

Canadian Railway and Marine World

September, 1914.

The Quebec Central Railway Shops at Sherbrooke.

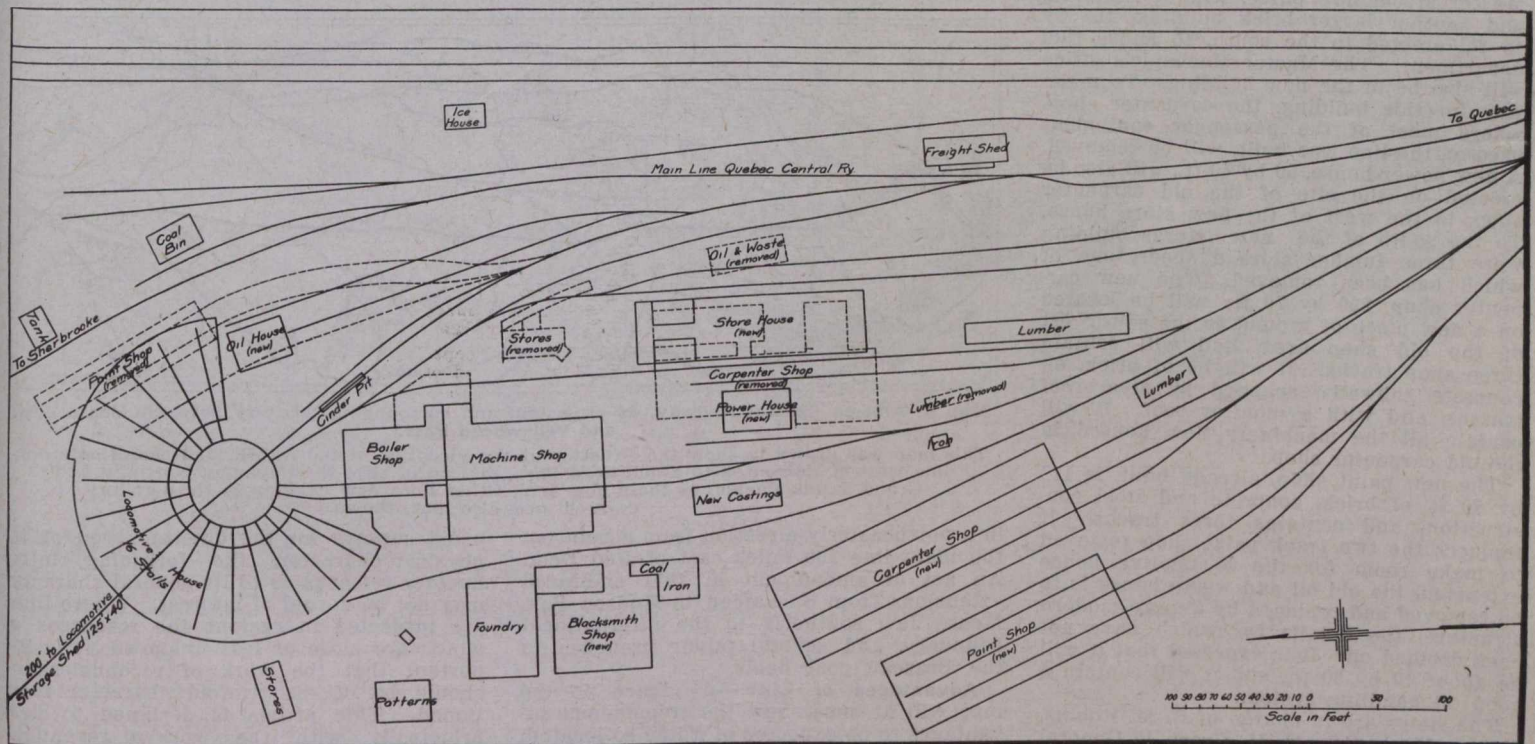
During the past year, extensive alterations and additions have been made to the Quebec Central Ry. shops at Newington, a suburb of Sherbrooke, Que. A plan of the old and new arrangements is given herewith, the former buildings being shown in dotted lines, while the remaining buildings of the old arrangement, and the recently, or to be, constructed buildings, are shown in full lines. The arrangement now will involve a quite complete layout, such as is seldom to be seen on such a short line.

The Quebec Central Ry. is a subsidiary unit of the C.P.R., retaining its entire organ-

ter and other farm products are made. It also opens up rich spruce forests. Consequently, most of the company's traffic is produced on its own line, and the various commodities are handled almost entirely in car load lots, most of the trains operating solid from the loading point to the transfer point, for distribution to various markets in Canada and the United States. To handle this traffic, the company has 35 locomotives, 1,067 freight cars, and 46 cars of passenger equipment of all kinds. All the repairs to this equipment are handled at the Newington shops, and the majority

being much smaller than usual practice dictates. The inner wall radius is 45 ft. and the outer 115 ft., giving a stall depth of 70 ft. In the centre is a 66 ft. steel turntable, which only provides a distance of 12 ft. from the edge of the turntable pit to the inner wall of the locomotive house, which, in consequence, does not provide sufficient room for locomotives between the turntable and locomotive house. The small diameter of the locomotive house makes the stall width at the outer wall very roomy, with lots of working space.

The new layout has included a 5 stall ad-



Old and New Layouts in the Quebec Central Railway Shops.

ization, with complete operating staff, with headquarters at Sherbrooke, from which point the line runs northerly to Levis, opposite the City of Quebec, with two branch lines, one of which leaves the main line at Tring Jct., connecting with the C.P.R. Montreal-St. John, N.B., line at Megantic, the other leaving the main line at Valley Jct., and running northeasterly to St. Sabine, from which point the line is being extended gradually towards the New Brunswick boundary. This gives a total mileage of 253.

It is claimed that nearly 85% of the world's asbestos supply comes from the section of Quebec traversed by this line, and practically all this tonnage is handled by the Q.C.R., other lines only touching the fringe of the asbestos field. Valuable copper mines, producing a high grade of copper ore, extensive granite and lime copper ore, extensive granite and lime copper works, and pulp and paper manufacturing industries, are also located on the Q.C.R., and in addition the northern section passes through a rich agricultural country, from which extensive shipments of cheese, but-

of the passenger and freight cars on the line have been built in these shops, a policy which has been found advantageous in keeping the shop output uniform through all the seasons.

From the fact that a large part of the freight traffic can be handled in train loads of full capacity, from time to time the company has had to add to the motive power by large capacity freight locomotives, for the maintenance of which the old shops were taxed to the limit. In consequence of this, it was decided to remodel the old shops, retaining such parts of the old layout as could be profitably utilized in the new scheme, and building a number of new ones to replace the removed ones and to extend the shop capacity. From the accompanying plan it will be seen that of the old layout the only larger buildings to be retained are the locomotive house, machine and boiler shop, and foundry. The locomotive house, formerly of 11 stalls, is rather unique from the viewpoint of modern practice, the radii to which the inner and outer walls have been struck

dition on the east end of the locomotive house, necessitating the removal of the old paint shop, which stood in the way of this extension. An additional depth of 5 ft. was given the new stalls, making them 75 ft. deep, so as to handle the larger new locomotives. The locomotive house is a wooden frame structure, sheathed in iron, on concrete foundations, with three rows of wooden columns, supporting a galvanized iron roof. The flooring is concrete, as are also the pits. There are driving wheel and engine and trailing drop pits, with jacks, and in the new addition there are two inspection pits. The old building was heated by stoves, but the new layout provides for steam heating of the whole building. The smoke jacks are of wood. To the rear of the locomotive house there is a locomotive shed, 125 by 40 ft., which existed in the old layout.

The boiler and machine shop, which remains as before, was the nucleus of the shop area, formerly being a packing factory, which was bought by the railway, and the main building of the plant converted

into the machine and boiler shop. It was not exactly suited for a locomotive shop, as it was very high roofed, but it has been altered so as to make it suitable to meet all requirements. The machine shop occupies the southerly end, and the boiler shop the northerly end, the two being divided by a central wall, in which there is a large brick chimney, remaining from the old packing days, which has been found useful for handling the blacksmith shop smoke, the blacksmith shop heretofore occupying the west side of the machine shop. The dimensions of the machine and boiler shop are 185 by 85 ft.

To the west of the machine shop is the old foundry building, retained in the new layout, and which is 50 by 70 ft., with a cleaning room annex, 50 by 20 ft. A coal and iron building adjoins the foundry. The new blacksmith shop is located in the L of the foundry building, and is of brick, 70 by 50 ft. This department, being removed from the west side of the machine shop, provides needed room in that shop for expansion.

The old stores building, to the east of the machine shop, which contains the Master Mechanic's office, will be removed, and another larger brick building, 165 by 45 ft., erected to the south, to house this department. The Master Mechanic's office will also be in the new building. To make way for this building, the carpenter shop, where most of the passenger equipment used on the line was built, will be removed. A new power house, 50 by 40 ft., will also be erected on the site of the old carpenter shop, to the west of the new store house. To the south of the new stores building were three lumber storage sheds, one of which has been removed. The new carpenter shop, 220 by 70 ft., will be located on a new piece of ground to the southwest of the old shop area, and will contain three shop tracks. It will be of brick, on concrete subwalls, spanned by steel roof trusses, and with a monitor roof. It will contain all the machinery now housed in the old carpenter shop.

The new paint shop, already built, is 175 by 60 ft. of brick, concrete and steel construction, and contains three tracks. It replaces the two track paint shop removed to make room for the locomotive house extension, the old oil and waste house is to be removed and replaced by a more modern structure, the details for which have not been decided on. It is expected that it will be about 40 by 30 ft., and it will contain a good oil handling system.

The shops are in charge of G. M. Robins, Master Mechanic. E. M. Green is General Foreman, Machine Shop, and R. G. Price, Car Foreman. We are indebted to J. H. Walsh, General Manager, for permission to secure the information on which this article is based, and to G. M. Robins for the detailed information obtained.

Flange lubricators on the forward driving wheels of all passenger locomotives are recommended by the German Railway Administration Society, and also on the rear wheels of locomotives having a tender as part of the locomotive. The lubricator cup is generally placed above the running board, and the lubricator so attached that the vibration or the movement of the driving springs cannot influence its position against the flange. A grease and tarry compound and crude oils are two of the lubricants used.

Old car trucks were put to a novel use recently on the Southern Pacific Lines, when a threatening washout of a section of the line was prevented by throwing a large number of old trucks down the embankment, thereby forming a solid retaining wall.

The Inception and Location of the Alberta Central Railway.

By J. Grant Macgregor, M. Can. Soc. C.E., formerly Chief Engineer, A.C.R.

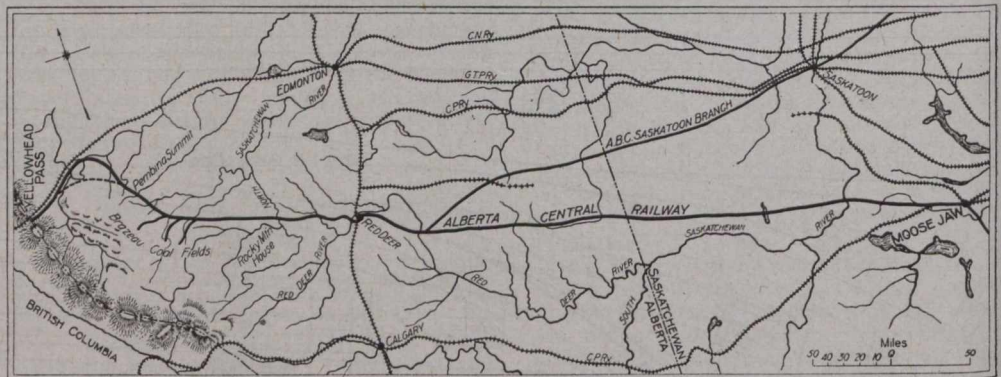
Opportunity to open up a large tract of fertile prairie land gives access to the Brazeau coal fields and ultimately form a link in a new transcontinental railway was the germ in the idea of the Alberta Central Ry., construction on which was begun in 1910. Upon its locating engineer rested the responsibility of choosing a route that would allow at once a low first cost and later economical reduction of grades to the requirements of a trunk line. The reconnaissance surveys to find this route are believed to be of interest and will therefore be described in some detail.

The charter of the Alberta Central Ry. was granted by the Dominion Government in 1901, and, with subsequent amendments, provided for a line from Moose Jaw, Sask., to the Yellowhead Pass, on the boundary line between Alberta and British Columbia, a distance of approximately 700 miles. It stipulated as an intermediate objective point the town of Red Deer, Alberta, and provided for a branch running to Saskatoon

survey was made for railway purposes. Experienced pioneers from the Dakotas, Montana and Washington proved the fallacy of previous reports by settling themselves comfortably on the land long before the advent of the railways—believing faithfully that their solitude would not remain long undisturbed.

The country lying to the west of Red Deer, as far as the foothills, is of a very different character, and may be described as beginning with park prairie country, bordering on the prairie country above described, and gradually increasing in diversity of contour and density of vegetation until it mingles with the virgin forests of the foothills. The soil is a rich black loam, affording abundant moisture and luxuriant grass—ideal conditions for the mixed farmer and rancher.

Reconnaissance.—As the work of reconnaissance involved the determination of the resources and possibilities of the country as a revenue producer, in addition to the



Map of Alberta Central Railway, as projected, and surrounding territory between Moose Jaw and Yellowhead Pass.

This map was drawn to show the situation at the inception of the A.C.R., and shows only one line west of Edmonton to Yellowhead Pass, instead of two, the Canadian Northern and Grand Trunk Pacific, as there now are. Other lines now existing in the territory covered are also not shown.

in a northeasterly direction from a point on the main line 100 miles east of Red Deer. An act of amendment in 1911 embraced extensions from Saskatoon to Hudson Bay Moose Jaw southerly to the international boundary, and several minor branches to the Brazeau coal fields.

Advantages of Line.—A glance at the map will at once show the tremendous advantages to be expected of a line so located, on account of the extent and exclusiveness of the territory to be served. In this, however, the anticipations of the original promoters were doomed to disappointment, for no sooner had surveys been made and plans filed than two more companies were in the field with plans for divergent routes across the same territory. The competitive companies referred to, being stronger organizations, with greater interests at stake, followed up their surveys with their construction forces, and in a comparatively short time were in indisputable possession of their respective routes. Considering, however, that there is a zone of country from 50 to 100 miles wide tributary to those lines, much valuable territory still remains to be served by the Alberta Central Ry. The country referred to lies east of the town of Red Deer, principally between the Red Deer and South Saskatchewan Rivers. It is remarkable that although this region consists of a very large portion of the most fertile prairie land in the Provinces of Saskatchewan and Alberta, its invasion by railways is of comparatively recent origin. Many conflicting reports were in existence with regard to its character until the first

usual surveys for the determination of its physical character, the foregoing introductory remarks as to its general character may not be devoid of interest. Where lines are projected in regions the resources of which are more or less unknown, it is important that the work of reconnaissance should be of the twofold character mentioned. This article is designed to deal principally with the work of reconnaissance and location.

In Aug., 1909, the writer was authorized to investigate the possibilities of a direct line from Moose Jaw to the Yellowhead Pass. The advantage of a direct line between points mentioned suggested to the original promoters another link in the transcontinental lines of the Dominion, and special emphasis was laid on the request that whatever was done in the way of reconnaissance, the ultimate object would be the location of a line with low grades, the maximum to be 0.4% in both directions. At the same time it was generally understood that for the present the Alberta Central could be no more than a colonization railway, the feature of low grades being only admissible where the cost would compare favorably with that of similar railways or branch lines built for colonization purposes.

Character of Ground.—Between Moose Jaw and Red Deer no difficulty was experienced in finding low enough summits to admit of a 0.4% ruling grade in each direction, with a reasonable amount of surface development to secure sustaining ground

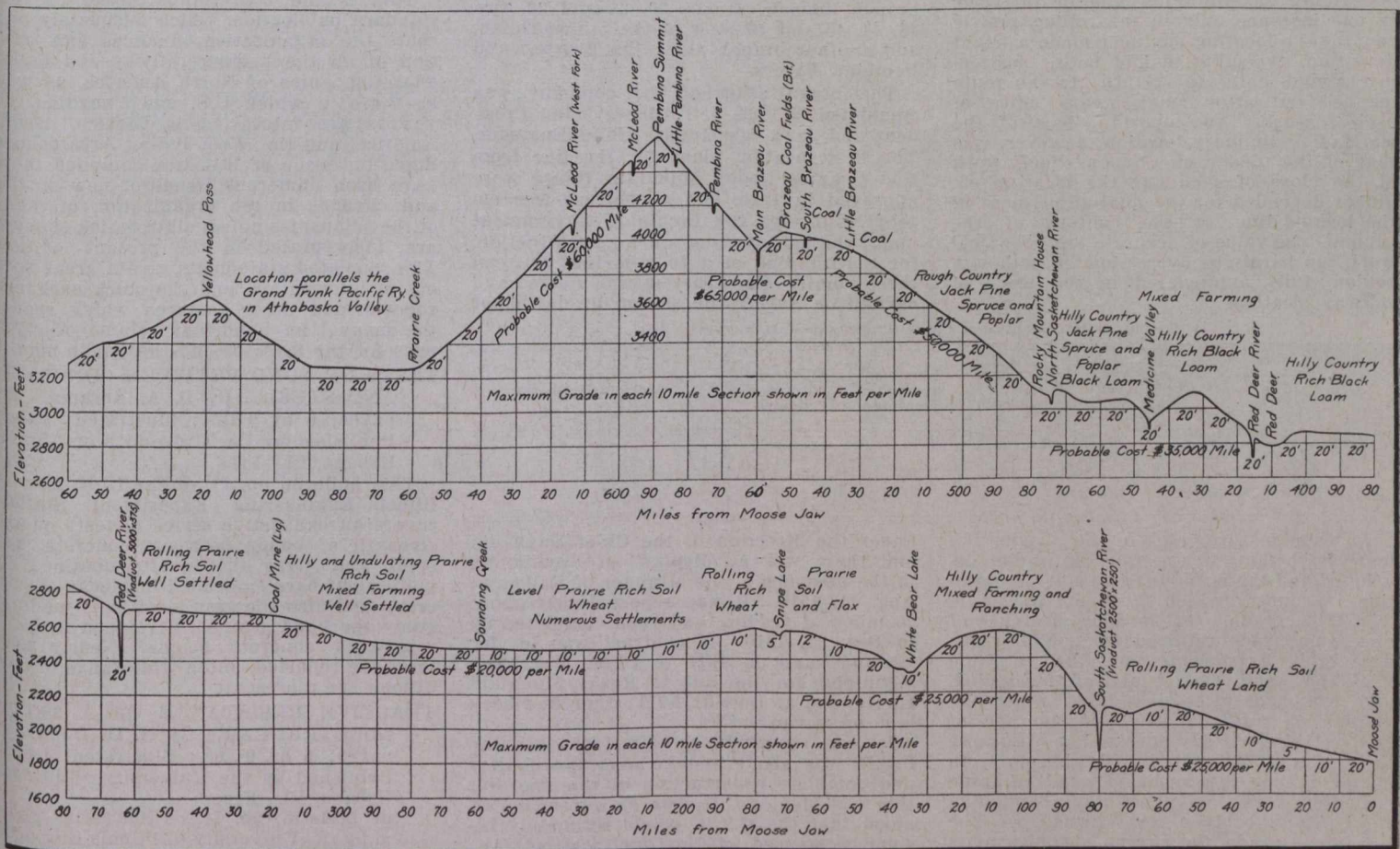
for a moderately cheap line, but from Red Deer to the mountains many long detours were necessary to attain this purpose. In the latter case it is evident that in endeavoring to obtain the shortest possible routes the topography will invariably develop long stretches of maximum grades. The question as to what extent distance should be sacrificed in order to avoid this so-called objectionable feature necessarily involves one or more of the intricate problems of railway location, and in order to provide for this during the work of reconnaissance sufficient margin was left for the locating engineer to work out the economic equations dependent thereon. The possibility of introducing velocity grades at favorable points during location was also considered. These were the governing features of the work of reconnaissance as carried out, but nevertheless the application of so extremely low a ruling grade was often found to be difficult and uneconomical.

two 3 in. field aneroids reading to 15,000 ft. After carefully considering the advantage of stationary readings and self recording aneroids for correcting the error due to atmospheric conditions the writer was induced to abandon these methods and adopt a method by which a vigilant observer can ascertain the correction for atmospheric changes to better advantage in the field. Two instruments were in use in the field, one for observing the altitudes and the other in reserve in case of emergency and for detecting errors of a physical character in the instruments in use.

One day's work will suffice to illustrate the method of recording the observations and corrections made for determining the altitude. A start is made at some point, the altitude of which, above sea level, is already known and carefully recorded by the aneroid a few hours before starting. Another observation is made by the same instrument at the same spot when starting, the

ined at the start, or wherever available during the progress of the work, was added or subtracted, as the case might be, and the result entered in the column for "Elevations above sea level." The condensed profiles which accompanied the reconnaissance reports were afterward prepared from the elevations above sea level. These profiles pieced together form the continuous profile accompanying this article and cover a distance of more than 700 miles.

The accuracy of the work was amply proved to be satisfactory for the purpose of a reconnaissance. The country from Red Deer eastward 200 miles was explored from Red Deer and checked on the return journey. The country from Moose Jaw westward 250 miles was covered by a single trip from the Moose Jaw end, making connection with the work from Red Deer eastward near Sounding Creek. On comparing the reading with sea level after a trip of 250 miles the error was found to be not more than 20 ft. Of



Reconnaissance profile, showing main characteristics and estimated unit costs for various sections, Alberta Central Railway.

The work in the field was facilitated by reference to the township maps and section corners. A straight line was drawn between objective points on the map and a zone of country 3 miles wide on each side of this line laid off to indicate the extreme limits of deviation. Next to grades in importance were to be considered the instructions relative to directness of route, but it was considered by the writer that a route which did not vary much more than 3 miles on each side of a "crow-fly" line would in a distance of 300 or 400 miles be considered fairly if not unusually direct, even on the prairies.

To those familiar with the use of the aneroid, with its contingent variations and vagaries, and the vigilance necessary to avoid errors in the field, the writer's experience may be of more than ordinary interest. The instruments used were one 4½ in. compensated surveying aneroid, reading to 8000 ft. for stationary reading, and

difference of the two readings giving any local variations. The practice was to take observations of local variations every few hours, usually at meal hours. If the weather appeared unsettled, a rest of half an hour between meal hours was often found to be time well spent on the journey. Observations were always made on retiring at night, on rising in the morning, on starting out for the day and on arriving at the next camping place in the evening.

Record of Observations.—The accompanying blank form will illustrate the system used for recording aneroid observations in the field book and afterward reducing them to sea level. By carefully studying the fluctuations of the barometer during the day the corrections for each observation were determined by interpolation and entered in the column for "Corrected barometric readings." The difference between the corrected reading and sea level, which was deter-

course this does not indicate that the error throughout the work was not at any time more than 20 ft. It would be more reasonable to suppose that in such a long distance, without a check, errors would compensate for errors, but at any rate the result is sufficient to show that accurate work can be done by the method explained. It may be added that the weather was extremely favorable for barometric observations.

The work of reconnaissance west of Red Deer was more tedious, particularly in the unsurveyed territory west of Rocky Mountain House. Several long journeys were made ahead of the preliminary survey party to define certain summits, but except for these occasional trips the reconnaissance engineer kept in touch daily with the preliminary survey party—which is, after all, the only satisfactory way of doing the work in rough country if preliminary surveys are already authorized.

Beginning of Construction.—The preliminary survey immediately followed the work of reconnaissance, and construction, which was begun in Aug., 1910, was well advanced before the preliminary survey party was withdrawn from the field. Altogether 400 miles of line were located, about equally divided east and west of Red Deer. Plans and profiles of this location have been filed and approved by the Board of Railway Commissioners, giving the Alberta Central Ry. Co. access to the Brazeau coal fields on the one hand and the fertile prairies of central Alberta on the other, with a prospect of a through line to the coast, in which event considerable traffic would be developed in both directions.

