
Grain	"	Bushels	.....	.....	.....
Manufactured iron	"	Short tons	11,477	20,314	31,791
Iron ore	"	"	.....	.....	.....
Salt	"	Barrels	1,302	91,475	92,777
General merchandise	"	Short tons	57,198	94,796	151,994
Passengers	"	Number	4,096	5,628	9,724
Summary.					
Vessel passages		Number	939	2,049	2,988
Registered tonnage		Net	2,931,303	3,868,652	6,799,955
Freight—Eastbound		Short tons	4,400,632	1,959,822	6,360,454
" —Westbound		"	398,408	2,176,124	2,574,532
Total freight		"	4,799,040	4,135,946	8,934,986

ernment, and that plans have been approved. They will be located respectively at the foot of Notre Dame Ave., and at Rover St. The first named will be 357 by 30¼ ft., and the latter will be 351 by 30¼ ft. They will be of the open pile type with 5 ft. centres and the piles will go down 30 ft. to rock. When the docks are completed they will be handed over to the local Harbor Commission.

British Columbia and Pacific Coast Marine.

The Northern Dredging Co., Ltd., Vancouver, has given notice of an assignment to R. Forrester, for the benefit of its creditors.

The C. P. R. s. s. Otter was considerably damaged by fire in her engine room, while lying at her wharf at Victoria, Sept. 7. She had not been in service for a few months, and had just returned from Vancouver with a cargo of coal.

Dredging is in progress at the mouth of the Courtenay River, Courtenay, under the superintendence of District Engineer Lambert of the Public Works Department. The Dominion Government granted $22,000 for the work recently.

The Burrard Inlet Gravel and Dredging Co., Ltd., has been incorporated under the British Columbia Companies Act, with $10,000 capital and office at Vancouver, to carry on a general contracting business, and in connection therewith to own and operate steam and other vessels.

The G.T. Pacific Coast Steamship Co.'s s.s. Prince George, which, on the outbreak of war, was requisitioned by the British Admiralty, and was arranged to act as a hospital ship, has been released, and as soon as the necessary changes are made will be returned to her ordinary service.

The contract for repairs to the C.P.R. s.s. Princess Victoria, which was damaged in collision with the Alaska Pacific Navigation Co.'s s.s. Admiral Sampson, has been awarded to Yarrows, Ltd., Esquimalt. It is stated that about 16 bow plates will have to be renewed and a section of the stem replaced. The vessel is at present in the dry dock at Esquimalt.

The G. T. Pacific Coast Steamship Co.'s s. s. Prince Albert, which was wrecked on Butterworth Rock, towards the end of August, is reported to have been abandoned as a total loss. C. H. Nicholson, General Manager of the company, who returned from the wreck, Sept. 1, is reported to have stated that she had a list of 50 degrees, and at high tide was practically awash. She was formerly known as Bruno, and was built at Hull, England, in 1892, and purchased by the G. T. P. Coast Steamship Co. on the formation of the company, when her name was changed. She was screw driven by engine of 170 n. h. p. Her dimensions were, length 232 ft., breadth 30 ft., depth 14 ft.; tonnage, 1,015 gross, 587 register.

The C. P. R. s. s. Princess Victoria and the Alaska Pacific Navigation Co.'s s.s. Admiral Sampson, were in collision off Point No Point, about 20 miles from Seattle, Wash., Aug. 26, the latter vessel sinking and 8 of the crew and 3 passengers losing their lives. One of the passengers reported among the lost was the wife of G. Banbury, clerk, Grand Trunk Pacific Coast Steamship Co., Seattle. The Princess Victoria has been libelled for $670,000, and the C. P. R. filed a claim in the Federal Court at Seattle that this is excessive. The court appointed appraisers to value the vessel, and this was fixed at $285,520 for the vessel and $705.10 for the cargo. The C. P. R. states that the accident was due to the excessive speed of the Admiral Sampson in a fog, and claims that the Princess Victoria has been damaged to the extent of $20,000, which the Alaska Pacific Navigation Co. should pay, with such other damages as passengers and owners of freight may claim.

Wreck of Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Albert.—The judgment of the Wreck Commissioner's court, presided over by Capt. J. D. Macpherson, with Capts. J. Gosse and H. Denyer as nautical assessors, at Vancouver, B. C., Sept. 8, re the wreck of the G.T. Pacific Coast Steamship Co.'s s.s. Prince Albert, near Masset, recently, stated that Capt. J. J. Flood, the officer in charge, showed an utter want of all the characteristics required for such a responsibility, and he must have known, from his long experience, that he was in dangerous waters. His certificate of competency as the master of a passenger vessel in the coasting trade was suspended for three months. Capt. D. McKenzie, the master, was justified, under the existing circumstances, for retiring to rest, but he was severely reprimanded for not leaving instructions to be called before a certain specified point was reached. The court also found that, after the accident, everything was done that was possible for the preservation of life and property, and that the discipline was excellent.