Little of interest remains to be said with regard to the location which followed the reconnaissance, except that deviations from the route mapped out for the locating engineer were slight and consisted of more or less surface development for the purpose of gaining sustaining ground or distance. In one instance only in the rolling prairie country the locating engineer made a slight deviation, expecting to find better sustaining ground, only to return to the route mapped out after many weary miles of useless work. An important part of the work of preliminary location, however, was that of the topographer, upon whose work at the close of each day the locating engineer depended for the final adjustment of the located line to the contour of the ground. The value of accurate topographical work can hardly be overestimated, although seldom fully appreciated in the work of railway location.

RECORD OF RECONNOISSANCE OBSERVATIONS AND CALCULATIONS

| Date | Hour | Field barometer reading | Elevation above sea level | Corrected barometric reading | Stationary barometer (if any) | Location and remarks |
|------|------|-------------------------|---------------------------|------------------------------|-------------------------------|----------------------|
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Another feature, and by no means the least important, is the type of profile developed and the economic value of this location in country which is obviously hostile to a 0.4% grade. On the long stretches of maximum grade referred to in a previous paragraph, heavy cuts and fills were unavoidable, and looked almost forbidding, and would only be justifiable when the volume of traffic reached an average of twelve trains per day operated as a through line. The line located will, therefore, in course of time, it is assumed, admit of grade reduction to this extent without abandoning right-of-way, bridges or townsites. The maximum grade for present requirements was fixed at 0.8%. The application of an 0.8% maximum grade to the profile of a 0.4% location will eliminate nearly all of the heavy work, and in many instances leave a mere surface line for present construction.—Engineering Record.

Editor's Notes.—The Alberta Central Ry. Co. was, as above stated, incorporated by the Dominion Parliament in 1901, the provisional directors being G. W. Smith, W. A. Moore, G. W. Greene, Red Deer, Alta.; D. J. Munn, New Westminster, B.C.; J. T. Moore, J. Flett, R. C. Clute, Toronto. It was given power to build a railway from tp. 38, range 23 west of the 4th meridian westerly to Red Deer, thence westerly to tp. 39, range 7, west of the 5th meridian. In 1903 the company was given additional time for construction and power to extend its line easterly to tp. 39, range 11, west of the 4th meridian. It obtained another extension of time for construction in 1905, and again in 1907, in which year the names

of J. J. Gaetz and J. C. Moore were added as provisional directors and that of W. A. Moore struck out. Another extension of time was granted in 1909, and authority given to build additional lines as follows:—From the westerly terminus near Rocky Mountain House to the G. T. Pacific Ry. near Yellowhead Pass; from the easterly terminus near the elbow of the Battle River to Saskatoon or Warman, Sask., and from near Red Deer southerly and easterly to Moose Jaw, Sask. The company's powers were considerably extended in 1909, when it was given authority to extend its Saskatoon line to Fort Churchill, Hudson Bay, with a branch through Pas to Port Nelson, Man.; to extend its Moose Jaw line to the International Boundary in tp. 1, range 16, west of the 2nd meridian; a line from between Red Deer River and Cygnet Lake northeasterly to Blackfields and on to Lacombe, Alta.; three branch lines into the Big Horn Range, between the North Saskatchewan and Brazeau Rivers; two branch lines in ranges 20, 21 and 22, tps. 43, 44, 45 and 46 west of the 5th meridian, and another branch along the Brazeau and Pembina Rivers.

The organization of the company was completed in 1909, J. T. Moore being President and J. G. MacGregor, Chief Engineer. The first location plans for the line from Red Deer to Rocky Mountain House were approved in 1910, and a contract was entered into with the Dominion Government under the act granting aid for construction, for the building of a 70 mile line between these points. Construction was started and carried on during the season by day labor

under the direction of the Chief Engineer, and there was a "display" of tracklaying in the presence of the Minister of Railways, Aug. 11, 1910. It was reported that about 20 miles of grading had been completed up to Dec. 31, 1910. A contract was let for grading early in 1911 to D. F. McArthur, Winnipeg, for the line to Rocky Mountain House, and at Dec. 31, 1911, track had been laid on seven miles.

It was reported early in 1909 that the C.P.R. was about to take over the charter and complete construction of the line, but this was denied. It was, however, understood that the C.P.R. would ultimately become possessed of the line, and in Jan., 1912, an official announcement was made that the transfer had taken place, and at the C.P.R. annual meeting, in Oct., 1912, a resolution was passed approving of the lease of the A. C. Ry. for 999 years at a rental equal to 4% interest on the bonds issued for construction. The company continues its separate existence, but it is officiated and controlled by C.P.R. men.

After the lease to the C.P.R., the construction programme was rearranged, a new contract was entered into with the Dominion Government for aid, and at the end of 1913 about 20 miles had been completed, which it is expected to open for traffic this summer.

Soon after the company began locating its lines the Canadian Northern Ry., either directly or by one of its subsidiary companies, filed plans for a line from near Stettler to Rocky Mountain House, and started construction. This led to a lengthy fight, which has been terminated by the conclusion of an agreement, ratification of

which has been secured from the Dominion Parliament.

An arrangement has been made, and approved by the Dominion Parliament, under which the Canadian Northern Western Ry. will use a certain portion of the line, and the A. C. Ry. will use jointly with the C. N. W. Ry. an extension which it proposes to build. The details of the agreement were given on pg. 175 of our April issue.

New Books, Etc.

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

THE MANUAL OF STATISTICS; Stock Exchange Handbook for 1914. 1,100 pages, 8 by 5½ in., cloth. The Manual of Statistics Co., 20 Veysey St., New York. \$5.

This is the 36th annual issue of this standard publication, which adequately presents the organization, finances and position of all the leading railway and industrial companies of North America, as well as those in which U.S. and Canadian investors are interested in Mexico, South America, and the West Indian Archipelago. Since the issue of 1913 was compiled there have been numerous issues of new stocks, and changes in the organization of many of the companies noted, all of which changes are incorporated in the present edition. The tabulated statements give a great variety of information, and the stock exchange reports, add other features which render the manual an important volume of reference for the investor and the public man.

TESTS OF BOND BETWEEN CONCRETE AND STEEL. By D. A. Abrams. 238 pages; 6 by 9 ins.; illustrated; paper. Published by the University of Illinois, Urbana, Ill. Free.

This bulletin, no. 71, of the University of Illinois Engineering Experiment Station, covers an exhaustive series of tests on the strength of bonds between concrete and steel, and gives the results obtained by pulling out bars embedded in blocks of concrete, and also the results of tests made to study the bond stresses developed in large reinforced concrete beams. Nearly 2,000 tests are reported, and a wide range of conditions are represented.

TRACTIVE RESISTANCE OF A 28-TON ELECTRIC CAR. By H. H. Dunn. 63 pages; 6 by 9 ins.; illustrated; paper. Published by the University of Illinois, Urbana, Ill. Free.

This bulletin, no. 74, of the series being issued by the University of Illinois Engineering Experiment Station, records the results of tests made to determine the tractive resistance of a 28-ton electric car when running on a straight track in still air. The tests were planned to eliminate wind resistance. The results are fully expressed in the form of a curve, the coordinates of which are car resistance and speed, showing that the resistance varied between 5.25 and 26.12 lbs. per ton at 5 and 45 m.p.h., respectively. In addition to these curves, and tabulated results, the bulletin describes the car tested and methods of conducting the tests.

Air ingress openings in locomotive ash pans should be of sufficient area to ensure the presence of atmospheric pressure under the fire when the grate is working at its maximum fuel rate.

An arbitrary factor of safety for locomotive boiler construction is said to be in contemplation by the Interstate Commerce Commission.

Railway Mechanical Methods and Devices.

3,000 lb. Jib Crane for Canadian Northern Railway Shops.

In pursuance of the C.N.R.'s policy in developing, under the most advantageous conditions, equipment for its shops, a new type of light jib crane has been designed that is claimed to be superior to anything it has used heretofore, not only from the standpoint of lightness, but also from the all important standpoint of expense, all the members used in the construction being,

lengths of 2 in. pipe, and fastened together by 20 $\frac{7}{8}$ in. countersunk head rivets and 6 $\frac{7}{8}$ in. button head rivets, the latter at the strut end, the others being countersunk to clear the trolley.

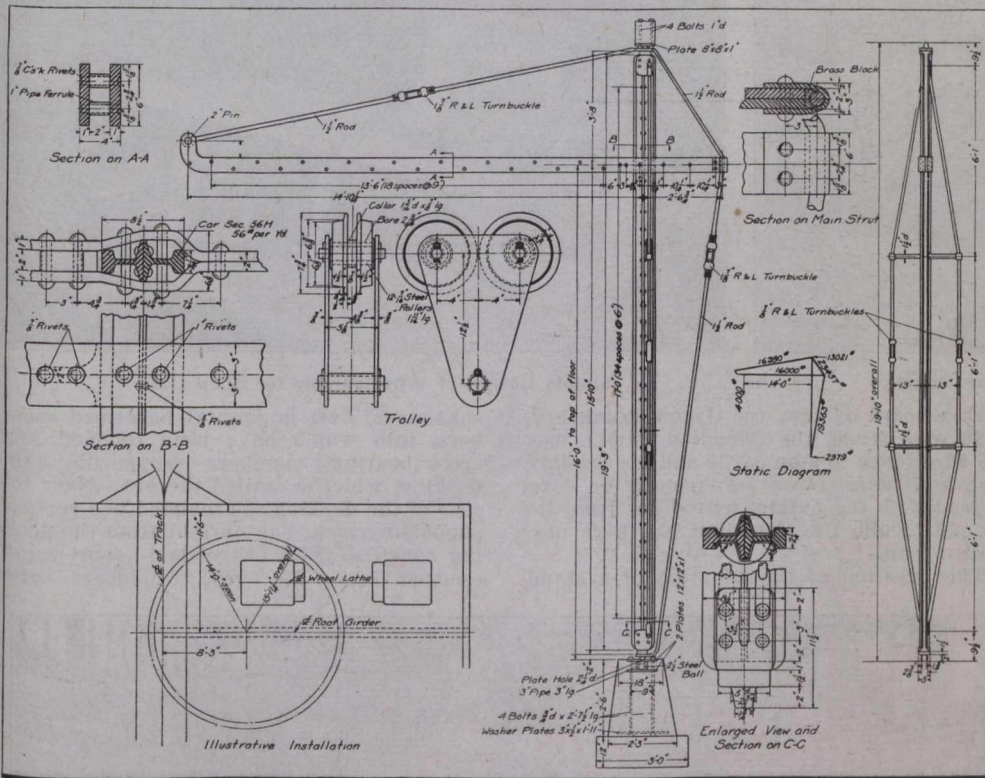
Connection at the vertical column is made through two 1 in. rivets, the arm plates being made to suit. The rear end of the arm forms a 20 in. strut for the 1 $\frac{1}{2}$ in. truss rod that braced the vertical column in the plane of the jib arm. This truss rod has a 1 $\frac{7}{8}$ in. right and left hand turnbuckle, and the ends are forged to fit over the pivot

statical diagram. These stresses will not be reached normally, as the rated capacity of the crane is only 3,000 lbs.

Spring Making in Michigan Central Railroad Shops, St. Thomas.

The practice of making locomotive driving wheel springs appears to vary to a marked degree in practically every shop, not so much in the final finish of the product, as in the manner in which the several steps in the process are carried out. In the M.C.R. St. Thomas shops, the several leaves are made in the more or less conventional manner, first of all cutting the leaves to length, centering, and slotting the end holes, leading up to the curving and tempering stages. The first leaf is curved by hand to a form laid down on the blacksmith's surface plate, and when at the desired heat, immersed in oil, and then placed back in the furnace to draw to the desired temper. The subsequent leaves are made in much the same manner, except that, having the first one formed to the desired shape, the following one is first roughly bent by hand on the plate and then passed through a hand roller to conform to the curvature of the first, each separate leaf being so formed from the one preceding.

On completion of the series of leaves, they are placed in a pile under an air operated clamp, the centres in each of the



3,000 lb. Jib Crane for Canadian Northern Ry. Shops.

for the most part, simple rolled sections that are to be found in most shops. Hence its peculiar advantage of being easily made at any point where required, and not at the main shop and to be shipped to the shop in which it is to be installed.

The construction is simple and yet efficient, in that the moving parts are so arranged that as little friction as possible must be overcome in the operation. The crane proper is pivoted on a finished steel ball, 2 $\frac{1}{2}$ ins. diameter, set in a 3 in. length of 3 in. gas pipe, resting between two 1 in. plates, 12 ins. square, these being bolted to and imbedded in a concrete pier, 3 $\frac{1}{2}$ ft. deep, 18 ins. square at the top and 3 ft. square on the base, the top being flush with the floor level.

The vertical member is composed of two 56 lb. rails, rivetted together base to base by 70 $\frac{7}{8}$ in. rivets. The top and bottom connections are malleable iron sleeves into which the rail sections fit. The outer faces of these castings have a cast tip, which forms the pivot. This vertical member is secured against lateral buckling by two $\frac{7}{8}$ in. truss rods, the central lengths of which are 13 ins. each side of the member, on 1 $\frac{1}{2}$ in. struts. These truss rods are each provided with a right and left hand turnbuckle, and rivetted to the sleeve castings top and bottom by four $\frac{7}{8}$ rivets.

The main arm and strut form a continuous member, built up from two 6 by 1 in. bars on edge, spaced 2 ins. apart by 2 in.

castings, top and bottom of the column. The strut portion of the main arm has no pipe separators as in the jib end, and for a bearing for the truss rod there is a brass block on the end, the whole end finished off with a $\frac{1}{2}$ in. cover plate, 6 ins. deep, secured by two rivets. The brass block is inserted on assembly, the tightening up of the truss rod holding it in place.

The outer end of the jib arm turns upward at an angle of 90 degrees to give clearance to the trolley, and is bored to receive a 2 in. pin. Connection between the latter and the top column casting is made through a 1 $\frac{1}{2}$ in. rod, with a 1 $\frac{7}{8}$ in. right and left hand turnbuckle.

The trolley consists of two $\frac{3}{8}$ in. plates, held between which, on two axles at 8 in. centres, are four 6 $\frac{3}{8}$ in. cast iron rollers, placed back to back in pairs, running on roller bearings, the pins being 1 $\frac{1}{4}$ in. diameter, each having 6 7-16 in. steel rollers. The tackle supporting pin is 12 $\frac{1}{2}$ ins. below the roller centres, and is 1 $\frac{1}{2}$ in. diameter, with a 1 $\frac{1}{2}$ in. pipe spacer.

The installation shown in the accompanying illustration is representative of how the crane should be installed for a wheel lathe. If it is to be used for other purposes, corresponding allowances should be made. If an air hoist is to be used, it should not exceed a diameter of 8 ins., with a stroke of from 4 to 5 ft. The stresses in the different members, and at the two points of support, for a load of 2 tons, are shown in the



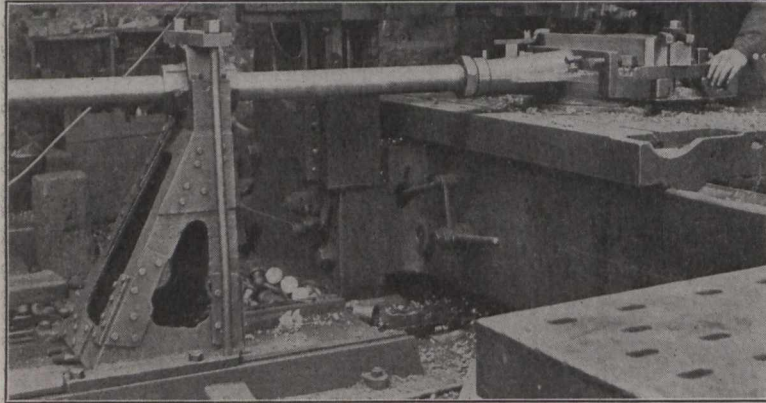
Powerful Screw Operated Clamp for Tightening up Spring Bands.

leaves centering the pile correctly. When correctly located with regard to each other, the pile is clamped together under the press, and the screw clamp shown on the assembled spring in the illustration tightened up on it. It is then to the position shown in the illustration. This arrangement consists of a short beam section with a recess in the top into which the spring can be stood on end. In this position the heated band is slipped over the spring and hammered down to a centrally marked position on the assembled spring. On this being done, the spring is tipped over on its side into the stationary screw clamp shown, the band resting in the clamp jaws. This clamp consists of a heavy iron casting, in one side of which there is a powerful square threaded screw which tightens up on the spring, compressing it

to the limit. This tightening springs out the band, which is then forced down flat by the sledge. The spring is left under the clamp screw pressure until it has cooled, when it can be removed, ready for service.

Machining Radius Links, Montreal Locomotive Works.

A useful jig for machining the radius links for both Stephenson and Waschaert valve gears is in use in the Montreal Locomotive Works, and is illustrated herewith. To the table of the planer there is secured



Jig for Machining Radius Links in the Planer.

with a base casting, in the upper face of which there is a pinned block, engaging in a cross slot in a superimposed clamping casting, in which the link to be machined is secured by set screws and clamp bolts in a T slot, all as shown. An arm on one side of this casting has screwed into it, at right angles to the jaw faces, a long rod, to which can be clamped, in any desired position, a swivel block.

On a bed plate, at right angles to the bed of the lathe, and slightly above the floor level, there are two T slots, with the upper surface of casting machined. A braced casting may be moved along this surface, and may be clamped in any desired position by bolts in the T slot. The swivel block before referred to fits into the head of this casting. The link clamping member swings about this swivel block as a centre as the planer table moves back and forth. The swivel block and supporting casting can be located as desired, to give any radius within the limits of the machine. It has been found to be a very useful mechanism.

Testing 120 Ton Crane, National Transcontinental Railway Shops.

The method employed for testing the 120 ton overhead travelling crane in the N.T.R. locomotive shop at Transcona, Man., is shown in the accompanying illustration. The crane specifications called for a test load of 25% in excess of normal rating, and to subject the crane to this loading the following measures were taken: Across one of the locomotive pits there were placed cross timbers, and lengthwise of the pit, on top of these timbers, were placed two heavy I beams. Across the top of the I beams there were placed short sections of rail, and over these, in line with the I beams below, there were placed rails in a pile to make up the desired load, the number of rails required to make up this load having been previously computed. Under one end of the two supporting I beams was placed the locomotive rear end jacking link, attached to one of the crane lifts, and under the other end, cables, attached to the other crane hoist. In this position the two hoists lifted the load

of 150 tons and then carried it the length of the shop and back. The cranes proved easily capable of carrying the specified overload.

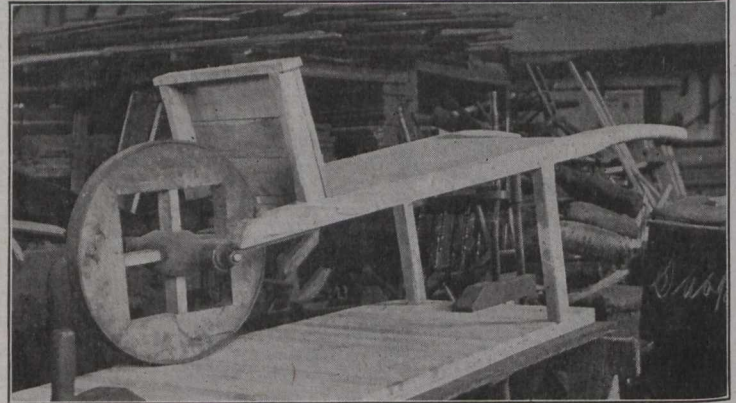
The Board of Railway Commissioners and Standard Railway Fences.

Chief Commissioner Drayton has given the following decision:—The engineering department has drawn to the Board's attention the fact that the different railway companies use different fences. For example, the Grand Trunk Pacific uses a 5 wire fence

others would be unduly onerous. Leaving the matter as the statute leaves it, the responsibility of the railway company in each case is clear—the fences must be sufficient to stop live stock from getting on the railway track.

Simple Design of Wheelbarrow in Central Vermont Railway Shops.

For shop use there has been developed in the Central Vermont Ry. shops at St. Albans, Vt., a simple design of wheelbarrow, which is illustrated herewith. The frame

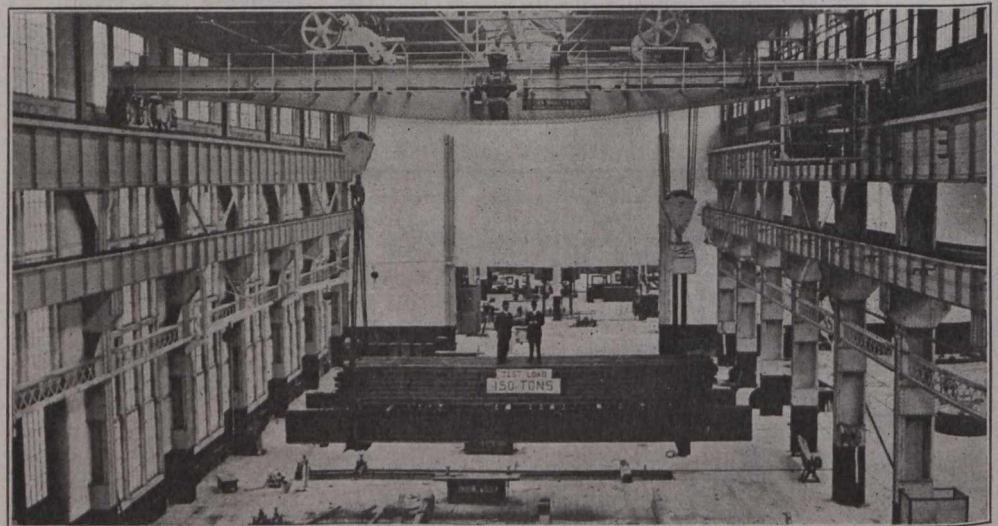


Simple Design of Wheelbarrow for Shop Use.

with a board on top; the Grand Trunk uses a 10 wire fence, the Canadian Pacific uses a 5 wire fence to stop cattle and horses only, and a 7 wire fence on smooth or level ground with the bottom wire 6 ins. from the ground; while the Canadian Northern uses 7 wire fence.

The question of the adoption of a stand-

consists of two horizontal hardwood members, into which have been tenoned four cross bearing members, supporting the decking, which is nailed thereto. Near the rear of the decking are tenoned two vertical supporting legs. The upright from the decking consists of two vertical short arms, tenoned into the side members, with



Testing 120 Ton Travelling Crane with Rail Loading to 25% Overload.

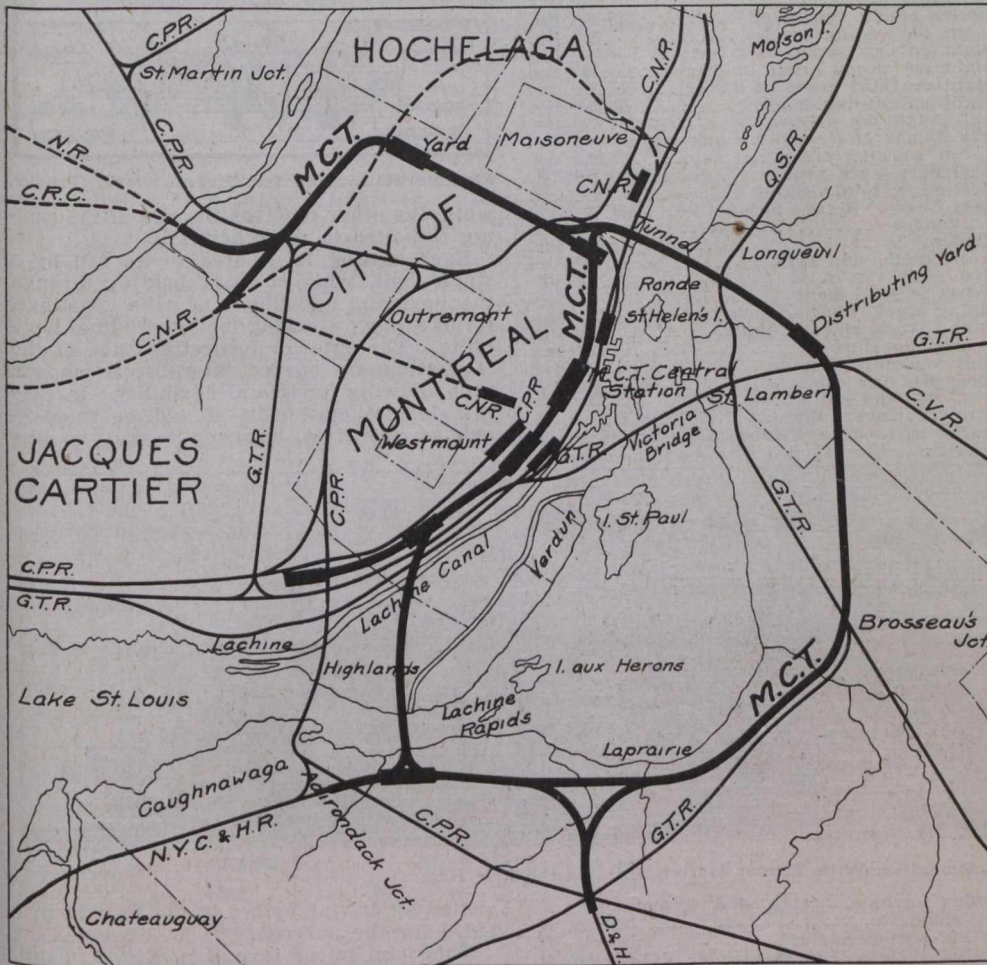
ard fence was brought to the attention of the railway companies during the Board's western trip recently. No representations have, however, been filed by the railway companies. I am of the opinion that it is inadvisable for the Board to prescribe any standard fence. The statutory obligation of the company to my mind forms a sufficient protection to the public. The obligation thrown on the railway companies is to provide such fence as will be sufficient to prevent cattle and other animals from getting on the railway. This includes (with the exception, of course, of poultry), all the farmers' stock. If the Board were to order the adoption of any particular standard, it might well be that, in some instances, its standards would not be sufficient, and in

sheeting secured to the inner side. Two straps bolted to the forward end of the side members are forged to form side bearings for the wheel, which consists of a central hub, reinforced at the ends with retaining bands, with shaft pins extending about 1½ in. at each end. Tenoned into this hub are four rectangular spokes, which at the outer end are tenoned into four plain blocks of wood, the outer periphery of which are turned to receive a retaining band of iron. This completes the wheelbarrow, and while it is not a very graceful construction, it has proved very useful for general service, and, in addition, has the advantage of being cheap in construction, as well as strong enough to stand severe usage.

The Montreal Central Terminal Company's Project.

Canadian Railway and Marine World published in a recent issue general particulars of a prospectus issued in England, offering for sale £1,028,800 (\$5,000,000) 1st mortgage 5% bonds of this company, due June 1, 1964, the issue price being 90. The prospectus states that the bonds are to be secured by a mortgage on the company's central station, proposed to be built in Ontario St., Montreal, with yards, warehouses, etc., in connection therewith, and railway lines to be built between the central station and the point of junction, near Bordeaux, with railways entering Montreal from the

sary railway lines, bridges and tunnels, freight and passenger stations, in accordance with the powers granted to the company by the Dominion Parliament. To complete the scheme will require the construction of nearly 50 miles of railway, a large central passenger station, and a number of goods depots, transfer yards, etc. The company intends to carry out the work in sections, each section being self-supporting. The first section to be completed will provide facilities for the railways coming into the city from the north and west. It is intended to proceed at the same time with the



Projected Line of the Montreal Central Terminal Co. Around Montreal.

north and west. It is further stated that the proposed system of the company's railways will be connected, when completed, with at least 12 railway lines and will exchange traffic therewith. Following are additional extracts from the prospectus:—

"The company has been formed for the purpose of providing facilities for the entrance into Montreal of the traffic of a number of railway lines and systems which are at present debarred or restricted from free communication with the city. Montreal is situated on an island, and there is only one bridge across the River St. Lawrence, opposite the city, and it is controlled by one railway company. This bridge, together with its approaches, is nearly two miles in length. Another railway company has a bridge across the river seven miles west of its city station. Other means of access to the city from the south are urgently required. Besides these vital requirements there is no efficient means for the exchange of traffic between the different railways at Montreal, and for the collection and distribution of goods traffic in the city. It is therefore proposed to construct the neces-

sary railway lines, bridges and tunnels, freight and passenger stations, in accordance with the powers granted to the company by the Dominion Parliament. To complete the scheme will require the construction of nearly 50 miles of railway, a large central passenger station, and a number of goods depots, transfer yards, etc. The company intends to carry out the work in sections, each section being self-supporting. The first section to be completed will provide facilities for the railways coming into the city from the north and west. It is intended to proceed at the same time with the

tunnel under the St. Lawrence and the connections with the railways from the south and east, which should be completed soon after the first section. "The company has also been granted powers by Parliament to construct freight and passenger stations, elevators, warehouses and general freight and passenger terminals in and about the city, and such branch lines and sidings as may be necessary to connect them with the company's lines. The company may also, subject to the approval of the plans by the Governor in Council, construct a bridge across the St. Lawrence opposite Montreal, or construct a tunnel or tunnels in lieu of such bridge. The company has also been granted powers to construct lines on both sides of the St. Lawrence in order to form connections with any railways coming to Montreal from every direction, and it may also construct its lines, bridges and tunnels so that it may convey and distribute power, heat, light, gas, air and water by conduits, wires, tubes, pipes, or otherwise. The company has been authorized by Parliament to enter into agreements with any railway lines desirous of

entering Montreal for the use of its tunnels, bridges and other terminal facilities and for exchange of traffic. The company's acts provide that all companies are entitled to equal facilities on equal terms. The amount of business offering fully justifies a very large expenditure on terminal facilities, and should assure much more than the income necessary to pay fixed charges.

"The proceeds of this bond issue, after payment of the expenses of the issue and outstanding liabilities of the company, up to £20,000, are to be used in the purchase of the necessary properties required in connection with the undertaking and the construction of passenger and freight stations, warehouses, and other buildings, and of the different lines of railway to connect same with railways coming into Montreal, and upon interest during construction. The properties and works mortgaged are all in Montreal, and the greater part (over 7,000,000 ft.) of the land required has been secured, so that the work may be proceeded with at once. The company should obtain a large revenue from the lease of a portion of this property not required for its own purposes. The great advantage to the lessees of this property of the railway facilities which they will enjoy should create an active demand for these sites. It is expected that the terminal station yards, etc., will be sufficiently advanced by July, 1915, to permit of their use for passenger and goods traffic, and that the work will be fully completed by Dec., 1915. The estimated earnings from this section of the company's enterprise, until the tunnel and connections with the railways on the south shore of the river have been completed,

| | |
|---------------------------------------|-------------|
| are | \$1,494,835 |
| "Working expenses, 60% ... | 896,900 |
| "Net earnings | \$597,935 |
| "Required for interest on bonds | 250,000 |
| "Surplus | \$347,935 |

"The amount required for sinking fund after June 1, 1919, will be \$50,000 a year. After the completion of the tunnel these earnings should be largely increased. The above estimate is from railway traffic alone, and does not include any revenue from leases of land or from other sources. The yearly increase in railway traffic at Montreal is so great that it is safe to expect that it will double within the next five years, by which time two new transcontinental lines will be in active operation."

The directors are C. Newholme Armstrong, Vice President, Central Ry. of Canada, London, Eng., President; J. E. Wilder, manufacturer, Montreal, Vice President; Hon. T. Berthiaume, proprietor, La Presse, Montreal; Sir Thos. H. C. Troubridge, London, Eng.; A. E. Labelle, Harbor Commissioner, Montreal; F. H. Allen, New York; and F. E. Came, M. Can. Soc. C. E., Montreal. Sir Douglas Fox and Partners, Montreal, are consulting engineers.

Maple draught timbers are reported to be in use in large numbers on Canadian railway equipment, this information being elicited in the discussion following the submission of the report on the uniform grading and inspection of lumber at the Railway Storekeepers' Association annual meeting. It is said that they are giving as good or better service than the average oak received from the south.

By having the conductor's valve graduated, it would be possible to make a service stop where an emergency stop was not necessary. The conductor's valve is especially valuable in backing into sidings, particularly in foggy weather.

Articulated Locomotive With Tender Motive Unit.

A radical departure in locomotive design has been produced in the new articulated 2-8-8-2 locomotive completed recently for the Erie Rd. It is called the triplex compound, or centripede type, and, as the name implies, goes beyond the Mallet articulated type by the addition of a third motive unit, made possible by placing another pair of cylinders and another group of driving wheels under the tender, the latter being articulated with the front two sections. It is said to be the largest and most powerful locomotive ever constructed, having a theoretical tractive effort of 160,000 lbs., exceeding the tractive effort of 115,000 lbs. of the Virginian Mallet, which, up to the production of this new type, held the record.

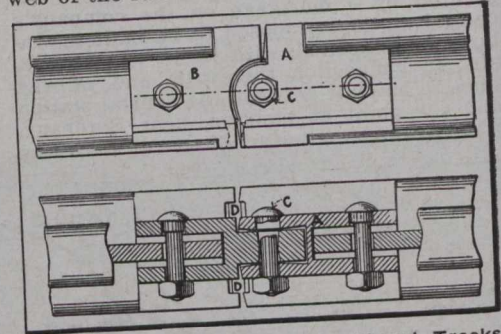
The six cylinders are all the same size, 36 by 32 ins., and as large as the clearance limits will permit. The pair on the central unit are the high pressure, the pairs on the front and rear units being the low pressure, the locomotives working compound, as this was considerably more feasible than working triple expansion, on account of the excessive size of the low pressure cylinders for such a locomotive. The right high pressure cylinder exhausts into a receiver, which supplies the front pair of low pressure cylinders, and the left hand high pressure cylinder exhausts to the rear pair of low pressure cylinders, in a similar manner, giving a cylinder volume ratio of 2 to 1, the usual ratio existing for compounding locomotives. The boiler is of unusual size, at the front

ins. thick. The front spring equalization is continuous, as is also the middle unit, only without cross connection, while on the rear unit, the first and second drivers are equalized together, each side independently, while the third and fourth drivers are equalized with the trailing truck.

A feed water heater supplies water at 200 degs. Fahr., being forced into the boiler by two single acting pumps, one on each side of the locomotive, and driven from the cross-heads through simple levers. In addition, the locomotive is equipped with two injectors. Following are a few of the principal dimensions:—

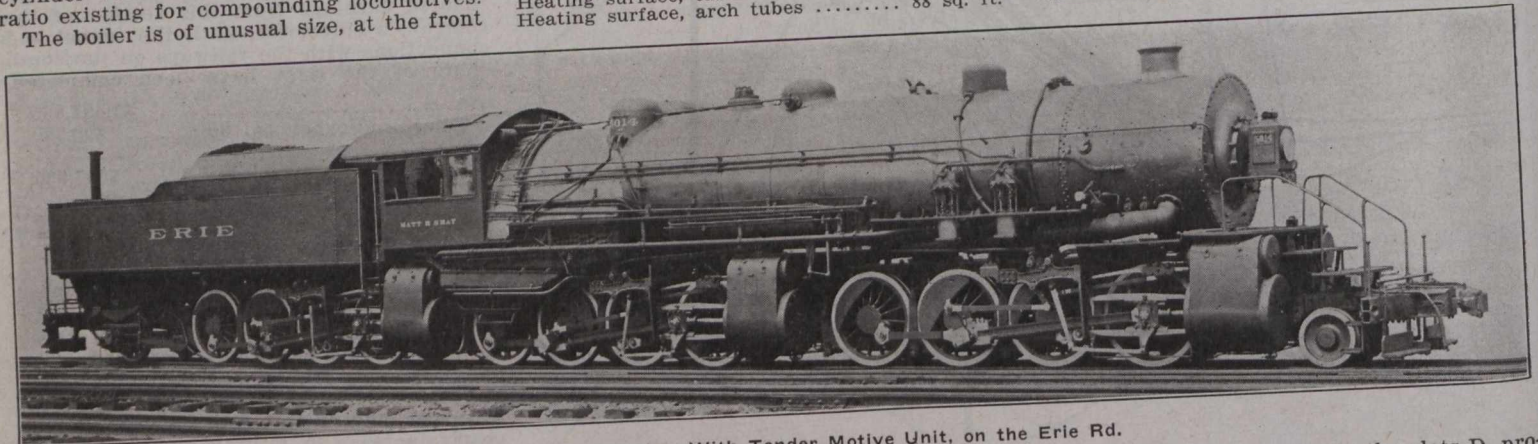
| | |
|---|---------------|
| Tractive effort, compound | 160,000 lbs. |
| Weight on leading truck | 32,050 lbs. |
| Weight on first group of drivers | 250,000 lbs. |
| Weight on second group of drivers | 254,300 lbs. |
| Weight on third group of drivers | 257,300 lbs. |
| Weight on trailing truck | 59,400 lbs. |
| Total weight on drivers | 761,600 lbs. |
| Total weight of locomotive and tender | 853,050 lbs. |
| in working order | 16½ ft. |
| Wheel base, each group | 71½ ft. |
| Wheel base, total driving | 90 ft. |
| Wheel base, total locomotive and tender | 36 by 32 ins. |
| Cylinders | 16 in. Piston |
| Valves, diam. and type | Baker |
| Valve gear | 63 ins. |
| Driving wheels, diam. | 33½ ins. |
| Leading truck wheels, diam. | 42 ins. |
| Trailing truck wheels, diam. | 210 lbs. |
| Working pressure | 24 ft. |
| Tubes and flues, length | 326—2¼ ins. |
| Tubes, No. and o.d. | 53—5½ ins. |
| Flues, No. and o.d. | 6,418 sq. ft. |
| Heating surface, tubes | 88 sq. ft. |
| Heating surface, arch tubes | |

the Panama Canal, and after satisfactory results with the first lot, a sufficient number was ordered to equip ten steam shovels, each shovel track (in 6 ft. lengths) having 22 joints. The device is shown in the accompanying illustration, and it will be seen that it consists of two steel castings, bolted to and projecting beyond the rail ends. One casting A is of H section, the end of the web of the rail entering one of the recesses,



Flexible Rail Joint for Steam Shovel Tracks.

while the other receives the end of the casting B, bolted to the other rail. Each casting is secured to its rail by a single bolt, while a third bolt C, through the engaging portions of the castings, forms a pivot allowing for longitudinal flexibility. The outer or projecting ends of the H casting are curved laterally, as shown, thus allowing for lateral flexibility. In case this lateral movement should be undesirable at any time, however, it may be pre-



Articulated Locomotive, With Tender Motive Unit, on the Erie Rd.

end being 94 ins. diam., and at the dome ring, 108½ ins. diameter, the barrel having a taper course. The firebox is made quite shallow to sit over the rear three of the central pairs of 63 in. drivers. The boiler centre line is 10 ft. 7 ins. above the rail, requiring a very short dome for clearance considerations, 13 ins. high and 33 ins. diam. For similar reasons, the sand box, instead of being one dome, forms two comparatively small ones, 2 ft. either side of the centre line. The firebox is radial stayed, and is 162 ins. long by 108 ins. wide at the mudding. The grates extend forward 120 ins. to a Gaines brick wall, forming a combustion chamber at the forward end. The Schmidt superheater is the largest ever applied to a locomotive, and has 53 elements, with 1,584 sq. ft. of superheating surface.

Steam passes to the high pressure cylinders through outside pipes, with a ball and sliding joint. Front and rear receiver pipes, with ball and sliding joints, transmit the steam to the low pressure cylinders. The front cylinders exhaust to the stack, while the exhaust from the rear ones passes through a feed water heater, and then out by a short, vertical pipe at the rear end of the tender. All the valves are 16 ins. diam., and are controlled simultaneously by a power reverse gear.

The frames are vanadium cast steel, 6

| | |
|--|-------------------|
| Heating surface, firebox and combus. cham. | 380 sq. ft. |
| Heating surface, total | 6,886 sq. ft. |
| Heating surface, superheater | 1,584 sq. ft. |
| Heating surface, total equivalent | 9,262 sq. ft. |
| Grate area | 90 sq. ft. |
| Tender water capacity | 10,000 U.S. gals. |
| Tender coal capacity | 16 tons |

The locomotive was built by the Baldwin Locomotive Works, the designs being evolved by that company in conjunction with the railway company.

Flexible Rail Joint for Steam Shovel Tracks.

The track on which steam shovels operate needs considerable flexibility to adapt itself to the irregular surface upon which it is laid. The track is in short sections, usually spliced in the usual way, but the splices do not allow for longitudinal bending in a horizontal plane. If the splice joints are bolted tight they do not allow for lateral movement, and there is likely to be breakage or distortion, but if the bolts are left loose enough to allow lateral play, the track may be insecure and lead to derailment, especially as the joint may be covered with mud or water.

A special rail joint for this particular service has been used for several months on

vented by driving spikes in the slots D, provided for the purpose.

This joint is the invention of P. J. Thull, of Culebra, Panama Canal Zone, who was a steam shovel operator on the canal.

Locomotive headlights of the following kinds and numbers were reported recently as in use on locomotives on U.S. lines:— Electric arc, 22,120; electric incandescent, 632; acetylene, 2,904; and oil, 42,213. This was ascertained in connection with proposed legislation requiring greater candle-powers in headlights. The railways object to this legislation on the ground that with more powerful headlights the concentration of such powerful rays often has the effect of confusing the engineman, or causing him to misinterpret signals, rather than to prove of real assistance to him.

Steel and steel underframe cars to the number of 12,798 were reported in service in the U.S. on Jan. 1. Of these, 8,863 were steel and 3,935 steel underframe. On the same date there were in service 44,560 wooden cars, which shows a retirement of 3,566 such cars in the previous two years. The charge to operating expenses under the classification of accounts of the Interstate Commerce Commission, assuming a value of \$4,000 per car replaced, will be \$178,240,000.

Cross Ties Purchased by Railways in 1913.

This bulletin is based on reports received from 47 steam railways and 32 electric railways purchasing ties in 1913. The total number of ties purchased was 19,881,714, valued at \$8,470,849, and of this total 3,254,587 ties valued at \$1,827,358 were reported as having been purchased in the U.S. This brings out the fact that Canadian railways imported 16.4% of their ties and paid on an average 13c. a tie more for this than the native article.

Table 1 gives the details of the ties purchased in Canada in 1912 and 1913 by kinds of wood. The decrease in the number of ties purchased in 1913 was 6.7% of the total for 1912. Out of 20 kinds of wood reported the two most important, jackpine and white cedar, were reported in smaller quantities than in 1912, as were seven of the other kinds of wood. The use of Douglas fir increased and formed 12.2% of the total, compared with 10.2% in 1912. The use of this wood has steadily increased since 1908. Four other British Columbia species, Western larch, spruce, hemlock and red cedar, all showed increases from 1912 to 1913. The eastern species of these woods all showed decreases during the same year. Oak ties, of which the greater part are imported, were purchased in increased numbers, but all the other hardwoods, with the exception of elm, showed decreases.

The average price of ties of all classes was practically the same in 1913 as in the preceding year. The two most important woods were purchased at a slightly lower price than in 1912, and of the others five showed increases and eight decreases.

Table 2 shows the details of the ties pur-

widely distributed and abundant trees in Canada, the steam railways reported the purchase of 161,023 imported jackpine ties from the U.S. This wood is used for ties chiefly because of its cheapness and abundance, and the fact that it is fairly strong.

conditions. White cedar ties are obtained in Ontario, Quebec and New Brunswick, and 6.6% of those purchased came from the Lake States.

Western larch or tamarack (*Larix occidentalis*) is a hard strong wood, but one which is not so durable that preservative treatment does not effect a saving in its use. The wood is cut in British Columbia,

| Kind of Wood. | 1912 | | | | 1913 | | | |
|----------------------|------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|
| | Number | Value | Av. Value | Per Cent. | Number | Value | Av. Value | Per Cent. |
| Total..... | 21,308,571 | 9,373,869 | 0.44 | 100.0 | 19,881,714 | 8,740,849 | 0.43 | 100.0 |
| Jackpine..... | 7,783,034 | 3,417,238 | 0.44 | 36.5 | 7,773,674 | 3,103,140 | 0.40 | 39.1 |
| White Cedar..... | 3,332,105 | 1,486,456 | 0.45 | 15.6 | 2,451,527 | 1,090,436 | 0.44 | 12.3 |
| Douglas fir..... | 2,183,554 | 661,891 | 0.30 | 10.2 | 2,427,100 | 801,710 | 0.33 | 12.2 |
| Western larch..... | 1,196,184 | 514,359 | 0.43 | 5.6 | 1,225,956 | 636,631 | 0.52 | 6.2 |
| Hemlock..... | 1,947,474 | 743,535 | 0.38 | 9.1 | 1,199,699 | 455,662 | 0.38 | 6.0 |
| Hard pine..... | 658,096 | 434,840 | 0.66 | 3.1 | 1,138,351 | 621,032 | 0.55 | 5.7 |
| Oak..... | 933,486 | 624,174 | 0.67 | 4.4 | 978,554 | 673,244 | 0.69 | 4.9 |
| Tamarack..... | 1,803,696 | 806,049 | 0.45 | 8.5 | 866,231 | 369,666 | 0.43 | 4.4 |
| Western hemlock..... | | | | | 479,113 | 148,725 | 0.31 | 2.4 |
| Spruce..... | 835,121 | 330,854 | 0.40 | 3.9 | 458,256 | 151,049 | 0.33 | 2.3 |
| Western spruce..... | 8,000 | 4,640 | 0.58 | | 267,917 | 70,685 | | 1.3 |
| Chestnut..... | 266,082 | 157,225 | 0.59 | 1.2 | 232,179 | 126,795 | 0.55 | 1.2 |
| Red cedar..... | 82,357 | 29,109 | 0.35 | 0.4 | 115,578 | 77,328 | 0.67 | 0.6 |
| Red pine..... | 26,646 | 12,673 | 0.48 | 0.1 | 114,852 | 52,112 | 0.45 | 0.6 |
| Beech..... | 103,583 | 70,220 | 0.68 | 0.5 | 96,923 | 60,552 | 0.62 | 0.5 |
| Birch..... | 37,943 | 22,605 | 0.60 | 0.2 | 24,736 | 10,447 | 0.42 | 0.1 |
| Maple..... | 51,465 | 39,681 | 0.77 | 0.2 | 16,860 | 14,320 | 0.85 | 0.1 |
| Elm..... | 2,868 | 1,361 | 0.47 | x | 13,674 | 6,421 | 0.47 | 0.1 |
| Ash..... | | | | | 503 | 216 | 0.43 | x |
| Cherry..... | | | | | 31 | 17 | 0.55 | x |
| White pine..... | 44,408 | 15,348 | 0.35 | .02 | | | | |
| Balsam fir..... | 12,469 | 1,621 | 0.13 | .01 | | | | |

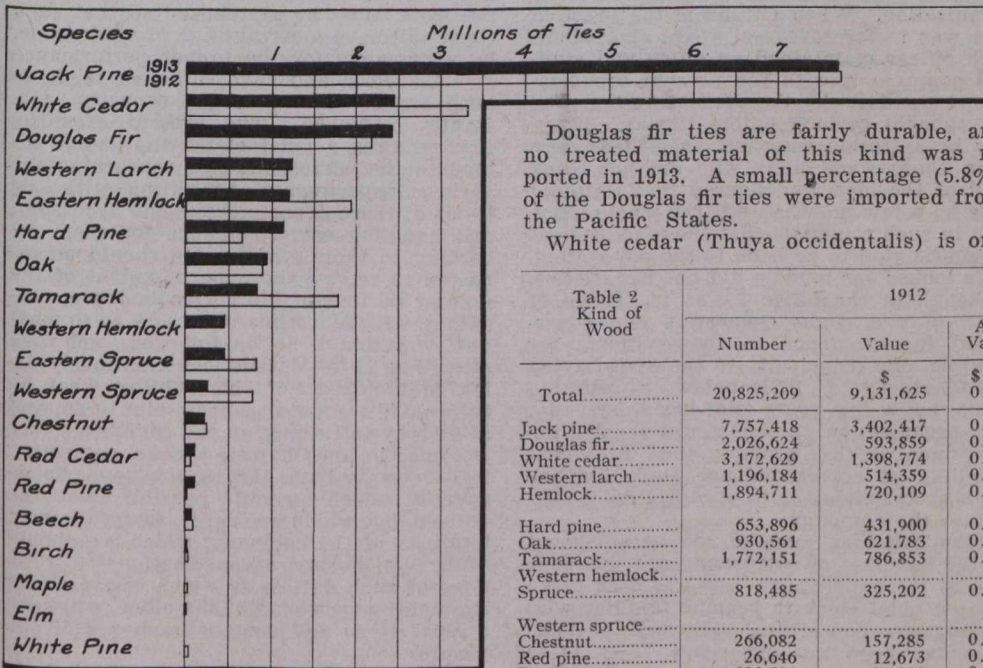
xLess than one-tenth of one per cent.