Navigation Aids in Hudson Bay.—It is announced from Ottawa that the Government programme of work in connection with the navigation of Hudson Bay, for this year, covers the preparation for the erection of three wireless telegraph stations in the Strait and at the bay entrance, so as to give continuous communication from the open ocean to Port Nelson and Fort Churchill. The actual construction of these sections will, however, not be undertaken until next year. The Government s. s. Acadia is engaged in charting the Strait, and other Government vessels are taking soundings and doing general survey work for the harbors at Port Nelson, Fort Churchill and at the mouth of the Nottaway River. Two lighthouses are to be commenced this year, one on either side of the entrance to the Port Nelson harbor, and a third will be built on a newly charted shoal in the bay.

The Marine Department has issued a notice to mariners cautioning them that Government vessels are sometimes engaged in sweeping operations off ports in Canada, and whilst so engaged they work in pairs connected by a wire hawser, and are consequently hampered to a very considerable extent in their manoeuvring powers. With a view to indicating the nature of their work they show a black ball at the foremast head and a similar ball at the yard arm, or where it can best be seen, on that side on which it is dangerous for vessels to pass. For mutual safety, other vessels, whether steamers or sailing craft, should endeavor without violating the rule of the road, to keep out of the way of vessels flying this signal, and should especially remember that it is dangerous to pass between the vessels of a pair.

A dipper dredge for the Randolph Macdonald Co., Ltd., of Toronto, was launched recently at Welland, Ont., by M. Beatty & Sons, Ltd. It is of the boom and A frame type, with a 3½ cu. yd. dipper to work in 30 ft. of water. The steel hull is 107 ft. long, with 36 ft. beam. It is 9¼ ft. deep at the bow and 8¼ ft. at the stern. The boiler is of the Scotch marine type and is of ample size to furnish steam for the entire plant when working under heavy load. The bow anchors are made of steel plating, 28 by 30 ins. by 55 ft. long, with a circular reinforcement on the inside, forced into place and firmly rivetted. All the sheaves and bearings, as well as the anchor points, are of open hearth steel castings. The dredge is expected to be completed early in the autumn.

The Kiel Canal, of which so much is heard during this war, runs from the mouth of the River Elbe, in the North Sea to the fjord of Kiel, in the Baltic Sea, about 60 miles. Its normal width is 335 ft. at the surface and 144 at the bottom, with a depth of 36 ft. New twin locks have been built alongside the old ones at each end. They have an available length of 1,082.6 ft. and width of 147.6 ft. Intermediate gates may be used to cut off a chamber 328 ft. long. The locks at Panama are only 1,000 by 110 ft. The reconstruction of the Kiel canal cost $55,000,000.

Telegraph, Telephone and Cable Matters.

The Canadian Northern Telegraph Co. has opened offices at Westside and Steep Rock, Man., and Hearne, Sask.

W. J. O'Connor, night chief operator, C. P. R. Telegraphs, Ottawa, for the last ten years, died there, Sept. 8, aged 42, after about a month's illness.

The Great North Western Telegraph Co. has opened offices at Thamesville, Ont., and at Cedars Station, Lake St. Joseph Hotel, Valcartier Camp and Valcartier Rifle Ranges, Que., and has closed its various offices which are only opened for the summer season.

The Pacific Cable Board's cable between Canada and Australia, was reported to have been severed in the neighborhood of Fanning Island, early in September. The actual cause of the break has not transpired, but it is believed to have been cut by one of the German cruisers in the Pacific which has not yet been located. It was announced that the cable would be repaired and communication restored as soon as possible.

A London, Eng., press dispatch of Sept. 18, stated that the Postmaster General, who has been in communication with the cable companies regarding the heavy charges falling upon the commercial community on account of the compulsory insertion of full addresses and signatures in messages, hopes to make an arrangement which will substantially reduce the cost of cables to countries outside the European system.

At the annual meeting of the Marconi Wireless Telegraph Co. in England recently, the report for the year showed a gross profit of $1,227,915. Final payments of the dividend of 10% on both classes of shares have been made for the year. Favorable mention was made of the progress of the Canadian and other companies, and also of the general development of the wireless compass or direction finder, some details of which have already been given in Canadian Railway and Marine World.

The Dominion Government has taken over the completed wireless telegraph stations at Port Nelson in Hudson Bay, and at Pas, Man. These stations were erected under contract by the Marconi Wireless Telegraph Co., which was to operate them for one year. This period having expired, the stations have been placed under the jurisdiction of the Naval Department. It is announced that wireless telegraph stations are to be erected at Maunsel Island, at the western extremity of Hudson Strait; at Ash Inlet, about the centre of the Strait; and at Button Islands, at the Atlantic end of the Strait.