Untreated jackpine ties decay very rapidly in the roadbed, and the practice of treating them to prevent decay is becoming more prevalent each year. In 1913, 709,227 jackpine ties received preservative treatment before being laid in the steam roadbeds.

and 4.7% of the ties used in Canada in 1913 were imported from Washington and Oregon. Altogether only 3.4% of the larch ties were treated.

Eastern hemlock (*Tsuga Canadensis*) is cut only in the provinces east of Manitoba and is not considered a first class tie material. All the ties of this wood were purchased in Canada and none were given any preservative treatment.

Oak ties were the most expensive on the list, among the more important woods, and were used for switch ties and on lines where the traffic is exceptionally heavy. By far the greatest part of the oak ties were imported, 96.8% coming from the U.S., and were made up of a large number of commercial species. The fact that it pays to



Douglas fir ties are fairly durable, and no treated material of this kind was reported in 1913. A small percentage (5.8%) of the Douglas fir ties were imported from the Pacific States.

White cedar (*Thuja occidentalis*) is one

| Kind of Wood. | 1912 | | | | 1913 | | | |
|----------------------|------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|
| | Number | Value | Av. Value | Per Cent. | Number | Value | Av. Value | Per Cent. |
| Total..... | 20,825,209 | 9,131,625 | 0.44 | 100.0 | 19,490,491 | 8,245,166 | 0.42 | 100.0 |
| Jack pine..... | 7,757,418 | 3,402,417 | 0.44 | 37.3 | 7,706,720 | 3,070,003 | 0.40 | 39.5 |
| Douglas fir..... | 2,026,624 | 593,859 | 0.29 | 19.7 | 2,421,118 | 7,799,271 | 0.33 | 12.4 |
| White cedar..... | 3,172,629 | 1,398,774 | 0.44 | 15.2 | 2,305,868 | 1,013,763 | 0.44 | 11.8 |
| Western larch..... | 1,196,184 | 514,359 | 0.43 | 5.7 | 1,223,444 | 634,742 | 0.52 | 6.3 |
| Hemlock..... | 1,894,711 | 720,109 | 0.38 | 9.1 | 1,180,131 | 448,235 | 0.38 | 6.1 |
| Hard pine..... | 653,896 | 431,900 | 0.66 | 3.1 | 1,136,356 | 619,924 | 0.55 | 5.8 |
| Oak..... | 930,561 | 621,783 | 0.67 | 4.5 | 963,794 | 660,200 | 0.69 | 4.9 |
| Tamarack..... | 1,772,151 | 786,853 | 0.44 | 8.5 | 838,999 | 355,858 | 0.42 | 4.3 |
| Western hemlock..... | | | | | 479,113 | 148,725 | 0.31 | 2.5 |
| Spruce..... | 818,485 | 325,202 | 0.40 | 3.9 | 450,256 | 148,249 | 0.33 | 2.3 |
| Western spruce..... | | | | | 267,917 | 70,688 | 0.26 | 1.4 |
| Chestnut..... | 266,082 | 157,285 | 0.59 | 1.3 | 232,179 | 126,795 | 0.55 | 1.2 |
| Red pine..... | 26,646 | 12,673 | 0.48 | 0.1 | 114,852 | 52,112 | 0.45 | 0.6 |
| Beech..... | 103,583 | 70,220 | 0.68 | 0.5 | 96,771 | 60,400 | 0.62 | 0.5 |
| Birch..... | 37,943 | 22,605 | 0.60 | 0.2 | 24,736 | 10,447 | 0.42 | 0.1 |
| Red cedar..... | 57,357 | 16,234 | 0.28 | 0.3 | 20,578 | 6,761 | 0.33 | 0.1 |
| Maple..... | 51,465 | 39,681 | 0.77 | 0.2 | 16,799 | 14,320 | 0.85 | 0.1 |
| Elm..... | 2,778 | 1,195 | 0.43 | | 10,326 | 4,440 | 0.85 | 0.1 |
| Ash..... | | | | | 503 | 216 | 0.43 | x |
| Cherry..... | | | | | 31 | 17 | 0.55 | x |
| White pine..... | 44,227 | 14,965 | 0.34 | 0.2 | | | | |
| Balsam fir..... | 12,469 | 1,621 | 0.13 | 0.1 | | | | |

xLess than one-tenth of one per cent.

of the most durable woods in Canada and has always been a favorite tie material, although its softness makes frequent renewals necessary where traffic is heavy. Most of the cedar ties used wear out before they decay, and therefore preservative treatment is not necessary under prevalent

apply preservative treatment to a hard, strong and even durable wood like oak is demonstrated by the fact that the steam railways in 1913 purchased 525,623 treated oak ties, this number forming 54.3% of the total.

Hard pine from the southern Atlantic and

chased by the 47 steam railways in 1912 and 1913 by kinds of wood. A total of 19,490,491 ties, or 98.0% of all those purchased in Canada, were used by steam railways. This total is a decrease of 6.4% from the total for 1912. The ties imported for use by this class of companies amounted to 3,235,022, valued at \$1,813,256, and formed 16.6% of the total.

The jackpine ties included in this table were made up of two separate species, eastern jackpine (*Pinus Banksiana*), which is cut in every province east of British Columbia, and lodgepole pine, which is cut only in British Columbia and western Alberta. Although this is one of the most

Gulf States forms an increasing proportion of the tie material imported into Canada each year. This wood does not grow in

rule, the more durable native woods were purchased by these companies, and the treated ties formed less than one per cent.

Of the oak ties reported, 9.3% were treated, as were all the imported beech and maple ties. The only western species reported were red cedar, Douglas fir and western larch. The electric railways paid on an average 16c. a tie more than the steam railways, an increase of 8c. from 1912, increasing with the cedars and with oak. All the other woods showed decreases in average cost.

About 10% of the cross ties purchased by both classes of railways were given preservative treatment to retard decay. The practice is a fairly recent one, as is seen by the fact that in 1910 practically no ties were treated at all, and that the percentage of treated material has increased steadily since that time. The treatment under present market conditions is most profitable when applied to the harder, stronger woods, that if used untreated would decay before the end of their mechanical life.

This bulletin was prepared by the Interior Department's Forestry Branch, R. H. Campbell, Director of Forestry.

| Table 3 Kind of Wood | 1912 | | | | 1913 | | | |
|----------------------------|---------|------------|--------------|-----------|---------|------------|--------------|-----------|
| | Number | Value | Av. Value | Per Cent. | Number | Value | Av. Value | Per Cent. |
| Total..... | 483,362 | \$ 242,195 | \$ cts. 0.50 | 100.0 | 391,223 | \$ 225,086 | \$ cts. 0.58 | 100.0 |
| White cedar..... | 159,476 | 87,681 | 0.55 | 33.0 | 145,659 | 76,673 | 0.63 | 37.2 |
| Red cedar..... | 25,000 | 12,875 | 0.51 | 5.2 | 95,000 | 70,567 | 0.74 | 24.3 |
| Jack pine..... | 25,616 | 14,821 | 0.58 | 5.3 | 66,954 | 33,137 | 0.49 | 17.1 |
| Tamarack..... | 31,545 | 19,196 | 0.61 | 6.5 | 27,232 | 13,808 | 0.51 | 7.0 |
| Hemlock..... | 52,763 | 23,426 | 0.44 | 10.9 | 19,563 | 7,427 | 0.38 | 5.0 |
| Oak..... | 2,925 | 2,391 | 0.82 | 0.6 | 14,760 | 13,044 | 0.88 | 3.8 |
| Spruce..... | 24,636 | 10,292 | 0.42 | 5.1 | 8,000 | 2,800 | 0.35 | 2.0 |
| Douglas fir..... | 156,930 | 68,032 | 0.43 | 32.5 | 5,982 | 2,439 | 0.41 | 1.5 |
| Elm..... | 90 | 157 | 1.74 | ..... | 3,348 | 1,981 | 0.59 | 0.9 |
| Western larch..... | ..... | ..... | ..... | ..... | 2,512 | 1,889 | 0.75 | 0.6 |
| Hard pine..... | 4,200 | 2,940 | 0.70 | 0.9 | 1,995 | 1,108 | 0.55 | 0.5 |
| Beech..... | ..... | ..... | ..... | ..... | 152 | 152 | 1.00 | ..... |
| Maple..... | ..... | ..... | ..... | ..... | 61 | 61 | 1.00 | ..... |
| White pine..... | 181 | 384 | 2.12 | ..... | ..... | ..... | ..... | ..... |

Canada and is the product of at least four different species of pines, the most valuable of which is long leaf pine (*Pinus palustris*). The wood of the hard pines, when used for ties, usually decays before it fails through mechanical wear, and therefore it repays the cost of a preservative treatment that will postpone this decay. Of the hard pine ties used in Canada by the steam railways in 1913, 17.5% were treated.

Western spruce is made up of two species, which are confined for the most part to British Columbia. Englemann spruce (*Picea Engelmanni*) is found on the Rocky Mountains and in the eastern part of British Columbia, and Sitka spruce (*Picea Sitchensis*) is cut on the Pacific coast. All the western spruce ties were native material, and on account of their rapid rate of decay in the ground 34% of those purchased were given preservative treatment.

Eastern tamarack (*Larix laricina*) is very similar to the western species and has always been a favorite tie material on account of its spike holding qualities. About half the tamarack ties were imported and none were reported to have been treated.

Western hemlock (*Tsuga heterophylla*) is usually considered to be a much better tie material than the eastern species, but in British Columbia, where this tree grows, it has so many rivals among the good tie timbers that it is not used to a very great extent. All the western hemlock ties were purchased in British Columbia and none were given preservative treatment.

Eastern spruce in Canada is made up of three different species that grow east of the Rocky Mountains. All the spruce ties were of native material and none were treated.

Chestnut (*Castanea dentata*) is one of the most durable woods of America, although not to be classed among the hard, heavy tie materials. Practically all the chestnut ties were imported from the eastern States and none were treated.

Of the other hardwoods purchased, such as beech, birch and maple, the greater part of the ties were treated before being laid. Altogether about 12% of the ties purchased by steam railways in 1913 received some sort of treatment to prevent decay.

Table 3 gives details of the ties purchased by 32 electric railways in Canada in 1912 and 1913, by kinds of wood. While the electric railways in Canada in 1913 purchased only 2% of the ties, they paid the highest average price for their material. The total for 1913 was a decrease of 19.1% from 1912. The two cedar species in this class formed together three-fifths of the total, and jackpine, which was the most important wood used by the steam railways, was only of secondary importance. As a general

rule, the more durable native woods were imported in the largest quantities, together with all the hard pine, beech and maple.

Unit Office Organization on Western Lines, Canadian Pacific Railway.

By C. C. Connolly, Chief Clerk, Superintendent's Office, Canadian Pacific Railway, Cranbrook, B.C.

This subject is an important one, as the efficient handling of an office depends primarily on the organization. The method in force for handling the clerical work on a superintendent's district several years ago, and that in use now, is familiar to all in the operating department, and I question if there are any who do not appreciate the many advantages and increased efficiency that have resulted from the present organization. When I think of the practice that was in force several years ago, where each officer maintained an office and staff, and compare it with the present organization, I wonder why the present system was not thought of long before it was. When this organization was first suggested, however, there were many who did not think well of the idea, and figured that it would only be a few months until the whole office was in such a muddle that the management would be glad to go back to the old system. This looked for muddle did not materialize, although in the office I was in charge of there was a slight congestion and consequent inconvenience to some officers for a while, due principally to the staff having been reduced a little below a working basis, but a few years trial has shown that this organization has effected a decided improvement in the prompt and intelligent handling of correspondence, and this has been accomplished with a considerable saving to the company.

I believe that some of the improvement in the handling of correspondence has been due to the opportunity that has been given for the chief clerk to become familiar with all matters concerning his work, at least this has been my experience. He is in constant intercourse with all the officers, which was not the case previously, and in that way he is in touch with everything of importance that is going on in the district. A great deal of duplication of correspondence has been eliminated, and it has also made unnecessary the interchange of correspondence between district officers and the superintendent's office. I consider it still necessary for the superintendent to write certain letters or circulars to officers which contain instructions or methods to be followed concerning the work they are in charge of, which enables them to keep a small file of their own containing instructions and rulings in connection with their particular work, and which is always avail-

able to them for reference. This is preferable to handling a file from one officer to another, and avoids the possibility of important files becoming mishandled or mislaid. This simply means handing them a copy of the instructions, so each may have it, and does not in my opinion constitute in the slightest degree a deviation from the principles of this organization.

To obtain the best results in the office, the work must be systemized so that each clerk will have a certain line of work to do, be responsible for the proper performance of such work, and have sufficient to do to keep one of the average capacity constantly employed. The present organization requires a chief clerk who should attend to the correspondence concerning the various departments, consulting with the heads of these departments when necessary, and handling correspondence for them according to their advice. He should be expected to relieve the superintendent of the greater portion of his correspondence, consulting with him when necessary as to what line of action is to be followed, and then attending to the details, conscientiously doing to the best of his ability what he believes his superior expects him to do, and in no way infringing on the confidence that is placed in him; by this I mean, neglecting to do certain little things, the nonperformance of which would possibly not be noticed, but which are necessary in the best interests of the company, which we should all have at heart. A conscientious performance of such duties, as well as exercising a general supervision of the office, will keep a chief clerk and a stenographer well employed.

There should be an assistant chief clerk, who will first go through the mail to see that it is properly recorded under correct file numbers, and correct files attached, attend to tracing, and various weekly and monthly reports that it is necessary to submit to the general office, and also handle any correspondence that is assigned to him by the chief clerk. There is usually sufficient work attached to this to keep him and a stenographer constantly occupied.

Then there is a register clerk required who is to stamp and record all inward mail, attach files, and also record all outward correspondence. This is a very important post, and it is not always that we are able to fill it satisfactorily, and it is at

these times that the need of an assistant chief clerk is particularly felt, who should be required to check his work, and see that files are properly numbered and recorded. With a poor man on the register, the work for every one is made more difficult. I consider it essential that a capable clerk of mature years should be placed in this position if the best results are to be obtained, and a wage should be paid that would be sufficient to secure a man of this class, as the proper recording of the correspondence depends largely on the capability of the register clerk, and if a chief clerk is relieved of the necessity of constantly checking his work, he has more time at his disposal to attend to other matters requiring his attention.

Next in line is the junior clerk's position, which should be filled by a careful and conscientious boy, sufficiently matured to grasp the work, and feel the responsibility attached to the position, and with ambition to advance in the office. His important work is putting the files in their proper places, and addressing and sending out the mail. It is so easy for a lad in this position to cause endless trouble by misplacing files in wrong boxes, and misdirecting letters, that it is important to select a good reliable and intelligent boy, and with all this, they usually require close supervision.

Turning now to the statistical work required of a superintendent's office, a first clerk is required to attend to the clerical work affecting roadway and track. Under ordinary conditions, when all roadmasters are located at headquarters, one clerk can attend to all the work without difficulty, but in cases where there may be a roadmaster located at another end of the district he would have to have a clerk with him. He should look after all material reports, prepare track payrolls, requisitions for supplies, attend to correspondence, if any, with various foremen, and attend to any important work in the absence of the roadmaster, and do any other work that may be required of him by the roadmaster.

It is necessary also to have a bridge and building clerk who must be a good reliable fellow. He is required to prepare reports, bridge and building payrolls, distribution, and other clerical work concerning the bridge and building department, such as ordering supplies, attending to correspondence, or any other work given to him by the bridge and building master, and also look after the work during his absence on the road. At Cranbrook this clerk is also able to attend to all the clerical work required by the resident engineer, such as preparing descriptions of sites leased, appropriation requisitions, correspondence, or whatever may be required by the resident engineer; and also write what correspondence there is and look after the clerical work for the telegraph inspector.

A good clerk is required to handle the staff records, who will prepare and submit staff forms for all employees engaged, also forms closing their records, when they leave the service, as well as prepare forms, and keep proper record, for employees disciplined. This work, although receiving the requisite attention in the past few years, was sadly neglected apparently in previous years, men having been employed without proper forms being submitted, and forms not submitted closing records of men who had left the service, the result being that a large part of a staff clerk's time is at present taken up straightening out old records, which frequently means a lot of searching through old payrolls. It is, however, necessary that this should be done, as it is highly important that there should be a proper record of all employees. One of this clerk's duties should be to check over the payrolls monthly to see that all em-

ployes are properly covered by staff forms.

There is also necessary an accountant, assistant accountant, general accounting clerk, and stenographer. The stenographer is necessary to type all payrolls, vouchers, reports and whatever correspondence is handled by the accountant. The assistant accountant should keep required record and prepare station payroll, and reports connected therewith, and assist with other statements necessary in connection with the accounts. The general clerk is necessary to assist with such work, look after invoices, time checks, etc. The accountant should handle all correspondence concerning accounting matters, exercise general supervision over preparation of all payrolls, distributions, and other statistical reports for the accounting department.

The above is the personnel of the staff at Cranbrook, and as organized I think we are obtaining good results. There are possibly better methods of handling some of this work, different and more effective ideas for accomplishing certain results, and if periodical meetings of chief clerks were held, such as the one held in Calgary on March 28, and the proper interest taken in them, where suggestions and ideas can be received and discussed, much good would result for all, and the company would profit.

I am not much in favor of the present system of registering letters, and an office should not depend entirely on the register for the records of correspondence, as it is certainly a slow process to have to sit down and try to remember with whom you may have had correspondence concerning a certain subject, and then hunt through the register for an entry in order to locate the file number. An alphabetical card index record should be maintained, in addition to the register, in which should be entered all important files under the subject, several cross entries being made for the same subject so as to lessen the delay in locating it. I believe it is possible to inaugurate a better filing system for correspondence, and no doubt the time will arrive when someone will suggest some system that will be found satisfactory and be generally adopted, and a great deal of the present recording avoided.

Another matter I might mention, which is possibly foreign to the subject of my paper, is the importance of a chief clerk getting out on the road periodically and covering his district, becoming acquainted at first hand with matters that he will be called upon to deal with in the course of his daily duties. And, if possible, he should occasionally travel with his superintendent, or any one of the district officers, who are in a position to bring matters to his attention as he goes along, which might not be noticed if he were travelling alone, and it is because of the educational advantages that are to be derived that I think these trips should be made, and accompanied by someone who has the practical knowledge or experience. By being conversant with the local characteristics of the district there will be a better understanding between the superintendent and his chief clerk, in connection with the handling of the work.

The foregoing paper was read at a meeting of the chief clerks, Alberta Division, C. P. R., and after discussion the following recommendations were made:—

That the chief clerk should see all wire and letter correspondence in the morning before any letters are written.

That stenographers should type payrolls direct from the time books or sheets, instead of having them read off by another clerk.

That chief clerks should be given an opportunity to get out on the line occasionally, to enable them to become acquainted

at first hand with matters dealt with by correspondence. This would be of considerable educational value to them, and the value might be enhanced by the chief clerk accompanying an officer on a trip of inspection.

Order Respecting Safety Appliances on Cars.

The Board of Railway Commissioners for Canada, issued general order 128, dated July 20, as follows: Re general order 102, Feb. 17, 1913, prescribing rules and regulations respecting safety appliances on trains. Upon the report and recommendation of the Chief Operating Officer of the Board, the reading of what is filed on behalf of the C.P.R.; it is ordered that railway companies be granted an extension of time until July 1, 1916, within which to make the following changes:

To change the location of brakes on all cars to comply with the standard prescribed in the Board's regulations, dated Feb. 17, 1913.

To comply with the standard prescribed in the regulations in respect of all brake specifications contained therein.

To change cars having less than 10 ins. end ladder clearance within 30 ins. of the side of car, to comply with the said regulations.

To comply with the standard prescribed in the regulations in respect to hand holds, running boards, ladders, sill steps, and brake staffs, except that when a car is shopped for work amounting practically to rebuilding body of car, it must then be equipped according to the standards prescribed in the regulations.

And it is further ordered that railway companies be not required to make changes to secure additional end ladder clearance on cars that have 10 or more inches end ladder clearance within 30 ins. of side of car, or to make the changes in end ladders, side ladders, hand grips and steps which have been made in accordance with the provisions of sec. 264 of the Railway Act and General Order 102, or to comply with the Board's regulations aforesaid, until the car is shopped for work amounting to practically rebuilding body of car, at which time such changes must be made to comply with the standards prescribed in the order.

And it is further ordered that railway companies be not required to change the location of hand holds (except end hand holds under end sills), ladders, sill steps, brake wheels, and brake staffs on freight train cars where the appliances are within 3 ins. of the required location, except that when cars undergo regular repairs they must then be made to comply with the standards prescribed in the said regulations.

Boiler Insurance.—That the whole question of boiler safety is one of carefulness and maintenance, is shown by The Travelers' Boiler Insurance Co., which states that out of the money collected for insurance the following distribution is made: securing business, 25%; inspection, 50%; business expenses, 10%; profit, 5%; and loss, 10%.

A new type of tender tank has been developed on the Lehigh Valley Rd., which, it is claimed, eliminates leakage. This has been accomplished by dispensing with the bottom angle irons, flanging the bottom and side sheets to form the rivetting strips. The first cost is said to be less, as is also the maintenance, as repairs may be made without removing the tank from the trucks.

One locomotive boiler explosion per 21,000 boilers per annum is the record in the U.S. for the last two years.

Steel Underframe for Canadian Northern Railway Passenger Cars.

The type of steel underframe adopted by the C.N.R. is shown in the accompanying illustration, and is intended for use under all classes of passenger equipment. It is practically the same as the Barney and Smith standard design for equipment exceeding 70 ft. in length over end sills. The principal differences lie in the refinement in the method of insulation, etc., to care for the more severe climatic conditions to be encountered in the north country, and they are also arranged, as regards the height of body centre plate, to suit trucks now in use under the company's wooden passenger equipment, which has been found to be a difficult feature to embody in steel underframes of any design. The principal di-

web plate, reinforced at the top by 5 by 3 by 3/8 in. angles, inside and outside, and at the bottom by 3 by 3 by 3/8 in. angles, inside and outside, with a 30 by 3/8 in. cover plate, running the full length of the car. The side girder is composed of a main member, consisting of a 24 by 5-16 in. plate, with a 3 by 3 by 1/4 in. centre angle, 3 by 3 by 5/8 in. top angle, 2 by 2 by 1/4 in. angle stiffener at the side posts, and a 5 in. 11.6 lb. bottom Z bar. The top angle of the side girder has a 3/4 in. camber, the side girder plate being run straight, with the top and bottom edges parallel to the rail. The rivet gauge in the top angle is 2 ins., beginning 1 7/8 in. down on the web plate at each end, rising to 1 1/8 in. at the centre of the car.

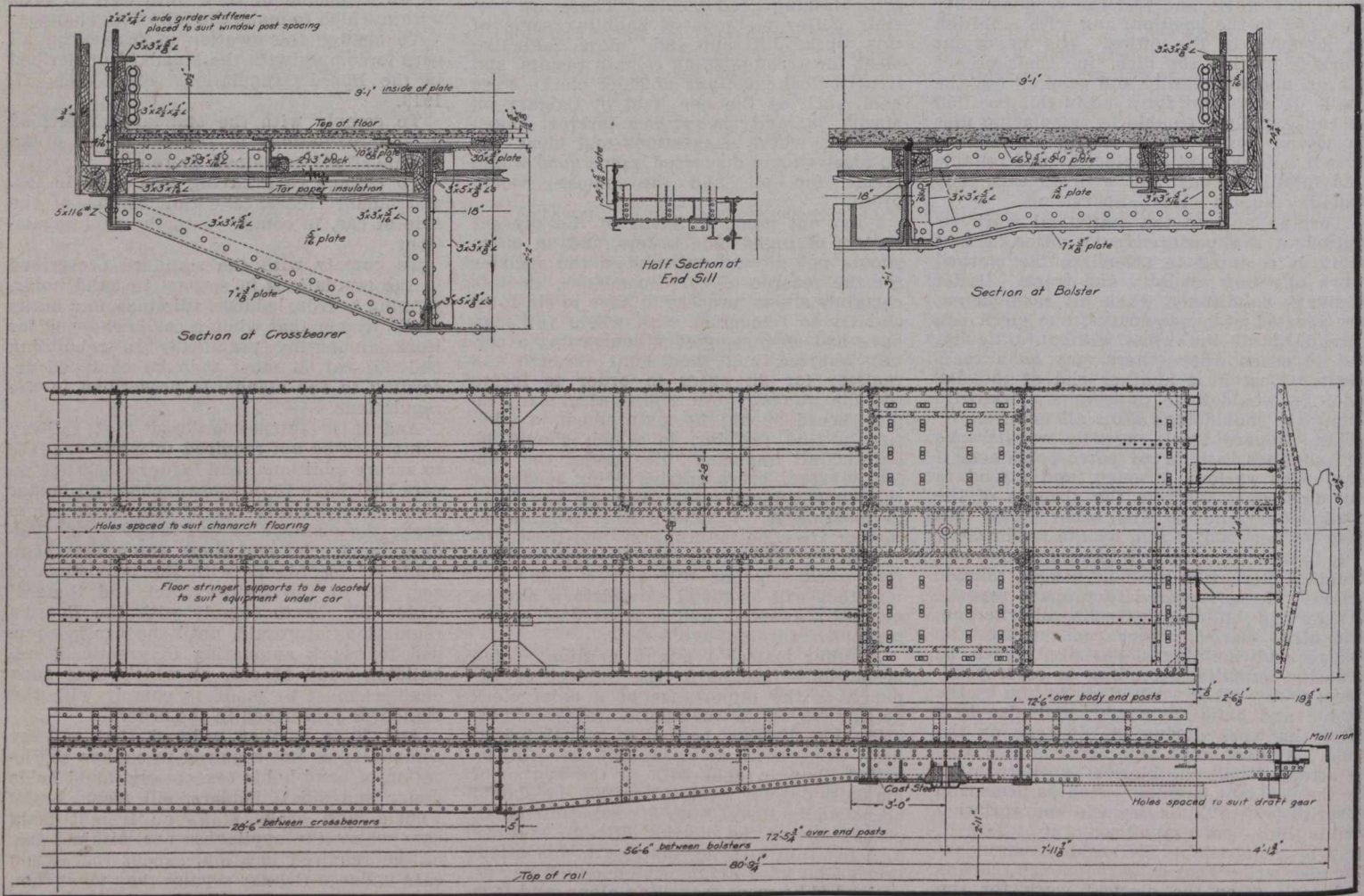
of 4 in. 13.8 lb. Z bar posts, with 8 by 3 1/2 by 1/2 in. end plate angles connected to the Z bar posts with 5 by 5 by 3/8 in. angles.

The following weights and loads formed the basis of the design calculations:—

| | |
|--------------------------------|---------------------|
| Assumed weight of car | 140,000 lbs. |
| Assumed live load | 5,000 lbs. |
| Total | 145,000 lbs. |
| Deduction for two trucks | 40,000 lbs. |

Total weight of body

105,000 lbs.
This load of 105,000 lbs. was assumed to be evenly distributed over the entire length, and only the portion of the load which came between the truck centres was considered, the overhang being neglected. The latter, had it been taken into account, would have somewhat reduced the determined fibre stresses at the centre of the car, as the vir-



Details of Steel Underframe for Canadian Northern Railway Passenger Cars.

mensions of the steel underframe are as follows:—

- Length over buffer angles 80 ft. 9 1/4 ins.
- Length over wooden end posts 72 1/2 ft.
- Length over steel end posts 72 ft. 5 3/4 ins.
- Length between crossbearers 28 1/2 ft.
- Width over side sill stringers 9 ft. 10 1/2 ins.
- Width over side sill Z bars 9 ft. 8 1/2 ins.
- Width over steel buffer beam 9 ft. 4 3/4 ins.
- Width between side girder plates 9 ft. 1 in.
- Width over platform step stringers .. 4 ft. 4 ins.
- Truck centres 56 1/2 ft.
- End of car (steel frame) to centre line of bolster 7 ft. 11 7/8 ins.
- Height, top of rail to underside of centre sill angles at bolster 3 ft. 1 in.
- Height, top of rail to underside of body centre plate 2 ft. 11 ins.
- Height to centre line of coupler 3 ft. 1 in.
- Height, top of rail to top of platform buffer angle 4 ft. 2 11-16 ins.

The underframe is of structural steel throughout, in accordance with the American Society of Testing Materials latest specifications. The centre sill is of the fish belly girder type, with a 25 1/2 by 5-16 in.

The crossbearers are built up on 25 1/4 by 5-16 in. web plates, with 10 by 3/8 in. top plates, 7 by 3/8 in. bottom cover plates connected to the side girders with 12 by 5-16 by 30 in. gussets and 3 by 3 by 5-16 in. angles, and to the centre sills with 3 by 3 by 5-16 in. angles, and having 3 by 3 by 5-16 in. top and bottom angles. The body bolsters are built up on 13 1/2 by 5-16 in. web plates, with 66 by 5-16 in. top cover plate and 7 by 3/8 in. bottom cover plate, the centre filler and centre plate being of cast steel.

The body end sills are of 8 in. 16.25 lb. channels, with 12 by 5-16 in. top cover plate and 8 by 1/2 in. bottom cover plate, connected to the side girder by 3/8 in. gusset plates and having malleable iron centre filling stop to suit the buffing device. The buffer beams are composed of 6 in. 8 lb. channels inside, and 6 in. 14.75 lb. I beams outside, and fitted with 8 5/8 by 5-16 in. top and bottom cover plates. The end construction is composed

tual centre to centre distance between supports in an overhanging beam is less than in an end supported beam.

With these assumptions, the maximum bending moment at the centre of the car was found to be 6,900,000 inch pounds. The side girder was calculated to have a section modulus on the compression side of 181 and on the tension side of 184. The centre sills at the centre gave a section modulus of 383 on the compression side and 420 on the tension side. The total section modulus on the tension side for the combined side sills and side girders is 604, with 564 as the section modulus for the combined members on the compression side. With the maximum bending moment of 6,900,000 inch pounds at the centre, these section moduli give a fibre stress on the tension side of 11,520 lbs. per sq. in., and on the compression side of 12,230 lbs. per sq. in. This is based on the assumption that there is no

connection between the centre sills and side girders, but it is undoubtedly a fact that the crossties, bolsters and end sills, tie these two members together in such a way that a far greater strength is obtained from them together than is apparently obtained by adding the strengths of the two members; that is, considering the steel in the side girder and centre sills as one member, and taking the centre of gravity of the entire construction, a much higher section modulus than that given would be obtained, with consequent lower fibre stresses.

It was deemed unnecessary to compute the buffing stresses, as it was considered

that in an extremely long car such as this, if it is designed to take care of the loading for this span, there can be no question about the margin of safety for any buffing stresses that might develop. In addition, the spring capacity of the platform springs amounting to 42,000 lbs., and the centre line of the draft being below the centre of gravity of the section, creates a tendency to react with an upward stress at the centre of the car, which is counteracted by the superstructure weight.

We are indebted to A. L. Graburn, Mechanical Engineer, C.N.R., for the data from which the foregoing is compiled.

Birthdays of Transportation Men in September.

Many happy returns of the day to:—
 G. W. Alexander, Local Treasurer, G.T.R., Western Lines, Detroit, Mich., born at Lightcliff, Yorks., Eng., Sept. 10, 1859.
 H. Bailey, Bridge and Building Master, Dominion Atlantic Ry., Yarmouth, N.S., born at Huntsville, Ont., Sept. 2, 1879.
 W. B. Bamford, Division Freight Agent, Atlantic Division, C.P.R., St. John, N.B., born at Belleville, Ont., Sept. 10, 1863.
 G. T. Bell, Passenger Traffic Manager, G.T.R. and G.T.P.R., Montreal, born there, Sept. 7, 1861.
 W. H. Biggar, K.C., General Counsel, G.T.R. and G.T.P.R., Montreal, born at The Carrying Place, near Trenton, Ont., Sept. 19, 1852.
 E. R. Bremner, ex-Division Freight Agent, G.T.R., Ottawa Division, Ottawa, born at Toronto, Sept. 9, 1875.
 M. H. Brown, Division Freight Agent, Ontario Division, C.P.R., Toronto, born at Victoria Square, Ont., Sept. 2, 1866.
 W. B. Bulling, ex-Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, born there, Sept. 16, 1858.
 W. E. Burke, Assistant Manager, Canada Steamship Lines, Ltd., Montreal, born at Belleville, Ont., Sept. 23, 1881.
 C. F. Burns, Auditor of Disbursements, Intercolonial Ry., Moncton, N.B., born at Clements Port, N.S., Sept. 10, 1854.
 A. D. Cartwright, Secretary, Board of Railway Commissioners, Ottawa, born at Kingston, Ont., Sept. 20, 1864.
 A. W. Davis, Locomotive Foreman, G.T.R., Stratford, Ont., born at Sittingbourne, Kent, Eng., Sept. 5, 1854.
 A. S. Dawson, M. Can. Soc. C.E., Chief Engineer, Department of Natural Resources, C.P.R., Calgary, Alta., born at Picou, N.S., Sept. 6, 1871.
 O. L. Dickeson, President, White Pass and Yukon Route, Vancouver, B.C., born at Otumwa, Ia., Sept. 16, 1877.
 M. B. Dube, General Foreman, Transcona Shops, G. T. Pacific Ry., Transcona, Man., born at Quebec, Que., Sept. 6, 1877.
 W. E. Duperow, Assistant General Passenger Agent, Grand Trunk Pacific Ry., Winnipeg, born at Stratford, Ont., Sept. 4, 1872.
 W. H. Estano, Traffic Auditor, Intercolonial Ry., Moncton, N.B., born at Halifax, N.S., Sept. 29, 1874.
 C. B. Foster, Assistant Passenger Traffic Manager, Eastern Lines, C.P.R., Montreal, born at Kingston, N.B., Sept. 30, 1871.
 J. P. Ferguson, representing Galena Signal Oil Co., Ottawa, Ont., born at Drummondville, Que., Sept. 12, 1856.
 R. S. Gosset, Auditor of Disbursements, Canadian Northern Ry., Toronto, born there, Sept. 28, 1879.
 John Gray, General Agent, G.T.R., Toronto, born at River Beaudette, Que., Sept. 28, 1863.
 D. W. Hatch, Travelling Agent, Atchison, Topeka and Santa Fe Ry., Montreal, born at Bedford, Que., Sept. 1, 1841.
 W. R. Howard, Chief Dispatcher and Trainmaster, District 1, Atlantic Division,

C.P.R., Brownville Jct., Me., born at St. Andrews, N.B., Sept. 14, 1871.
 E. Humphreys, Fuel Agent, Alberta Division, C.P.R., Calgary, born at Hull, Eng., Sept. 24, 1869.
 J. E. Hutcheson, General Manager, Montreal Tramways Co., Montreal, born at Brockville, Ont., Sept. 15, 1858.
 C. B. King, Manager, London St. Ry., London, Ont., and President, Canadian Electric Railway Association, born at Galena, Ind., Sept. 12, 1871.
 S. King, ex Superintendent, Canadian Car and Foundry Co., Montreal, Director, National Steel Car Co., Ltd., Hamilton, Ont.,

The War

THE shutting off of imports from Continental Europe into Canada, due to the War, gives many home industries an unexampled opportunity for immense and immediate development.

Canada will prosper at the expense of Continental Europe. This is not a time in Canada for repining on the part of the business man. We must be careful, even frugal, but we must also be bold.

Victory is to him who has courage.

now of London, Ont., born at Thetford, Norfolk, England, Sept. 12, 1853.
 E. L. Landorh, Resident Engineer, C.P.R., Brandon, Man., born at Copenhagen, Denmark, Sept. 9, 1888.
 R. E. Larmour, Assistant General Freight Agent, C.P.R., Vancouver, born at Brantford, Ont., Sept. 26, 1868.
 H. D. Lumsden, M. Can. Soc. C. E., engineering department, C.P.R., Toronto, born at Belhaire, Scotland, Sept. 7, 1844.
 G. S. Lytle, Car Service Agent, Manitoba Division, C.P.R., Winnipeg, born at Denison, Ia., Sept. 23, 1878.
 F. J. Mahon, Superintendent Telegraphs, Eastern Division, C.P.R., Montreal, born there, Sept. 18, 1865.
 R. E. Merkley, Trainmaster, District 3, Saskatchewan Division, C.P.R., Saskatoon, born at Ottawa, Sept. 3, 1882.
 J. F. Mundle, City Freight Agent, C.P.R., Montreal, born at Prescott, Ont., Sept. 20, 1857.
 M. B. Murphy, Superintendent, District 2, Central Division, Canadian Northern Ry., Winnipeg, born at Napa, Cal., Sept. 11, 1866.
 K. F. Nystrom, chief draughtsman, Car Department, G.T.R., Montreal, born in Sweden, Sept. 2, 1881.
 J. Paul, District Freight Agent, Canadian Northern Ry., Winnipeg, born in Euphrasia tp., Grey Co., Ont., Sept. 13, 1858.
 W. J. Pickrell, Superintendent, District 2, Altantic Division, C.P.R., Aroostook Jct., N.B., born at London, Ont., Sept. 15, 1880.

C. S. Richardson, District Freight Agent, C.P.R., Buffalo, N.Y., born at New York City, Sept. 26, 1870.
 W. D. Robb, Superintendent of Motive Power, G.T.R., Montreal, born at Longueuil, Que., Sept. 21, 1857.
 F. W. Sterling, District Freight Agent, C.P.R., Nelson, B.C., born at Thornbury, Ont., Sept. 14, 1881.
 E. W. Taylor, General Freight Agent, Reid Newfoundland Co., St. John's Nfld., born at Carbonear, Nfld., Sept. 8, 1870.
 F. G. Wood, Commercial Agent, Canadian Northern Ry., St. Louis, Mo., born at Toronto, Sept. 15, 1890.
 H. A. Young, Ontario Storage and Cartage, Ltd., Toronto, born at Brooklyn, N.Y., Sept. 1, 1864.
 R. N. Young, Superintendent of Telegraphs, Alberta Division, C.P.R., Calgary, born at Cayuga, Ont., Sept. 4, 1870.

Master Car and Locomotive Painters' Association of the United States and Canada.—The 45th annual convention will be held at Nashville, Tenn., Sept. 8 to 11. The subjects to be covered are, the finishing of steel passenger car equipment, rust inhibitive paints, interior finish of passenger cars, varnish for locomotive tenders, classification of passenger car paint repairs, apprenticeship in the paint shop, sand blast vs. commercial paint removers, blister proof finish for heated locomotive parts, and standard freight car lettering.

Additional Terminal Elevator at Fort William.—It was announced recently that the N. M. Patterson Elevator Co. has decided to build the first unit of 100,000 bush. capacity, of what will eventually be a 1,000,000 bush. terminal elevator, at Fort William, without delay. It will be equipped with the most modern cleaning and drying machinery. The site has been secured about 888 ft. below the G. T. Pacific Ry. swing bridge over the Kaministikwia River, and the contract has been awarded to S. J. McQueen, Fort William.

Railway Lands Patented.—During June, letters patent were issued in respect of railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

| | Acres. |
|---|-----------------|
| Alberta Central Ry. | 6.17 |
| Calgary and Edmonton Ry. | 1,603.00 |
| Canadian Northern Ry. | 1,476.45 |
| Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co. | 3,511.59 |
| Total | 6,597.21 |

Steam Railway Fatalities.—During June, 17 employees were killed in the course of their work in connection with the operation of steam railways throughout the Dominion. The fatalities were caused, as follows:—Run over by locomotives, cars or trains 10, head on collisions 5, derailment of locomotive 1 and by falling from a train 1.

Many cases of bad clinkering and honeycombing have been eliminated by giving the locomotive ashpan more opening. Where brick arches are used, no trouble is experienced. Boilers in poor condition, with leaky flues, full of scale, or with rough projections, are more liable to honeycomb than if in good condition.

Experiments with locomotives have shown that after a relation of 0.14 sq. ft. of air inlet per sq. ft. of grate was reached, no further decrease of draught occurred when the air inlets were increased; and when the air inlets were less than 0.11 sq. ft. per sq. ft. of grate, the draught necessary to supply air increased very rapidly.

One pound of coal used in a freight locomotive will provide enough energy to carry one ton 15 or 16 miles, and in a modern train it will be fed the boiler every 52 ft. of distance travelled.

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.

General order 127, July 6.—Directing that cabooses of all railway companies subject to Board's jurisdiction be equipped as follows:—where cabooses are equipped with marker sockets in lower position, markers to be carried in such lower sockets; all cabooses hereafter built to be equipped with marker sockets in lower position; all cabooses now in use not equipped with marker sockets in lower position, shall be so equipped by Nov. 1, 1914.

General order 128, July 20.—Extending to July 1, 1916, time within which railway companies subject to the Board's jurisdiction shall make certain changes in respect to safety appliances on trains.

General order 129, July 22.—Prescribing certain regulations in connection with increased special and competitive freight and express tolls and suspensions thereof.

General order 130, July 28.—Disallowing schedules of Boston and Maine Rd., C.P.R., Central Vermont, G.T.R., G.T.P.R., G.N.R., Maine Central Rd., Michigan Central Rd., Rutland Rd., N.Y.C. & H.R. Rd., T.H. & B.R., and Wabash Rd., in so far as their purpose is to increase tolls previously charged for exclusive use of drawing rooms or compartments in sleeping and parlor cars locally between points in Canada.

General order 131, Aug. 6.—Prescribing certain regulations in regard to locomotive defects and requiring railway companies on or before Jan. 1, 1915, to equip locomotives with double windows in front of cabs during winter season, Nov. 1 to Apr. 30, same to be made air tight.

22102. July 2.—Dismissing application of Fort Garry rural municipality, Man., for order directing Canadian Northern Ry. to provide suitable subway under its tracks where it crosses Pembina highway, Winnipeg.

22103. July 2.—Dismissing application of Manitoba Sand and Gravel Co., Winnipeg, for order directing G.T. Pacific Ry. to amend its Special Freight Tariff, C.R.C. 279, Nov. 21, 1912, as to item 10, page 5, so as to provide an equitable rate on sand and gravel from Vivian station, Man., to Winnipeg.

22104. July 2.—Approving location of G.T. Pacific Branch Lines Co.'s station at Mountpark, mileage 56.1, Alberta Coal Branch.

22105. July 2.—Extending for six weeks from date, time within which Canadian Northern Ry. and G.T. Pacific Ry. shall install gates at First St. and Namayo Ave., Edmonton, Alta., as provided by order 20874, Nov. 20, 1913.

22106. July 2.—Relieving Canadian Northern Ry. from speed limitations on its line between Morinville and Athabasca Landing, Alta.

22107. July 2.—Ordering C.P.R. to build highway crossing over its line at main road between Lots 4 and 5, Oliver Tp., Ont.; half cost to be paid by municipality.

22108. July 3.—Rescinding order 21870, May 26, re Duluth, South Shore and Atlantic Ry. tariff C.P.R. 331, as to what constitutes proper filing under Sec. 335 of Railway Act, to be spoken to generally at traffic sittings of Board at Ottawa in September.

22109. July 2.—Authorizing C.P.R. to open for traffic its Gleichen-Shepard Branch from Gleichen to Shepard, mileage 0 to 40.84, Alta.

22110. July 3.—Amending order 19793, July 12, 1913, re revised location of C.P.R. Thompson Subdivision, near Kamloops, B.C.

22111. July 2.—Authorizing C.N. Ontario Ry. to cross public road on spur to ballast pit, between Lots 96 and 48A, St. Andrews Parish, Que., with two loading tracks.

22112. July 3.—Dismissing Canadian Northern Ry. application for repeal of order 20808, Nov. 13, 1913, re division of Rue La Vernadrye, St. Boniface, Man.

22113. July 2.—Relieving C.N. Ontario Ry. from speed restrictions on its Toronto-Ottawa Line, between Chaffey Locks and Ottawa, and between Harrowsmith and Perth Road Pit, and ordering that trains be required to occupy 40 minutes between Perth Road Pit and Chaffey Locks, 11.4 miles.

22114. July 2.—Ordering Canadian Northern Ry. to remove trees from crossing, according to sight lines indicated by number of feet on sketch on file with Board, between Lots 28 and 29, Darlington Tp., mileage 38.3, and that clay bank on southeast corner of crossing, and small portion of bank on southwest corner, be sloped down.

22115. July 3.—Approving agreement between Bell Telephone Co. and Harrietsville Telephone Association, June 15.

22116. July 2.—Authorizing Lake Erie and Northern Ry. to build across G.T.R. at station 7+23, Brantford, Ont.

22117. July 3.—Extending the free collection and delivery limits of Dominion Express Co. in Swift Current, Sask., and rescinding order 20463, Sept. 30, 1913.

22118. July 2.—Approving location of G.T. Pacific Branch Lines Co.'s station at Lawson, Sask.

22119. July 2.—Approving location of Toronto Terminals Ry. line between York St. and Don River, mileage 1.50 to 3.26, Toronto, and authorizing it to expropriate certain lands, and rescinding order 21543, March 19.

22120. July 3.—Amending order 21937, May 29, re G.T. Pacific Ry. stations, etc., between Toftind and Deville, Alta.

22121. May 26.—Amending order 21780, May 7, re half interlocker at crossing of G.T.R. by Berlin and Northern Ry. at Bridgeport St., Berlin, Ont., substituting Lancaster for Bridgeport.

22122. July 2.—Ordering C.P.R. to provide highway crossing about 500 ft. west of switch at Verwood, Sask.; work to be completed by July 31.

22123. July 3.—Authorizing C.P.R. to open for traffic its Port Moody Branch from mileage 0 to 3.24, B.C.

22124. July 3.—Authorizing City of Winnipeg to build subway under C.P.R. at Salter St.

22125. July 3.—Authorizing Canadian Northern Ry. to build spur for David Bowman Coal and Supply Co., Ltd., in s.w.¼ sec. 18-18-4, w.p.m., Man.

22126. July 7.—Ordering Esquimalt and Nanaimo Ry. to build level crossing at Alder St., Riverside townsite, Cowichan Lake, B.C.

22127. July 2.—Rescinding order 22052, June 23, re interchange tracks between G.T.R. and Galt, Preston and Hespeler St. Ry., and providing cost of same be apportioned as follows:—At Waterloo, 85% by G.T.R., balance by G.P. and H.S.R.; at Berlin, 90% by G.P. & H.S.R., balance by G.T.R.; at Preston, 80% by G.T.R., balance by G.P. & H.S.R.; at Galt, whole by G.T.R.

22128. July 4.—Dismissing application by Lac du Bonnet village, Man., to reconsider order 21926, May 26, for order requiring C.P.R. to build platform there.

22129. July 2.—Authorizing C.P.R. to build spur for C. C. Snowdon, Winnipeg.

22130. July 3.—Ordering C.P.R. to build highway crossings over tracks on Lots 74 and 78, St. Andrews rural municipality, Man.; cost of construction and maintenance to be paid by municipality, work to be completed within one month.