The British House of Commons has approved an agreement with the Canadian Government relating to a reduction in the cable rates to the West Indies in return for a subsidy of £16,000 a year for ten years, payable in equal shares by the British and Dominion Governments, and for the continuance for the same period of subsidies amounting to £10,300 a year to the West Indies Colonies Co., which undertakes to reduce the cable rates now in force. There will be a flat rate between any of the colonies and the United Kingdom of 2s. 6d. a word and 1s. 6d. a word to Canada, in place of rates ranging from 3s. to 5s. 6d. and 2s. 2½d. to 4s. 9½d. Provision is also made for a reduction of 50% in charges for Government and press messages, deferred cables, daily news bulletins, etc.

It is reported to have been announced from Ottawa, presumably by the military authorities, that it is difficult to secure proficient telegraph operators for war service in Europe, owing to the difference in code. Operators claim that what is termed as the continental code can be mastered in about 10 days, so that that difficulty can easily be overcome. While this matter is to the front, it is expected that an impetus will be given to the question of displacing the code in use on this continent, in favor of the continental code, which is said to be more simple and speedy, and thus bring the whole telegraphic system under the one code. The continental code is used for wireless telegraphy and for cable messages, and also over the land lines operated by the Pacific Cable Board under lease from the C.P.R., while occasional direct cable communication from main C.P.R. centres with Great Britain is also made by the same code. The question of the change is under discussion by the various companies in the U.S., and it does not appear that the difficulties are too great to overcome.

Among the Express Companies.

The Canadian Northern Ex. Co. has opened offices at Westside, Man., and Hearne, Sask.

The Canadian Ex. Co.'s operations for June, cover receipts $261,901; exp. priv. $113,178; operating revenue $148,722; operating expenses $129,504; net revenue $19,218; taxes $3,000; operating income $16,218, against $276,922 receipts; $121,473 exp. priv.; $155,448 operating revenue; $130,814 operating expenses; $24,636 net revenue; $3,000 taxes; $21,634 operating income for June, 1913.

With reference to the paragraph in our last issue, relating to the liquidation of the British Columbia Express Co., we are officially advised that owing to the advance of railway construction in the territory covered by the company, the Government mail contract was given up, and the stage equipment sold to the Inland Express Co. Otherwise the company is continuing business as before and carrying mails for the Inland Ex. Co. for the river part of the journey. Jas. C. Shields, Ashcroft, B. C., and J. T. Robinson, Kamloops, B. C., control the Inland Ex. Co.

The Inland Express Co., which is reported to have taken over a portion of the British Columbia Ex. Co.'s business, was incorporated under the first mentioned name in Dec., 1913, with the object of taking over the business of J. C. Shields and J. T. Robinson, carried on under the name of the Imperial Express Co. It has an authorized capital of $50,000, and office at Ashcroft, B. C. It is stated that the company receives a subsidy of $12,000 a month from the Dominion Government, and in addition $5,000 a month for the carriage of passengers and freight, and also that the company has taken over the stage, express and passenger business of the British Columbia Ex. Co. There are some matters in dispute between the two companies, and litigation is in progress between the parties. It is alleged that the British Columbia Ex. Co. agreed to cease business as an express carrier. The officers and directors of the Inland Ex. Co. are:—President, J. C. Shields; Vice President, J. T. Robinson; Secretary, W. H. Edmunds; Superintendent, Leslie Cameron; other director, F. J. Fulton, K.C.

The Canadian Northern Ex. Co.'s total receipts from operation for June were $84,623; express privileges, $32,156; total operating revenue, $52,467; operating expenses, $35,456; net operating revenue, $17,011; taxes, $6,389; operating income, $10,621, against $87,203 total receipts from operation; $34,051 express privileges; $53,151 total operating revenue; $32,200 operating expenses; $20,950 net operating revenue; $631 taxes; $20,318 operating income for June, 1913. Aggregate total receipts from operation for 12 months ended June 30, $971,947; express privileges, $374,704; total operating revenue, $597,243; operating expenses, $402,993; net operating revenue, $194,249; taxes, $21,157; operating income, $173,092, against $957,275 aggregate total receipts from operation; $372,602 express privileges; $584,672 total operating revenue; $365,833 operating expenses; $218,839 net operating revenue; $6,316 taxes; $212,522 operating income, for same period 1912-13. The mileage of steam roads over which the company operated for the year ended June 30, 1914, was 6,130.77, and other lines 22 miles, against 5,736.67 and 22 for the same period 1912-13.

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.