22131. July 3.—Authorizing C.P.R. to open for traffic its double track from mileage 1 to Mantle, mileage 12, Moose Jaw Subdivision, Sask.

22132. July 2.—Relieving Canadian Northern Ry. from speed restrictions on its Vegreville-Calgary line from mileage 15 to 48, and mileage 75 to 173; trains between mileage 48 and 75 limited to 22 miles an hour.

22133. July 2.—Authorizing C.N. Ontario Ry. to take, for ditch diversion, portion of Lot 81, St. Dorothee Parish, Que.

22134.—July 3.—Ordering Dominion Atlantic Ry. to employ watchman to protect crossing immediately west of station at Waterville, N.S., when trains are passing through without stopping.

22135. July 3.—Ordering Dominion Atlantic Ry. to install improved type of automatic bell at crossing of public road from Cambridge, to Waterville, 20% of cost to be paid out of the railway grade crossing fund; provision to be made to have bell cut out at station when train is standing at platform.

22136. June 26.—Authorizing C.N. Ontario Ry. to connect with G.T. Ry. near Ottawa, Ont., connection to be operated subject to G. T.R. terms of consent.

22137. July 4.—Approving location of C.P.R. station at Edgewater, B.C., mileage 59.5, south of Golden, on Kootenay Central Ry.

22138. July 6.—Authorizing C.P.R. to build spur for Ford Motor Co., London, Ont.

22139. July 6.—Approving plan A showing interlocking plant at crossing of Canadian Northern Ry. by C.P.R., mileage 5.6, Brandon Subdivision, at Woodman, Man.

22140. July 6.—Authorizing C.P.R. to build siding for Peters' Coal Co., east of Runnymede Road, mileage 5.70, London Subdivision, Ont.

22141. July 6.—Authorizing C.P.R. to rebuild bridge 42.9, over Nottawasaga River, near Alliston station, Ont.

22142. July 4.—Authorizing C.P.R. to build road diversion between Secs. 21 and 28, at grade, across its tracks, in Sec. 28-2-13, at Milk River, Alta.

22143. July 3.—Authorizing C.P.R. to build spur 250 ft. long from its main spur, and another spur 400 ft. long, for Winnipeg Paint and Glass Co., Kildonan Parish, Man.

22144. July 4.—Extending to Aug. 31, time within which C.P.R. shall complete siding for McCormick Mfg., Co., London, Ont.

22145. July 3.—Amending order 21778, May 7, re protection of crossing of Berlin and Northern Ry. by G.T.R. at Wellington St., Berlin, Ont.

22146. July 3.—Authorizing G.T. Pacific Ry. to build spurs for Ferintosh Gravel Co. and Inglis, McDonald and Thom, Edmonton.

22147. July 4.—Ordering G.T.R. within 60 days to install improved type of automatic bell at crossing at St. Hubert, Que., to protect both tracks, 20% of cost to be paid out of railway grade crossing fund.

22148. July 6.—Authorizing Algoma Central and Hudson Bay Ry. to build bridge at mileage 50.40, Tp. 25, R. 22, Algoma District, Ont.

22149. July 6.—Authorizing Algoma Central and Hudson Bay Ry. to build bridge across Kaniwabee River, mileage 150.61, Tp. 28, R. 22, Algoma District, Ont.

22150. July 4.—Rescinding order 21750, May 1, re arbitration proceedings regarding alleged damage to Heward Estate, Toronto, by building of C.P.R. spur, and appointing three arbitrators in lieu of one.

22151. July 7.—Extending for one month from July 18, time within which C.P.R. shall install bell at crossing of highway at Port Hammond, B.C.

22152, 22153. July 4.—Approving plans showing interlocking plants at crossing of C.P.R., Winnipeg Branch Subdivision, and its Arborg Subdivision, by its Bergen Cutoff, Man.

22154. July 6.—Authorizing Canadian Northern Ry. to build transfer track to connect with G.T. Pacific Branch Lines Co.'s line at Regina, Sask.

22155, 22156. July 2.—Approving Calgary and Fernie Ry. location from mileage 47.5 to 95, and from mileage 40 to 47.5, Alta.

22157. July 7.—Authorizing C.P.R. to build siding for G. W. Upham, Odell River, N.B.

22158. July 7.—Authorizing C.P.R. to cross road allowance by subway between Secs. 22 and 23-29-22, w.4.m., Alta., mileage 31.2, Lacombe Subdivision.

22159. July 8.—Ordering Esquimalt and Nanaimo Ry. to build highway over its line at Church St., South Wellington, B.C.; cost to be paid by British Columbia Public Works Department.

22160. July 8.—Ordering C.N. Ontario Ry. to provide undercrossing for H. Ray, March Tp., on his complying with certain conditions; and rescinding order 21387, Feb. 16.

22161. July 7.—Ordering that crossings of Syndicate and Alberta Aves., Edmonton, Alta., be protected by gates installed by Canadian Northern and G.T. Pacific Ry.s., to be operated by day and night watchmen; and apportioning cost of installation and maintenance.

22162, 22163. July 6, 7.—Approving agreements between Bell and Alice Telephone Cos. of May 21, and Bell Telephone Co. and Wallace-town and Lake Shore Telephone Association, June 22.

22164. July 6.—Authorizing Greater Winnipeg Water District to join its tracks with Canadian Northern Ry. at three points, and to build a temporary junction at another point.

22165. July 8.—Authorizing Canadian Northern Ry. to build spur at mileage 255.4, northerly to connect with Canada Cement Co.'s spur and proposed transfer track between C.P.R. and C.N.R., Calgary, Alta.

22166. July 8.—Authorizing G.T.R. to use bridge 77, over Opeongo River, and also Rose Point swing bridge, Rose Point, Ont.

22167. July 8.—Authorizing Kettle Valley Ry. to build across highway at mileage 53.5, Hydraulic Summit westerly to Penticton, B.C.

22168. July 8.—Approving location of C.N. Ontario Ry. proposed entrance to Toronto, mileage 251.84 to 253.73, Queen St.

22169. July 10.—Authorizing C.N. Western Ry. to build across C.P.R. in Medicine Hat, Alta.

22170. July 9.—Authorizing Canadian Northern Ry. to build temporary steel spans across Bears Pass, Halkirk Tp., Ont., pending completion of permanent structure.

22171. July 9.—Amending order 21979, June 13, re installation of automatic electric bell by Pere Marquette Rd., at crossing of Head St., Chatham, Ont.

22172. July 8.—Approving Calgary and Fernie Ry. location from Lot 8493, Kananaskis Pass, B.C., southerly to Lot 4135, mileage 0 to 63; Board reserving right to have line operated by railways interested, as a joint section.

22173. July 10.—Authorizing C.N. Ontario Ry. to cross highway between Lots 11 and 12, Junction Gore, Gloucester Tp., with transfer track connecting G.T.R.

22174. July 9.—Extending, until Oct. 31, time within which C.P.R. shall complete branch line for J. L. Abbott, Toronto.

22175. July 9.—Authorizing Kettle Valley Ry.

- to build across certain highways in Penticton, B.C.
22176. July 13.—Approving Erie and Ontario Ry. location from Toronto, Hamilton and Buffalo Ry. near Smithville, Ont., to northerly limit of Dunnville, Ont.
22177. July 10.—Extending to Sept. 20 time within which C.P.R. shall install bell at crossing of Albert St., Alliston, Ont., as required by order 21865, May 20.
22178. July 11.—Authorizing C.P.R. to build its Bassano Easterly Branch at grade across trail at mileage 116.62, n.w. ¼ Sec. 14-23-1, w. 4 m., Alta., on condition that when survey of trail is made crossing be moved to new location if necessary.
22179. July 8.—Ordering Canadian Northern Ry. and C.P.R. to rearrange interchange tracks at Canada Cement Co.'s premises, Calgary, Alta.
22180. July 13.—Authorizing C.P.R. to open for traffic its Kalso and Slocan Branch between Bear Lake and Kaslo, mileage 5.2 to 25.8; speed of trains limited to 15 miles an hour.
22181. July 8.—Authorizing C.P.R. to build siding for Eagle Lumber Co., Montreal.
22182. July 14.—Authorizing C.P.R. to open for traffic its double track, mileage 66.5 to 68.5, Moose Jaw Subdivision, Sask.
22183. July 13.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) until Oct. 31 to operate over crossing of Oshawa Electric Ry. at Prospect St., Oshawa, Ont., crossing to be protected by flagman appointed and maintained by C.L.O. and W. Ry.
22184. July 13.—Authorizing C.P.R. to build spur for West Canadian Collieries, Ltd., Blairmore, Alta.
22185. July 10.—Extending to Oct. 31 time within which C.P.R. shall complete spur for Balsam Lake Quarries, Ltd., Eldon Tp., Ont.
22186. July 8.—Authorizing C.P.R. to build bridge 89.0 near Woodstock, Ont.
22187. July 14.—Authorizing G.T.R. to build siding and spurs for J. R. Eaton & Sons, West St., Orillia, Ont.
22188. July 10.—Ordering G.T.R., within 60 days, to install improved type automatic bell at crossing of Wilmot St., Berlin, Ont., 20% of installation to be paid out of railway grade crossing fund, remainder by company.
22189. July 10.—Disallowing notice cancelling exception of interswitching service between G.T.R. sidings on town spur at Ferguson and C.P.R. from operation of General Interswitching order 4988, July 8, 1908, and effective Apr. 15, 1914, by Supplement 15, to G.T.R. Special Tariff C.R.C. no. E.2457, and ordering that toll of \$3 a car for said service, as published in tariff E.2457, be restored on lawful notice within 10 days from date.
22190. July 8.—Approving plan and specifications of ditch to be built along G.T.R. right of way, Woodhouse Tp., Ont.
22191. July 8.—Extending to Oct. 8 time within which G.T.R. shall complete spur for Grant and Jones, Rama Tp., Ont.
22192. July 10.—Approving clearances, as shown on G.T.R. plan, between siding for Alabastine Co., Paris, Ont.
22193. July 8.—Authorizing G.T.R. to build siding and spurs therefrom, for Coniagas Reduction Co., Lots 27 and 28, Thorold Tp., Ont.
22194. July 8.—Approving location and details of G.T.R. freight and passenger station at Aubrey, Que.
22195. July 13.—Authorizing G.T.R. to build siding for Chaudiere Lumber Co., St. Jean, Chrysostome Parish, to connect with John Breakeys' siding on Lot 316; and to build transfer track on lot 257, Notre Dame du Perpetuel Secours de Charny Parish, Que.
22196. July 10.—Extending, for 30 days from July 18, time within which G.T.R. shall complete work re approach to Bergevin's crossing between Danby and South Durham, Ont., as required by order 21836, May 18.
22197. July 13.—Approving location and details of new G.T.R. passenger and freight stations at St. Polycarpe, Que., Dalkeith, Ont., and Lacolle, Que.
22198. July 10.—Authorizing G.T.R. to build additional tracks along Neeve and Farquhar Sts., Guelph, Ont., and to change location of certain tracks.
22199. July 3.—Authorizing Lake Erie and Northern Ry. to build across Toronto, Hamilton and Buffalo Ry. in Brantford, Ont.; L.E. and N.R. to place diamond in T.H. and B.R. at crossing, and crossing to be protected by interlocking plant, plans of which are to be submitted for approval.
22200. July 11.—Ordering that packages containing celluloid (except liquid celluloid and celluloid scrap), also articles composed wholly or partly of celluloid, for carriage by express between points in Canada, be conspicuously labelled "celluloid—Inflammable"; also that carriage of liquid celluloid and celluloid scrap by express be prohibited, and that Express Classification for Canada be forthwith amended accordingly.
22201. July 13.—Approving Maine Central Rd. bylaw authorizing certain persons to prepare and issue tariffs of tolls, and rescinding order 15821, Jan. 10, 1912, in similar connection.
22202. July 8.—Authorizing C.N. Ontario Ry. to cross Albany Road, Toronto, by a subway.
22203. July 14.—Authorizing C.P.R. to rebuild bridge 3.6, Prescott Subdivision, Ont.
22204. July 8.—Authorizing C.P.R. to build relocation of existing spur and extension for Calgary Brewing and Malting Co., Macleod, Alta.
22205. July 9.—Authorizing C.P.R. to change location of Pembina lead track across Higgins Ave., Winnipeg, Man.
22206. July 14.—Ordering G.T.R., within 60 days, to install improved type of automatic bell at crossing of James St., Brampton, Ont., 20% of cost to be paid out of the railway grade crossing fund.
22207. July 14.—Approving location of C.P.R. station at Athalmer, B.C.
22208. July 13.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate over crossing of G.T.R., in Whitby, pending installation of interlocking plant required under order 17092, crossing to be protected by watchmen by C.L.O. and W. Ry.
22209. July 14.—Authorizing C.P.R. to build highway crossing over its line between Secs. 24-31-2 and 19-31-1, w. 5 m., Alta.
22210. July 6.—Authorizing Greater Winnipeg Water District to use in common with C.P.R., G.T.P.R. and C.N.R., Paddington transfer tracks.
22211. July 14.—Amending orders 16700, June 1, 1912, and 21938, May 29, 1914, re railway crossing on Spruce Ave., Edmonton, Alta.
22212. July 17.—Authorizing C.P.R. to build spur for Medicine Hat Planing Mill Co., Medicine Hat, Alta.
22213. July 18.—Authorizing City of Vancouver, B.C., to build Drake, Davie, Helmcken, and Hamilton Sts., and street not yet named, along and across C.P.R.
22214. July 13.—Ordering Campbellford, Lake Ontario and Western Ry. (C.P.R.) within 60 days, to install improved type of automatic bell at crossing of Kingston Road, one mile east of Belleville, Ont.
22215. July 14.—Ordering Campbellford, Lake Ontario and Western Ry. (C.P.R.) forthwith to fill in sag in creek crossing T. H. Bickle's farm, Darlington Tp., Ont., with gravel, and raise grade at creek 18 ins.
22216. July 17.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) and G.T.R. to operate over crossings at mileage 119.90, 119.91, and 120.02, Cobourg, Ont., until Nov. 24, pending installation of interlocking plants, trains to stop before crossing diamonds and be flagged over by trainmen.
22217. July 16.—Authorizing G.T.R. to operate automatic block signals on Victoria Jubilee Bridge, Montreal.
22218. July 18.—Authorizing G.T.R. and Ottawa Electric Ry. to operate over interlocking plant at crossing on Broad St., Ottawa, Ont.
22219. July 18.—Authorizing Victoria Harbor village, Ont., to build highway over G.T.R. near station, at G.T.R. expense, company to install gate on east side of crossing.
22220. July 16.—Ordering that G.T.R. tariffs applicable on coal, in carloads, from Niagara Frontier and Detroit, be amended to apply to York, Ont.; rates shown as applying to Toronto; amendments to take effect by Sept. 1.
22221. July 15.—Relieving G.T.R. from providing further protection at crossing of first public highway east of south junction, Lindsay, Ont.
22222. July 17.—Ordering G.T.R., within 30 days, to rebuild fences on its Parry Sound Division, between certain mileages, and to clear grass, weeds, and underbrush from right of way.
22223. July 17.—Authorizing city of Fort William, Ont., to make alterations in Canadian Northern Ry. between Franklin and Donald Sts., Fort William, Ont.
22224. July 16.—Approving C.N. Alberta Ry. location through Tps. 46-45, r. 1-4, w.6 m., mileage 222.79 to 251.38, excepting from mileage 242 to 245.
22226. July 18.—Authorizing C.P.R. to build extension to siding for National Portland Cement Co., Brant Tp., Ont.
22227. July 15.—Authorizing C.P.R. to open for traffic its double track from mileage 28.0 to 32.2, Broadview Subdivision, Sask.
22228. July 20.—Ordering that Thornton, instead of Hinton, Alta., be junction point of prairie and mountain, rates to be charged by G.T. Pacific Ry., as prescribed in the Board's judgement of Apr. 6.
22229. July 14.—Authorizing Montreal and Southern Counties Ry. to build across C.P.R. on Lot 34; M. & S.C.R. to pay cost of details and signals.
22230. July 20.—Establishing Dominion Express Co. collection and delivery limits in Milestone, Sask.
22231. June 30.—Extending express delivery and collection limit in St. Boniface, Man., and rescinding order 19849, May 30, 1913, defining previous limits.
22232. July 16.—Rescinding orders 21706, Apr. 21, and 21930, June 4, re C.P.R. clearances at West Toronto, Ont.
22233. July 16.—Dismissing complaint of Mrs. K. S. Massiah, Lachute, Que., against C. P. R. train service between Lachute and Montreal.
22234. July 16.—Rescinding order 22058, June 25, and authorizing Campbellford, Lake Ontario and Western Ry. (C. P. R.) to build its Trenton spur across certain streets in Trenton, Ont., and to close and divert certain streets.
22235. July 18.—Authorizing C. P. R. to use bridge 15.3 over Isaac Creek, Arrow Lake Subdivision, B. C.
22236. July 18.—Approving 13 standard plans of Edmonton, Dunvegan and British Columbia Ry.
22237. July 18.—Ordering G. T. R. and C. P. R. to file special tariffs of "arbitrary" rates, to take effect by Sept. 1, re lumber and forest products from Ohio and Mississippi River crossings to rate basing points in Canada.
22238. July 18.—Authorizing C. P. R. to use bridge 16.9, near Ops, Ont.
22239. July 21.—Approving location of C. P. R. station, at Eastend, mileage 253, Weyburn-Stirling Branch, Sask.
22240. July 18.—Authorizing C. P. R. to build siding for Toronto Plaster Co., in Nichol Tp., Ont.
22241. July 21.—Authorizing Canadian Northern Ry. to build two temporary spurs in connection with building of Government terminal elevator, Calgary, Alta.
22242. July 20.—Authorizing Canadian Northern Ry. to build spur for Builders' Supply Co., through Secs. 12, 11, and 2, Tp. 15, R. 3, w.p.m., Man., and to cross highway.
22243. July 18.—Approving specifications for timber structures on Edmonton, Dunvegan and British Columbia Ry.
22244. July 21.—Ordering G. T. Pacific Ry. and C. P. R. to build transfer track at Frobisher, Sask., work to be completed within 60 days after approval of plan to be submitted by C. P. R.
22245. July 21.—Authorizing G. T. Pacific Ry. to divert road at mileage 543.6 west of Winnipeg, in rural municipality 378, Sask.
22246. July 22.—Extending express collection and delivery limits in Winnipeg, Man., and rescinding order 18413, Dec. 31, 1912, defining original limits.
22247. July 18.—Dismissing application of Lake Erie and Northern Ry. for approval of location of station in Brantford, Ont.
22248. July 22.—Authorizing C. P. R. to build bridge 60.7 on Esquimalt and Nanaimo Ry., B. C.
22249. July 22.—Authorizing City of Calgary, Alta., to build 34th Ave. across C. P. R., at grade.
22250. July 22.—Authorizing C. P. R. to build sidings for Shawinigan Water & Power Co., Montreal.
22251. July 22.—Authorizing Montreal and Southern Counties Ry. to build bridge over highway on east side of Yamaska River, St. Cesaire Parish, Que.
22252. July 20.—Authorizing Bell Telephone Co. to erect telephone lines on south side of Ann St., Exeter, Ont.
22253. July 22.—Authorizing Glengarry and Stormont Ry. to build at grade, across 5 highways, St. Telesphore Parish, Que.
22254. July 22.—Extending for three months from Aug. 1, time for G. T. R. to complete subway at Brock Ave., Toronto.
22255. July 22.—Ordering that gates at crossing of Lake Shore Road by G.T.R. and C.P.R., at Vaudreuil, Que., be operated by day watchmen, excepting during July, August and September, when day and night watchmen are to be employed.
22256. July 22.—Authorizing C. P. R. to open for traffic its Lacombe Easterly Branch between Monitor and Kerrobert, mileage 149 to 221.3, speed of trains limited to 20 miles an hour.
22257. July 23.—Authorizing C. P. R. to build, at grade, its Colonsay Subdivision across Prince St., Imperial, Sask., at mileage 83.
22258. July 23.—Ordering C. P. R. to build spur for Western Cooperae Co., Calgary, Alta.
22259. July 23.—Authorizing C. P. R. to use bridge over Syndicate Ave., Fort William, Ont.
22260. July 24.—Authorizing Canadian Northern Ry. to build spur across Victoria Ave., Brandon, Man.
22261. July 23.—Authorizing Canadian Northern Ry. to build spur for McKellar Bedding Co., Fort William, Ont.
22262. July 23.—Extending to Dec. 31, time for Cumberland Ry. and Coal Co. to equip its cars with automatic couplers and air brakes.
22263. July 18.—Authorizing G. T. R. to build siding and spur therefrom into City Water Works Property, Montreal.
22264. July 24.—Authorizing G. T. Pacific Ry. to build elevator track at Hawoods, Sask., across road allowance.
22265. July 24.—Authorizing Crows Nest Southern Ry. to build bridge 4 over British Columbia Southern Ry., near Elko, B. C.
22266. July 24.—Approving location of Erie and Ontario Ry. in Dunnville, Ont., from station 726 to 771.58.
22267. July 24.—Dismissing application of