John Bertram & Sons Co., Ltd., Dundas, Ont., manufacturers of machine tools, have distributed a wall calendar pad, one sheet for each day.

Babcock & Wilcox, Ltd., Montreal, supplied the marine type boilers for the s.s. Princess Margaret, built recently for the Canadian Pacific Ry., and which was described in our August issue.

Taylor and Arnold, Limited, railway supplies, etc., Montreal, have been authorized by supplementary letters patent under the Dominion Companies Act, to increase their capital stock from $50,000 to $100,000.

Flannery Bolt Co., Pittsburg, Pa., has issued its 1914 catalogue of the Tate flexible staybolt and tools for installation, which is being distributed by Canadian Allis-Chalmers Ltd., Toronto, exclusive agents in Canada.

Independent Pneumatic Tool Co., Chicago and Montreal, has issued circular V, describing its Thor roller bearing piston air drills, pneumatic chipping, calking and flue beading hammers, turbine drills, staybolt drivers, air hose, couplings, etc.

Algoma Steel Corporation, Ltd., announces the discontinuance of its sales office in Montreal, and that all material manufactured by it will be sold through its sales department at Sault Ste. Marie, Ont., to which department all inquiries should be addressed.

The Trolley Supply Co., Canton, Ohio, has issued a 60 pg. catalogue of trolley supplies, including Knutoon trolley retriever, Ideal trolley catcher, Simplex and Peerless trolley bases, Peerless check valve and junior headlight, pressed steel dash headlights, Hollis safety fender and no. 3 detachable fender.

The Electric Railway Improvement Co., Cleveland, Ohio, has leased bonding cars recently to the following:— Des Moines City Ry. Co., Des Moines, Iowa, 2nd car; Bell & Jamison, Los Angeles, Calif., 2nd car; Jamestown Westfield & N.W. Rd., Jamestown, N.Y.; Wilkes Barre & Hazelton Ry. Co., Hazelton, Pa.; Shore Line Electric Ry. Co., Norwich, Conn.

Canadian General Electric Co., Ltd., Toronto, has issued bulletin A4200 on strain insulators and strain clamps, also a catalogue of chloride accumulators and Tudor accumulators for electric railway, lighting and power stations, interlocking switch and signal and telephone and telegraph service; and a small pamphlet illustrating different types of railway condulets, as well as a bulletin on rail bonds and bonding tools containing a minute description of manufacturing methods.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries.

Canadian Car Service Bureau. J. Reilly, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association, Acton Burrows, 70 Bond Street, Toronto.

Canadian Freight Association (Eastern Lines), G. C. Ransom, Canadian Express Building, Montreal.

Canadian Freight Association (Western Lines), W. E. Campbell, 502 Canada Building, Winnipeg.

Canadian Railway Club, J. Powell, St. Lambert, Que. Meetings at Montreal, 2nd Tuesday each month, 8.30 p.m., except June, July and August.

Canadian Society of Civil Engineers, C. H. McLeod, 176 Mansfield St., Montreal.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Central Railway and Engineering Club of Canada, C. L. Worth, 409 Union Station, Toronto. Meetings at Toronto, 3rd Tuesday each month, except June, July and August.

Dominion Marine Association, Counsel, F. King, Kingston, 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 St. West, Toronto.

Great Lakes and St. Lawrence River Rate Committee, Jas. Morrison, Montreal.

International Water Lines Passenger Association, M. R. Nelson, New York.

Niagara Frontier Summer Rate Committee, Jas. Morrison, Montreal.

Nova Scotia Society of Engineers, A. R. McCleave, Halifax, N.S.

Quebec Transportation Club, A. F. Dion, Quebec.

Ship Masters' Association of Canada, Capt. E. Wells, 45 St. John St., Halifax, N.S.

Toronto Transportation Club, W. A. Gray, 143 Yonge St., Toronto.

Western Canada Railway Club, Louis Kon, P. O. Box 1707, Winnipeg. Meetings at Winnipeg, 2nd Monday each month, except June, July and August.

Transportation Conventions in 1914.

Oct. —.—American Association of Dining Car Superintendents, Washington, D.C.

Oct. 12-16.—American Electric Railway Association, Atlantic City, N.J.

Oct. 14-16.—American Association of Railway Surgeons, Chicago, Ill.

Oct. 19-23.—Association of Railway Electrical Engineers, Chicago, Ill.

Oct. 20-22.—American Railway Bridge and Building Association, Los Angeles, Cal.

Nov. 17.—National Association of Railway Commissioners, Washington, D.C.

Nov. 17-19.—Maintenance of Way and Master Painters' Association of the United States and Canada, Detroit, Mich.

Nov. 18.—American Railway Association, Chicago, Ill.