- Peterboro Machine and Lubricator Co. to rescind order 15660, Dec. 20, 1911, re C. P. R. spur for T. Kinnear & Co., Peterboro, Ont.
22268. July 28.—Authorizing C. P. R. to build its ballast pit spur at Federal, Alta., at grade, across two highways.
22269. July 23.—Authorizing C. P. R. to build spur for H. G. Parson, Ltd., Golden, B. C.
22270. July 23.—Authorizing C. P. R. to construct bridge 94.26 on Kootenay Central Ry. over Columbia River, B. C.
22271. July 25.—Extending to Sept. 1, time for Esquimalt and Nanaimo Ry. to file standard tariff of maximum freight tolls for Board's approval.
22272. July 27.—Approving C. P. R. clearances of steelwork at bridge 1.7, Shuswap Subdivision, B. C.
22273. July 24.—Ordering Canadian Northern Ry. to build spur from its line in Sec. 4-39-19, w.4m., and authorizing it to exercise right to use such part of C. P. R. property necessary to make physical connection; right of way to be arranged between the parties.
22274. July 23.—Authorizing G. T. Pacific Ry. to build highway across its Lake Superior Branch, between Lots 15 and 16, Neebing Tp., Ont.
22275. July 27.—Dismissing Port Hope Telephone Co. application for ruling that it is not competitive with Bell Telephone Co., and for order for connection for interchange of business at Bowmanville, Ont.
22276. July 27.—Authorizing Toronto, Hamilton and Buffalo Ry. to build spur in Hamilton, Ont., to and through city lands, to Fowlers' Canadian Co.
22277. July 28.—Authorizing G. T. Pacific Branch Lines Co. to build Government road across its Cutknife Branch, mileage 5.5, Sask.
22278. July 23.—Authorizing Oshawa Ry., Toronto Eastern Ry., and Canadian Northern Ry. to operate over crossing on Ritson Road, Oshawa, Ont.
22279. July 28.—Dismissing complaint Smart-Woods, Ltd., Winnipeg, Man., alleging that delivering carriers at Winnipeg disclaim responsibility for shortage of goods received by them "short" from their connections.
22280. July 23.—Authorizing Dominion Atlantic Ry., to rebuild bridge over Sissiboo River, Digby, N. S.
22281. July 23.—Approving Kettle Valley Ry. location from mileage 49 to 69, west of Penticton, B. C.
22282. July 23.—Authorizing Lake Erie and Northern Ry. to divert highway from station 438+57.8, northerly parallel to Grand Valley Ry., for 1430 ft. to connection with River Road, South Dumfries Tp., Ont.
22283. July 25.—Authorizing C. N. Ontario Ry. to build bridge over Obakagami River at mileage 285.51 east of Port Arthur.
22284. July 25.—Approving plans and specifications of drainage to be built under or across Michigan Central Rd., on Lot 19, Con. 9, Yarmouth Tp., Ont.
22285. July 22.—Relieving Canadian Northern Ry. from providing further protection at first highway crossing east of Dummer Station, Sask.
22286. July 28.—Extending to Sept. 10, time for C. P. R. to install bell at first highway crossing east of Central Ontario Jct., as required by order 21757, May 4.
22287. July 28.—Approving C. P. R. plans of Chambers St. subway, Smiths Falls, Ont.
22288. July 28.—Extending for 30 days from date, time for C. P. R. to install bell at crossing of Laviolette Ave., Three Rivers, Que.
22289. July 29.—Approving location of C. P. R. station at Coquitlam, B. C.
22290. July 28.—Dismissing Fonhill Gravel Co. application for order reducing rates on moulding sand from Fonhill to Toronto, over Niagara, St. Catharines and Toronto Ry., and G. T. R.
22291. July 28.—Approving revised location of G. T. Pacific Branch Lines Co.'s Regina-Moose Jaw Branch from mileage 40.92 to 41.38, Moose Jaw District, Sask.
22292. July 28.—Dismissing complaint of Edmonton and Clover Bar Sand Co., Edmonton, Alta., against G. T. Pacific Ry. rate on sand and gravel from Clover Bar to Edmonton.
22293. July 17.—Ordering C. P. R. to reopen farm crossing over its line, on property of E. Hume, Bolton Tp., Que., and authorizing it to reopen farm crossings for Mrs. A. Hillhouse and E. I. Booth, Bolton Tp., at their expense, work to be completed within ten days.
22294. July 24.—Amending order 22160, July 8, re C. N. Ontario Ry. undercrossing for H. Ray, March Tp., to provide that he shall deposit to the Board's credit \$500 as a bond.
22295. July 23.—Authorizing C. P. R. to build spur for International Supply Co., Medicine Hat, Alberta.
22296. July 27.—Ordering Canadian Northern Ry. to build spur 1,900 ft. long to connect with spur serving Estevan Coal and Brick Co., as soon as its Bienfait-Estevan Branch is open.
22297. July 29.—Authorizing Canadian Northern Ry., until Nov. 30, to open for traffic its North Battleford Northwesterly line from Edam to Turtleford, mileage 38 to 57, speed of trains limited to 15 miles an hour.
22298. July 31.—Authorizing Esquimalt and Nanaimo Ry. to open for traffic its line from McBride Jct. to Courtenay, Vancouver Island, B. C., and rescinding order 20546, Oct. 13.
22299. July 30.—Dismissing G. T. R. application for authority to build spur for Elias Rogers Co., Toronto, at grade across Toronto, Grey and Bruce Ry. (C. P. R.) south of St. Clair Ave., Toronto.
22300. July 28.—Authorizing Toronto Eastern Ry., and Oshawa Ry., for 6 months from Aug. 6, to operate over crossings in Oshawa, Ont.
22301. July 29.—Amending order 22097, July 3, which in part authorized the building of C. P. R. Swift Current Southwesterly Branch across highways between mileage 43.97 and 46.56, by substituting Moose Jaw for Swift Current.
22302. July 27.—Ordering G. T. Pacific Ry. to carry out certain conditions for providing sufficient accommodation and facilities at Spruce Grove, Alta.
22303. July 31.—Ordering that spur between King St. and Pembina Bridge, Entwistle, Alta., be removed, that spur for 5 cars be built east of King St., with trailing point switch toward King St.; G. T. Pacific Ry. to handle carload freight for Entwistle at that point.
22304. July 31.—Authorizing City of Toronto to rebuild bridge, partly in city and partly in York Tp., carrying highway over G. T. R.; 60% of cost to be paid by city, 20% by York Tp., and 20% by G. T. R.; cost of maintenance to be paid by Toronto.
22305. July 31.—Authorizing Winnipeg, Selkirk and Lake Winnipeg Ry. to build its Middlechurch Branch to Stonewall, across C. P. R. spur to stone quarry at Stony Mountain, Man.; if at any future time protection be required at crossing, applicant company to provide same.
22306. July 29.—Authorizing G. T. Pacific Saskatchewan Ry. to operate over crossings of C. P. R. at Weyburn, Sask., until Oct. 15, pending installation of interlocking plant, crossings to be protected by flagmen appointed by C. P. R., at expense of G. T. P. S. R.
22307. July 27.—Ordering Campbellford, Lake Ontario and Western Ry. (C. P. R.) within 60 days to install improved type of automatic bell at crossing of Frontenac Road, Parham, Ont.
22308. July 29.—Authorizing Michigan Central Rd. to build spur for Union Carbide Co. of Canada, Ltd., Crowland Tp., Ont.
22309. July 29.—Authorizing Alberta Central Ry. to open for traffic its line west of Red Deer, mileage 0 to 64.5.
22310. July 31.—Authorizing Union Bank of Canada to repay to S. A. Hamilton Co., Moose Jaw, Sask., \$1,100 deposited to Board's credit, with accrued interest, if any.
22311. July 29.—Authorizing Saskatchewan Highway Commissioners to build a highway over G. T. Pacific Branch Lines Co.'s Regina Boundary Branch, on extension of Queen St., Colfax.
22312. July 31.—Authorizing G. T. Pacific Ry. to build extension to bridge over Fraser River, mileage 468.4, Prince Rupert East, B.C.
22313. July 30.—Authorizing Canadian Northern Ry. to build to revised line across C.P.R. in s.w. ¼ Sec. 19-40-26, near Lacombe, Alta.
22314. July 29.—Authorizing Canadian Northern Ry. to operate for construction purposes only, for 60 days from date, pending installation of interlocking plant over crossing of C.P.R. in Lot 101, St. Paul Parish, Man., trains to be flagged over by watchmen appointed by C.P.R. at expense of C.N.R.
22315. Aug. 4.—Extending express collection and delivery limits in Windsor, Ont., and rescinding order 19533, June 9, 1913.
22316. Aug. 1.—Ordering G. T. Pacific Ry. to build station, not to be below standard 1 B.R.C., and a one pen stockyard at Ribstone, Alta.; to be completed by Sept. 15, and company to stop trains 1 and 2 on flag there for passengers and express.
22317. July 24.—Ordering G.T.R. to build spur for Standard Crushed Stone Co., near Windmill Point station, Ont.
22318. Aug. 1.—Extending to Oct. 31, time within which G.T.R. shall complete subway at Thompson Road, Bertie Tp., Ont.
22319. July 30.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate across C.N. Ontario Ry. in Lot 27, Con. 2, Pickering Tp., until Sept. 15, pending installation of interlocking plant; crossing to be protected by flagmen appointed by C.N.O.R. at expense of C.L.O. & W.R.
22320. Aug. 1.—Authorizing C.P.R. to build road diversion in Sec. 34, Tp. 5, and Sec. 3-6-24, w. 3 m.; and build its Weyburn-Stirling Branch east and west road allowance at mileage 272.7.
22321. Aug. 1.—Authorizing C.P.R. to build its Weyburn-Stirling Branch Line across 12 highways, between mileage 65 and 75 from Stirling, Alta.
22322. July 30.—Rescinding order 21977, May 20, re siding for Dodge Mfg. Co., Toronto.
22323. Aug. 1.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate until Oct. 31 over crossing of Toronto Eastern Ry. at junction of Scugog and Wellington Sts., Bowmanville, Ont., mileage 149.2 from Glen Tay, crossing to be protected by watchmen appointed by Toronto Eastern Ry. at expense of C.L.O. & W.R.
22324. Aug. 1.—Authorizing city of Vancouver, B.C., to build highway crossing over C.P.R. at Commercial Drive.
22325. Aug. 1.—Authorizing Glengarry and Stormont Ry. to build across G.T.R., at grade, near Cornwall, Ont., G. & S.R. to pay cost interlocking plant.
22326. Aug. 1.—Authorizing C.P.R. to rebuild bridge 22.28, Gibson Subdivision, near Hainesville, N.E.
22327. Aug. 7.—Dismissing G.T.R. application to require Hamilton and Toronto Sewer Pipe Co. to replace siding to its premises and those of Fowler's Canadian Co.
22328. Aug. 4.—Authorizing G.T.R. to build branch to Hospital for Feeble Minded, South Orillia Tp., Ont., to be completed within three months.
22329. Aug. 7.—Authorizing C.P.R. to build branch for Seaman, Kent Co., Montreal, within three months.
22330. Aug. 7.—Authorizing C.P.R. to build spur for John Deere Plow Co., Regina, Sask., within three months.
22331. Aug. 7.—Approving C.P.R. plan B-I-1371 showing details of structure at crossing of Esquimalt and Nanaimo Ry. over C.N. Pacific Ry. at mileage 5.3.
22332. Aug. 5.—Authorizing C.P.R. to build across Marion St., St. Boniface, Man.
22333. Aug. 5.—Authorizing C.P.R. to open for traffic portions of its double track on the Shuswap and Thompson Subdivisions, mileage 1.4 to 1.6, B.C.
22334. Aug. 4.—Authorizing C.P.R. to build spurs for Imperial Oil Co., Sarnia, Ont., at Camrose, Alta., within three months.
22335. Aug. 5.—Authorizing C.P.R. to open for traffic portions of its double track of the Thompson Subdivision from mileage 1.1 to 1.15, and 6.3 to mileage 7.7, B.C.
22336. Aug. 6.—Ordering Canadian Northern Ry. to fence its right of way in s.e. ¼ Sec. 21-7-25, w. 4 m., Alta., by May 1, 1915.
22337. Aug. 5.—Approving Canadian Northern Ry. Standard Freight Tariff, C.R.C. no. W. 793, between stations in Ontario west of and including Port Arthur, and in Manitoba, Saskatchewan and Alberta.
22338. Aug. 6.—Relieving C.P.R. from speed limitation of 10 miles an hour over crossing at mileage 0.91 from St. Martins Jct., Que.
22339. Aug. 5.—Ordering that compensation be made to C.P.R. for its property actually required for subway, and consequential damages resulting from its construction on York St., Toronto, re viaduct order 7200, June 9, 1909, amount to be paid by City of Toronto.
22340. Aug. 7.—Approving revision in main line of Algoma Central and Hudson Bay Ry. in Sec. 37, Vankoughnet Tp., and Lot 12, Con. 1, Deroche Tp., Ont., and authorizing it to build bridge at mileage 19 north of Sault Ste. Marie.
- 22341, 22342. Aug. 4.—Authorizing Winnipeg Electric Ry. to cross C.P.R. at two points on Notre Dame Ave., Winnipeg.
22343. Aug. 5.—Authorizing the C.N. Ontario Ry. to build temporary grade on its Montreal-Hawkesbury Line from mileage 46.69 to 48.62 for construction purposes only, for a further two months from Sept. 29.
22344. Aug. 5.—Authorizing G.T.R. to build highway crossing between Cons. 2 and 3, Tay Tp., Ont., within two months.
22345. Aug. 5.—Authorizing the C.N. Ontario Ry. to build transfer track with C.P.R. in Smiths Falls, Ont.
22346. July 21.—Authorizing New York Central Rd. to stop certain trains at Adirondack Jct.
22347. Aug. 6.—Relieving G.T.R. from speed limitation of 10 miles an hour at crossing of first public highway west of South Indian station, Ont.
22348. Aug. 8.—Authorizing C.P.R. to build road diversion in Sec. 1-23-2, w. 4 m., Alberta, and to build ballast pit spur across same at mileage 111.68, Bassano Easterly Branch, at grade.
22349. Aug. 4.—Approving revision and location of C.P.R. from mileage 108.4 to 117.9, Calgary Subdivision; also as built between mileage 96.93 and 124.94; and authorizing it to build additional track across highways in Alberta.
22350. Aug. 6.—Authorizing G.T.R. to build sidings for Union Stock Yards, Toronto.
22351. Aug. 6.—Authorizing C.P.R. to build bridge 24.2 over Otonabee River, Peterborough, Ont.
22352. Aug. 6.—Authorizing C.P.R. to build siding across Elliott St., Windsor, Ont.
22353. Aug. 6.—Authorizing C.P.R. to build temporary sidings for C. E. Deakin, Ltd., Montreal.
22354. Aug. 6.—Authorizing C.P.R. to build siding for Geo. Lawrence, Westboro, Ont.
22355. Aug. 8.—Approving of plans 60 and 61, July 22, 1914, of Union Station, Toronto.
22356. Aug. 6.—Dismissal of application of Roemac Road Corporation of America, for reduction in Canadian Freight Classification from 7th class to 10th class.

The Military Concentration Camp at Valcartier.

Order re Locomotive Defects.

On the outbreak of war the Canadian Militia Department, in anticipation of the acceptance by the mother country of the offer of Canadian troops for service abroad, proceeded to lay out a concentration camp at Valcartier, Que., 16.2 miles from Quebec, on the Quebec and Lake St. John Ry., now part of the Canadian Northern Ry. system, where the troops might be placed in condition to be effective in assisting the British arms. To handle the large contingent promised by this country special railway facilities were required in a great hurry, and the railway officials proceeded immediately to put in such railway accommodation as would meet the requirements. The accompanying plan shows the railway facilities provided, the solid lines showing the existing tracks, and the dotted lines the trackage laid for military purposes. Three miles of track were laid in a week.

At Valcartier station the old Gosford branch of the Q. and L. St. J. Ry. leaves the main line. The site selected is in the

camp station is located at mileage 15, near the east end of the cut off.

At this point the railway is particularly well supplied with siding accommodation for holding trains in readiness. The Gosford branch at the west end has no passenger service, so that it may be used as a long siding if required, and in the meantime there is a large amount of siding provided some distance along this line at a large lumber mill, the sidings for which will be utilized. This accommodation is in addition to the three sidings at Valcartier station.

For the handling of troops from points west of Quebec the Q. and L. St. J. Ry. has a good connection a short distance outside Quebec city. Both the Canadian Northern Quebec Ry. and the Q. and L. St. J. Ry. run into Quebec from the north over tracks that parallel each other for some distance near the city. A switch at the point where these lines meet transfers the traffic from the C.N.R. to the line to the camp, side-tracking a passage through Quebec.

Since the accompanying plan was made, several additional sidings have been laid. On the north side of the main line, just east of the old station sidings, there has been laid a double end siding, 1,644 ft. long. Just west of the east end loading platform siding, near the camp station, two 1,200 ft. sidings have been laid on the north side of the cutoff track, between which there has

The Board of Railway Commissioners has issued general order 131 under date of July 6, as follows:—

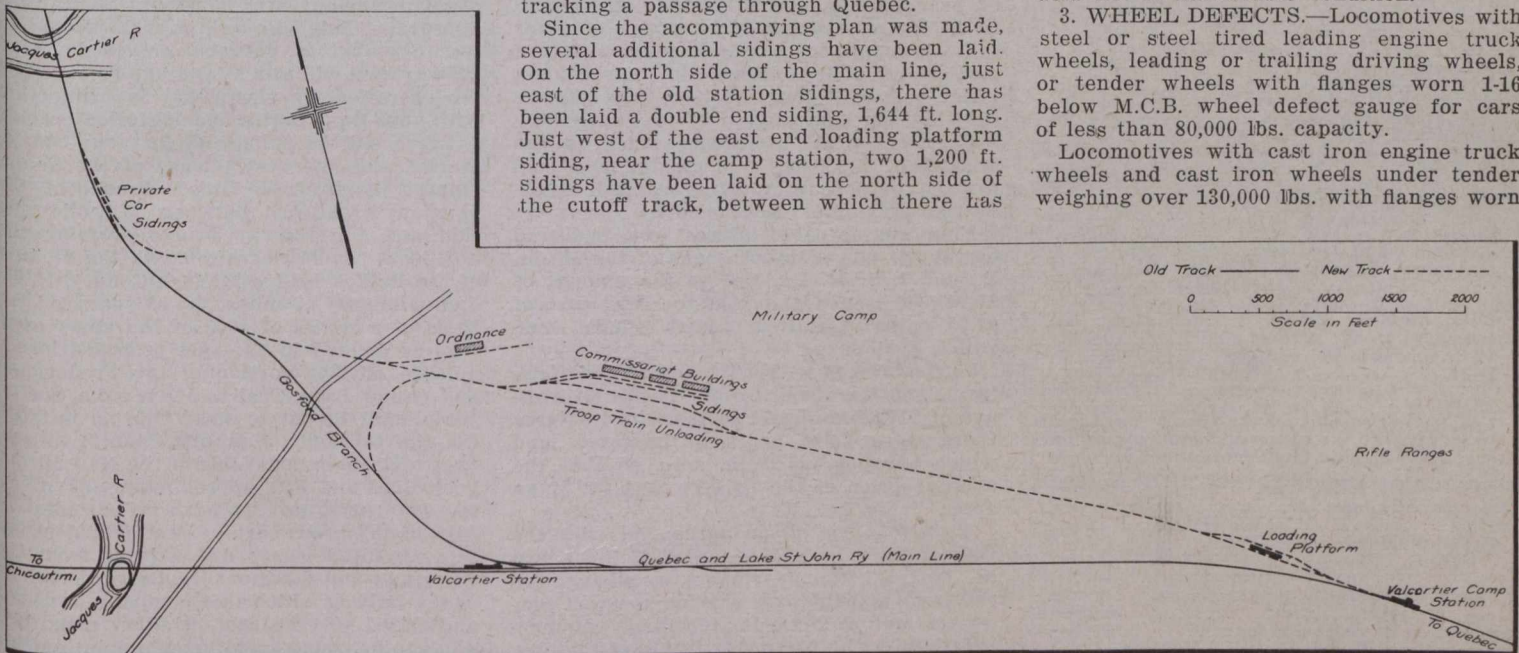
Re locomotive defects, and circular 127, Feb. 24, submitted by direction of the Board to railway companies for their consideration, upon reading replies to the circular, filed by the railway companies, and the reports of the Board's operating officers, the railway companies, after various meetings and discussions, consenting to the adoption of the regulations particularly set out in this order, it is ordered that locomotives be not allowed to leave terminals, or be used at terminals, in traffic service, on which any of the following defects exist, namely:—

1. STEAM LEAKS from any part of the locomotive which render it impossible for engineer to see signals in sufficient time to enable him to bring his train to a stop within the required distance.

2. AIR BRAKES on locomotives or tenders not in serviceable condition.

3. WHEEL DEFECTS.—Locomotives with steel or steel tired leading engine truck wheels, leading or trailing driving wheels, or tender wheels with flanges worn 1-16 below M.C.B. wheel defect gauge for cars of less than 80,000 lbs. capacity.

Locomotives with cast iron engine truck wheels and cast iron wheels under tender weighing over 130,000 lbs. with flanges worn



Railway Connections for the Valcartier Military Concentration Camp.

area bounded by this line on the west, and by the main line on the south. As the main railway connection to the camp, a line 8,800 ft. long was laid from mileage 15.05 to a point on the Gosford branch, and a little west of midway in this line, three sidings were laid as the main transfer point, one of these sidings being double ended, the other two entering only from the west. Several additional sidings are being laid. A 12 degree loop from the west end of the sidings is connected back into the Gosford line in the return direction, so that the traffic may make a return loop back to Quebec, providing an effective means of giving an uninterrupted service in the immediate vicinity of the camp. On this siding the Militia Department has erected three commissariat buildings, each 48 ft. wide, two 300 ft. long, and the third 200 ft. long.

To the west of these three sidings another blind siding has been laid, on which the Militia Department has erected an ordnance building, 48 by 200 ft. A double ended siding has also been laid near the east end of the military cut off, where an unloading platform has been erected. Beyond the west end of the cut off a double ended siding has been laid, with two branching blind sidings, to be used for official cars. The

been built a loading platform 380 ft. long, and at the stub ends of the sidings there are 40 ft. end loading ramps. At the west end of the cutoff an additional siding has been laid paralleling the ordnance siding, and at the stub end of the older siding a further building, 300 by 36 ft., has been built by the Militia Department. On the north side of the commissariat siding, between the switch and the buildings, an additional unloading platform, 320 ft. long, has been built. Additions have also been made to the private car sidings.

The engineering work was done by C. H. N. Connell, Engineer of Maintenance of way, C.N.R., and all the railway arrangements in connection with the camp are in charge of F. M. Spaidal, General Superintendent, Quebec Grand Division, assisted by W. A. Kingsland, Auditor.

The C.N.R. has carried a large number of troops from Toronto and other points west of Quebec to Valcartier, and on Aug. 24 started a direct passenger service leaving Toronto daily, except Sunday, at 9.20 a.m., via Ottawa, Joliette and Shawinigan Jct., arriving at Valcartier the following morning at 10.23. Westbound trains leave Valcartier at 4.41 p.m., reaching Toronto the next day at 9.15 p.m.

1-16 below M.C.B. defect gauge for cars of 80,000 lbs. capacity, or over.

Locomotives with cast iron wheels under tender weighing 130,000 lbs. or less, with flanges worn 1-16 below M.C.B. defect gauge for cars of less than 80,000 lbs. capacity.

Locomotives with truck or tender wheels having shelled out or flat spots over 2 1/2 ins. long, or so numerous as to endanger the safety of the wheel.

Steel tires on locomotives worn hollow 3/8 in. in depth, or which are worn below safe limit of thickness. Railway companies to file with the Board their standard limit of thickness of tires on all classes of locomotives, for approval.

Flat or shelled out spots on locomotive driving wheels 3 ins. long.

4. SPRINGS.—Locomotives with defective springs on any part of locomotive or tender which are unable to carry their respective weights when locomotive is standing.

And it is further ordered that the railway companies be required, on or before Jan. 1, 1915, to equip their locomotives with double windows in the front of the cabs during the winter, Nov. 1 to April 30, the same to be made airtight.

Canadian Pacific Railway Company's Annual Report.

Following are extracts from the 33rd annual report issued to shareholders, over the signature of the President, Sir Thos. G. Shaughnessy:—

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

| | |
|------------------------------------|------------------|
| Gross earnings | \$129,814,823.83 |
| Working expenses | 87,388,896.15 |
| Net earnings | \$ 42,425,927.68 |
| Deduct fixed charges | 10,227,311.17 |
| Surplus | \$ 32,198,616.51 |
| Contribution to pension fund | 125,000.00 |
| | \$ 32,073,616.51 |

| | |
|---|------------------|
| Deduct net earnings of Pacific Coast steamships, commercial telegraph, and news department, transferred to special income Account | 2,115,842.15 |
| | \$ 29,957,774.36 |

| | |
|--|-----------------|
| From this there has been charged a half yearly dividend on preference stock of 2%, paid Apr. 1 | \$ 1,545,026.80 |
| And three quarterly dividends on ordinary stock of 1% each, paid Jan. 2, Apr. 1 and June 30 | 12,600,000.00 |
| | 14,145,026.80 |
| | \$15,812,747.56 |

| | |
|---|----------------|
| From this there has been declared a second half yearly dividend on preference stock, payable Oct. 1 | \$1,564,493.46 |
| And a fourth quarterly dividend on ordinary stock of 1%, payable Oct. 1 | 4,550,000.00 |
| | 6,114,493.46 |

Leaving net surplus for the year \$ 9,698,254.10
In addition to the above dividends on ordinary stock, 3% was paid from special income.

DETAILS OF SPECIAL INCOME FOR YEAR.

| | |
|---------------------------------------|----------------|
| Balance at June 30, 1913 | \$3,358,941.93 |
| Less dividend paid Oct. 1, 1913 | 1,500,000.00 |
| | \$1,858,941.93 |

| | |
|--|--------------|
| Interest on proceeds land sales to Oct. 31, 1913 | 492,136.05 |
| Interest on deposits and loans | 1,139,461.48 |
| Interest from M., St. P. & S.S.M.R. bonds | 159,720.00 |
| Interest from Mineral Range Ry. bonds | 50,160.00 |
| Interest from T.H. & B. Ry. bonds | 10,840.00 |
| Interest from Dominion Government bonds for half year | 91,250.00 |
| Interest from Ontario Government bonds for half year | 24,000.00 |
| Interest from British consols for half year | 57,284.72 |
| Interest from Montreal & Atlantic Ry. bonds, and on other securities | 348,472.18 |
| Interest from Berlin, Waterloo, Wellesley & Lake Huron Ry. bonds | 17,040.00 |
| Interest from St. John Bridge & Ry. Extension Co. bonds | 5,437.50 |
| Interest from Esquimalt & Nanaimo Ry. bonds | 193,280.00 |
| Interest from Dominion Atlantic Ry. Extension debenture stock | 50,068.27 |
| Interest from Dominion Atlantic Ry. 2nd debenture stock | 36,986.67 |
| Dividend on Esquimalt & Nanaimo Ry. stock | 125,000.00 |
| Dividend on St. John Bridge & Ry. Extension Co. stock | 70,000.00 |
| Dividends on Dominion Express Co. stock | 200,000.00 |
| Dividends on M., St. P. & S.S.M.R. common stock | 890,645.00 |
| Dividends on M., St. P. & S.S.M.R. preferred stock | 445,326.00 |
| Dividends on West Kootenay Power & Light Co. common stock | 52,250.00 |
| Dividends on West Kootenay Power & Light Co. preferred stock | 3,850.00 |
| Dividends on T.H. & B.R. stock | 57,012.00 |
| Dividends on Consolidated Mining & Smelting Co. stock | 140,912.00 |
| Dividend on Berlin, Waterloo, Wellesley & Lake Huron Ry. stock | 12,500.00 |

| | |
|--|-----------------|
| Earnings from ocean steamships .. | 783,677.93 |
| Revenue from company's interest in coal mine properties | 294,857.17 |
| Cash proceeds from townsites sales .. | 550,303.49 |
| Net earnings of Pacific Coast steamships, commercial telegraph, news department and hotels | 2,134,255.21 |
| Received for space rented in office buildings | 151,144.86 |
| | \$10,446,812.46 |
| Less—Payments to shareholders in dividends: | |
| Jan. 2, Apr. 1 and June 30 .. | 5,400,000.00 |
| | \$ 5,046,812.46 |

From this a dividend has been declared, payable Oct. 1

The working expenses were 67.32% of the gross earnings, and the net earnings 32.68% compared with 66.82 and 33.18% respectively in 1913.

Four per cent. consolidated debenture stock to the amount of £2,065,119 was created and sold, and of the proceeds £239,000 was applied to the construction of authorized branch lines, and £1,826,119 was devoted to the acquisition of securities of other railway companies whose lines constitute a portion of your system, the interest on which had, with your sanction, been guaranteed by your company.

Four per cent. preference stock to the amount of £800,000 was created and sold for the purpose of meeting capital expenditures previously sanctioned by you.

Your guarantee of interest was endorsed on the 4% consolidated Bonds of the M., St. P. and S. S. M. Ry. Co., to the amount of \$1,947,000 issued and sold to cover cost of 97.35 miles of railway added to that company's system.

During the year 259,371 acres of agricultural land were sold for \$4,618,420, an average of \$17.80 an acre. Included in this area there were 6,318 acres of irrigated land which brought \$66.93 an acre, so that the average price of the balance was \$16.57 an acre.

To give effect to an agreement with the City of Toronto, and an order of the Board of Railway Commissioners requiring the railway companies to provide a union passenger station and joint terminals commensurate with the passenger traffic of the city, and to eliminate grade crossings by the elevation of their tracks in the joint terminals on the water front, the Toronto Terminals Ry. Co. has been organized with the sanction of Parliament, and a contract has been made between your company, the G. T. R., and the Toronto Terminals Ry. Co., for the construction and operation of the union passenger station and terminals, which fixes the rental to be paid by each company for the use of the facilities at 5% per annum on half the amount of the T. T. Ry. Co. securities outstanding at any time, provides for the joint and several guarantee by your company and the G. T. R. of the payment both as to principal and interest of the said securities, and establishes the basis on which the expense of operating the station and terminals shall be divided between the companies. The Dominion Government and the City of Toronto will participate in the expense of carrying out these works on a basis to be determined by agreement between the parties, or to be settled by the Board of Railway Commissioners, but it is estimated that the portion of the cost to be borne by the T. T. R. Co. will be approximately \$12,000,000. The contract will be submitted for your consideration and approval.

An agreement has been reached between the Kettle Valley Ry. Co. and the Vancouver,

Victoria and Eastern Ry. and Nav. Co., covering the use, by the latter company for its trains, of the K. V. R. between Otter Summit and Hope, about 54 miles, and for the like use by the K. V. R. of the V., V. & E. R. between Princeton and Otter Summit, about 38 miles, all in British Columbia. In each case the lessee undertakes to pay a rental equal to 2½% per annum on the cost of the other company's line used in common, and its proportion of the cost of maintenance. By this means the unnecessary duplication of 92 miles of railway through a difficult country is avoided. Inasmuch as the K. V. R. has been leased to your company, your consent is required to make the arrangement effective, and, therefore, the agreement will be submitted for your sanction.

A lease for 999 years of the Lake Erie and Northern Ry., extending from Port Dover on Lake Erie through Simcoe, Waterford, Brantford, and Paris, in Ontario, to a connection with your railway at Galt, approximately 51 miles, at an annual rental equivalent to the interest on bonds issued or to be issued by the L. E. & N. R. with the consent of your company, will be submitted for your approval. This line will provide access to territory that is not now served by your railway, and will at a later stage be equipped for operation by electricity, in connection with your Galt, Berlin and Waterloo branch.

There will be submitted for your consideration and approval a lease of the Southampton Ry. from the Gibson Branch of this company's railway between Millville station and the railway bridge crossing the northeast Nackawick stream to the vicinity of the Pokiok bridge in York County, N. B., approximately 13 miles, for 99 years, on the basis of a rental of 40% of the gross earnings as defined in the said proposed lease; a lease of that portion of the Fredericton and Grand Lake Coal and Ry. from the Intercolonial Ry. at or near Gibson, in York County, to Minto, Sunbury County, to connect with the present line of the New Brunswick Coal and Ry., approximately 31 miles, for 999 years, on the basis of a rental of 40% of the gross earnings as defined in the said proposed lease; and a lease from the Glengarry and Stormont Ry. Co. of the whole of the railway which that company has been authorized to construct, whether constructed or to be constructed, from a point on this company's railway at St. Polycarpe Jct., Soulanges County, Que., to Cornwall, Stormont County, in Ontario, approximately 27 miles, together with the appurtenances of the said railway, for 99 years from the date of completion, on the basis of a rental of 40% of the gross earnings and other terms more fully set out in the said proposed lease.

The capital expenditure of over \$60,000,000 for cars and locomotives in the years 1910-1913 was so very large that your directors decided it would be proper to spread the payments for this year's deliveries, about \$14,000,000, over 15 years, under the terms of an ordinary equipment trust agreement, and, therefore, a contract was made with the Victoria Rolling Stock and Realty Co. to provide the equipment and receive payment in 15 annual instalments, with interest at 4½% per annum. All of the equipment has been delivered, and the cost has been advanced by your company pending the sale of the Rolling Stock Co.'s bonds, when your treasury will be recouped.

The accounts for the year show that \$35,571,959.97 had been advanced from your current funds to meet the cost of additional railway mileage and ocean steamers against which no securities have been issued or sold. In ordinary course, 4% consolidated debenture stock would have been utilized to meet this expenditure, but market condi-

tions were not favorable to the sale of this security in large amounts without unduly depressing the market price.

In these circumstances your directors decided to create a special investment fund composed of the deferred payments on land sold, and securities in which land funds had been invested, to the amount of \$55,000,000, and to issue against this fund and the company's credit 10 year note certificates to the amount of \$52,000,000, carrying interest at the rate of 6% per annum, to be offered to the shareholders at 80% of their face value, thus providing all the money required for the present purposes of the company, and at the same time giving the shareholders participation in the proceeds of land sales to the amount of about \$10,000,000.

The issue was entirely successful. The note certificates, with interest, will be paid off in instalments without any encroachment on your revenue from traffic, and the 4% consolidated debenture stock can be marketed in such amounts and at such times as may be most advantageous.

Since the close of the last fiscal year first mortgage 5% bonds to the amount of only £64,700 or \$314,873.33 have been taken up and cancelled, because the holders were unwilling to surrender their bonds at a premium satisfactory to your directors. The outstanding bonds, amounting to £2,638,900 or \$12,842,646.67, will mature July 1, 1915, and on or before that date they will be paid off and cancelled with funds set aside for the purpose.

As mentioned in the notice to shareholders, the annual general meeting will be made special for the purpose of authorizing, if approved, an increase of the company's ordinary capital stock by the amount of \$75,000,000, namely, from \$260,000,000 to \$335,000,000, in order to make it accord with the amount for which the company has the sanction of the government. Although with the curtailment of capital expenditure no necessity exists for issuing any additional ordinary stock at this time, and there will be no resumption of works requiring any large amount of money until a decided improvement in business conditions furnishes ample warrant, your directors are convinced of the prudence of making provision at this time for your capital requirements covering a considerable period in the future. No portion of this increased amount will, of course, be issued by the directors until the sanction of the shareholders has been obtained at a special general meeting called for the purpose.

The death in January last of the Right Hon. Lord Strathcona and Mount Royal, G.C.M.G., was a source of sincere sorrow to your directors. Lord Strathcona was one of the prominent founders of the company, and he remained a member of the board of directors until the time of his death.

Your directors report with regret the death, in April, of Sir William Whyte who had occupied a position of importance in the company's affairs for many years. As Vice President in charge of the company's interests west of Lake Superior he proved himself a most capable and useful officer, and on his retirement from active service in 1911 he became a member of the board of directors.

A. M. Nanton of Winnipeg has been elected a director in place of the late Sir William Whyte. The vacancy caused by the death of Lord Strathcona has not as yet been filled.

As foreshadowed at the last annual meeting, the general balance sheet has been recast so as to show in more specific form the active and inactive assets of the company. In the schedule of these assets which ap-

pears in the annual report the estimated value per acre of the unsold agricultural lands has been placed at lower figures than had been mentioned, in order that it might be quite on the safe side, but your directors and the officers of the Land Department are satisfied that your unsold lands will eventually command much higher average prices per acre than those given in the schedule.

The values fixed for the townsites and other lands and properties available for sale are on a conservative basis, and the active assets taken into the schedule at cost could be readily disposed of at figures very much higher than those given.

Some years ago, for the purpose of securing access to the State of Washington and other important territory in the north western United States, the company entered into a working arrangement with the Spokane International Ry. Co., extending from Kingsgate, on the line of your railway in British Columbia, to Spokane, Wash., 141 miles, with branch lines 22 miles in length. The volume of traffic secured to your lines by this connection has become so important that a more permanent arrangement is very desirable. Your directors have not yet decided whether this could be best accomplished by the acquisition of the capital stock of the Spokane International Ry. Co., by a guarantee of interest on its bonds, or by some other means, and therefore they will ask your authority to exercise their decision in carrying out such a transaction for closer and more permanent relations with the Spokane International Ry. Co. as may appear to be most desirable in your interest.

The net revenue of the commercial telegraph system, Pacific Coast steamers, and news department, that in previous years had been incorporated in the revenue of the railway, is deducted from the surplus shown in the revenue statement this year and transferred to special income account.

CONDENSED BALANCE SHEET.

| | |
|---|------------------|
| ASSETS. | |
| Railway | \$338,084,064.89 |
| Rolling stock equipment | 153,256,394.79 |
| Ocean, lake, and river steamships .. | 24,171,162.30 |
| | \$515,511,621.98 |
| Acquired securities (cost) | 107,867,740.63 |
| Advances to lines and steamships under construction .. | 35,571,959.97 |
| Advances and investments | 12,330,195.22 |
| Deferred payments on lands and townsite sales | 4,140,413.83 |
| *Special investment fund: | |
| Deferred payments on land and townsites | \$42,666,510.87 |
| Government securities | 10,088,734.86 |
| Deposited with trustee | 3,790,225.53 |
| | 56,545,471.26 |
| Working Assets: | |
| Material and supplies on hand .. | \$17,686,235.53 |
| Agents and conductors balances .. | 3,221,350.07 |
| Net traffic balances .. | 533,996.70 |
| Miscellaneous accounts receivable .. | 10,511,665.82 |
| Cash in hand | 36,777,725.02 |
| | 68,730,973.14 |
| Other assets | 133,022,494.74 |
| | \$933,720,870.77 |
| *Security for issue of note certificates, \$52,000,000. | |
| LIABILITIES. | |
| Capital stock: | |
| Ordinary stock .. | \$260,000,000.00 |
| 4% preference stock | 78,224,673.03 |
| | \$338,224,673.03 |
| 4% consolidated debenture stock .. | 173,307,470.09 |
| Mortgage Bonds: | |
| C.P.R. 1st mortgage 5% | \$12,842,646.67 |
| Algoma Branch 1st mortgage 5% .. | 3,650,000.00 |
| | 16,492,646.67 |

| | | |
|---|------------------|----------------|
| Note certificates 6% .. | | 52,000,000.00 |
| Premium on ordinary capital stock sold | | 45,000,000.00 |
| Audited vouchers .. | \$7,809,598.78 | |
| Pay rolls | 5,177,754.16 | |
| Miscellaneous accounts payable .. | 9,048,037.42 | |
| | 22,035,390.16 | |
| Coupons due July 1, and including coupons overdue not presented | \$757,204.37 | |
| Rentals of leased lines | 189,810.72 | |
| | 947,015.39 | |
| Equipment obligations | 14,350,000.00 | |
| Less Victoria Rolling Stock and Realty Co. bonds on hand | 12,630,000.00 | |
| | 720,000.00 | |
| Reserves and appropriations: | | |
| Equipment replacement | 2,491,518.64 | |
| Steamship replacement | 6,682,063.87 | |
| Reserve fund for contingencies .. | 2,083,942.12 | |
| | 11,257,529.63 | |
| Net proceeds lands and townsites .. | | 66,771,271.19 |
| Surplus revenue from operation .. | | 79,711,091.66 |
| Surplus in other assets | | 127,253,782.95 |
| | \$933,720,870.77 | |

FIXED CHARGES FOR YEAR.

| | |
|---|-----------------|
| 1st mortgage bonds 5% due July 1, 1915 | \$ 642,862.30 |
| St. Lawrence & Ottawa Ry. 4% first mortgage bonds | 38,933.34 |
| Man. S. West. Colzn. Ry. 1st mortgage 5% bonds due June 1 1934 .. | 127,200.00 |
| Ontario & Quebec Ry. debenture stock, 5% | 975,129.56 |
| Ontario & Quebec Ry. ordinary stock, 6% | 120,000.00 |
| Atlantic & North West. Ry. 1st mortgage bonds due Jan. 1, 1937 .. | 323,633.34 |
| Algoma Branch 5% 1st mortgage bonds, due July 1, 1937 | 182,500.00 |
| New Brunswick Southern Ry. 1st mortgage bonds, 3% | 15,000.00 |
| Lindsay, Bobcaygeon & Pontypool Ry. 1st mortgage bonds, 4% .. | 20,000.00 |
| Shuswap & Okanagan Ry. 1st mortgage bonds, 4% | 49,990.40 |
| Rental, Toronto, Grey & Bruce Ry. .. | 140,000.00 |
| Rental, Calgary & Edmonton Ry. .. | 218,357.60 |
| Rental, Farnham to Brigham Jet. .. | 1,400.00 |
| Rental, Mattawamkeag to Vanceboro .. | 23,800.00 |
| Rental, New Brunswick Ry. system .. | 372,829.74 |
| Rental, Terminals at Toronto | 23,221.29 |
| Rental, Terminals at Hamilton .. | 37,258.21 |
| Rental, Hamilton Jet. to Toronto .. | 42,191.12 |
| Rental, St. Stephen and Milltown Ry. | 2,050.00 |
| Rental, Joliette & Brandon Ry. ... | 5,000.00 |
| Rental, Lachine Canal Branch | 939.96 |
| Interest on Montreal & Western Ry. | 14,027.75 |
| Interest on equipment obligations .. | 45,466.67 |
| 4% consolidated debenture stock: Interest from July 1, 1913 | \$6,694,741.04 |
| Interest from Jan. 1, 1914 | 118,778.85 |
| | \$6,813,519.89 |
| Less received from subsidy Northern Colonization Ry. .. | 8,000.00 |
| | 6,805,519.89 |
| | \$10,227,311.17 |

EXPENDITURE ON ADDITIONS AND IMPROVEMENTS.

| | |
|---|----------------|
| Eastern Lines: | |
| Additional sidings, buildings, stations and yards | \$ 664,882.11 |
| Permanent bridges and improvements of line | 1,164,100.35 |
| Double tracking | 4,045,223.88 |
| Right of way | 7,127.46 |
| | \$5,881,333.80 |
| Montreal Terminals .. | 890,847.90 |
| Windsor St. station extension | 391,771.73 |
| Double track bridge over St. Lawrence River | 128,923.90 |
| Western Lines: | |
| Additional sidings, buildings, stations and yards | \$1,329,064.58 |
| Permanent bridges and improvements of line | 548,176.83 |

| | | | | |
|---|---------------|--|-----------------|------------------|
| Fort William Terminals, including coaling plant | 1,007,816.09 | Less sale of steamship Joan | 60,000.00 | |
| East Winnipeg yard | 1,456,849.78 | | \$153,537.57 | |
| Winnipeg new elevator | 203,178.78 | Less amount paid from steamship replacement | 14,846.94 | \$138,690.63 |
| Winnipeg station and hotel | 1,255,926.24 | Additional river steamers and barges | \$263,295.07 | |
| Calgary hotel | 1,289,923.92 | Less sale of tug Cruizer | 40,000.00 | 223,295.07 |
| Vancouver terminals | 1,760,041.33 | Payments of balance on account of steamships Empress of Asia and Empress of Russia | 639,482.73 | |
| Double tracking | 7,549,677.45 | Less amount paid from steamship replacement | 340,567.49 | 298,915.24 |
| Right of way | 8,993.04 | Purchase of steamship St. George | | 460,978.15 |
| 16,409,648.04 | | 1st mortgage 5% bonds redeemed at 102 | 314,873.33 | 1,121,879.09 |
| Deposited with trustee of special investment fund | 1,776,268.64 | Securities acquired: | | 321,170.79 |
| Rented and temporary sidings | 317,075.47 | Campbellford, Lake Ontario & Western Ry. 1st mortgage bonds .. | \$6,590,000.00 | 3,790,225.53 |
| Telegraph extensions and additions | 95,403.36 | St. John Bridge & Ry. Extension Co. bonds | 124,000.00 | |
| \$25,891,272.84 | | Alberta Ry. & Irrigation Co. stock | 4,500.00 | |
| EXPENDITURE ON LEASED AND ACQUIRED LINES. | | Dominion Atlantic Ry. Extension debenture stock | 1,423,500.00 | |
| New Brunswick Ry. | \$ 813,551.59 | Public Markets Limited stock | 35,000.00 | |
| Atlantic & North West Ry. | 551,289.15 | Shuswap & Okanagan Ry. stock | 300.00 | |
| Montreal & Ottawa Ry. | 51,458.51 | Consolidated Mining & Smelting Co. stock | 511,234.86 | 8,688,534.86 |
| Montreal & Western Ry. | 48,666.80 | Payment of equipment obligations | | 160,000.00 |
| Ontario & Quebec Ry. | 2,933,370.03 | Amounts transferred from advances and investments to other assets | | 2,780,406.88 |
| Manitoba & North Western Ry. | 98,016.17 | Deduct decrease in material and supplies on hand | | \$97,012,393.23 |
| Manitoba South Western Colonization Ry. | 41,704.10 | | | 941,971.46 |
| Calgary & Edmonton Ry. | 294,770.89 | Add decrease in liabilities: | | \$96,070,421.77 |
| Columbia & Kootenay Ry. | 3,540.64 | Current liabilities | \$22,035,390.16 | |
| Columbia & Western Ry. | 188,509.24 | Interest on funded debt | 947,015.39 | |
| New Brunswick Southern Ry. | 11,106.12 | Reserves and appropriations | 11,257,529.83 | |
| Cap de la Madeleine Ry. | 3,811.94 | | \$34,239,935.18 | |
| St. Maurice Valley Ry. | 30,800.56 | Amount at June 30, 1913 | 42,959,331.63 | 8,719,396.45 |
| Joliette & Brandon Ry. | 3,316.91 | Cash on hand | | \$104,789,818.22 |
| Ottawa, Northern & Western Ry. | 28,990.47 | | | 36,777,725.02 |
| Lindsay, Bobcaygeon & Pontypool Ry. | 2,952.57 | | | \$141,567,543.24 |
| Georgian Bay & Seaboard Ry. | 63,989.90 | | | |
| Guelph & Goderich Ry. | 41,393.40 | | | |
| Tillsonburg, Lake Erie & Pacific Ry. | 25,045.32 | | | |
| Walkerton & Lucknow Ry. | 12,885.13 | | | |
| Great North West Central Ry. | 7.75 | | | |
| Nicola, Kamloops & Similkameen Ry. | 6,848.01 | | | |
| Kaslo & Slocan Ry. | 225,796.37 | | | |
| \$5,481,821.57 | | | | |

STATEMENT OF EARNINGS AND EXPENSES FOR THE YEAR.

| | | | |
|-----------------------|------------------|--|------------------|
| EARNINGS: | | From mails | 1,132,714.91 |
| From passengers | \$ 32,478,146.58 | From sleeping cars, express, telegraph and miscellaneous | 15,068,667.22 |
| From freight | 81,135,295.12 | Total | \$129,814,823.83 |

| | | | |
|---|---------------|---|------------------|
| EXPENSES: | | Transportation expenses | \$ 42,250,286.37 |
| Maintenance of way and structures | 16,426,582.05 | Maintenance of equipment | 16,617,247.21 |
| Maintenance of equipment | 16,617,247.21 | Traffic expenses | 3,626,612.08 |
| Traffic expenses | 3,626,612.08 | Parlor and sleeping car expenses | 1,348,979.47 |
| Parlor and sleeping car expenses | 1,348,979.47 | Expenses of lake and river steamers | 1,183,397.40 |
| Expenses of lake and river steamers | 1,183,397.40 | General expenses | 4,322,103.93 |
| General expenses | 4,322,103.93 | Commercial telegraph | 1,613,687.64 |
| Commercial telegraph | 1,613,687.64 | Total | \$ 87,388,896.15 |

RECEIPTS AND EXPENDITURES.

| | |
|--|-----------------|
| Cash in hand June 30, 1913 | \$30,274,848.30 |
| Amount invested in Government securities \$10,088,734.86 transferred to security for issue of note certificates. | |
| RECEIPTS: | |
| Surplus revenue | \$29,957,774.36 |
| Special income | 8,587,870.53 |
| 38,545,644.89 | |
| Land department: | |
| Lands and townsites: | |
| Net proceeds of sales | 7,246,214.99 |
| Less irrigation expenditures | 3,809,228.99 |
| \$3,436,986.00 | |
| Deferred payments on previous years' sales | 4,123,729.12 |
| \$7,560,715.12 | |
| Less amount remaining in deferred payments on year's sales | 6,431,538.04 |
| 1,129,177.08 | |
| Moose Jaw N. W. Branch subsidy | 218,682.27 |
| Capital stock: | |
| Remaining instalments on \$60,000,000 ordinary stock at \$175 | 41,548,332.50 |
| 4% preference stock: | |
| Amount realized from issue £800,000 | 3,648,598.80 |
| Consolidated debenture stock: | |
| Amount realized from issue £2,065,119 | 9,695,125.60 |
| Note certificates 6%: | |
| Amount realized from issue \$52,000,000 | 41,600,000.00 |
| \$166,660,409.44 | |
| Deduct: | |
| Agents and conductors' balances | \$ 3,221,350.07 |
| Net traffic balances | 533,996.70 |
| Miscellaneous accounts receivable | 10,511,665.82 |
| \$14,267,012.59 | |
| Advances to lines and steamships under construction | 35,571,959.97 |
| Advances and investments | 12,330,195.22 |
| \$62,169,167.78 | |
| Amount at June 30, 1913 | 37,076,301.58 |
| 25,092,866.20 | |
| \$141,567,543.24 | |

| | |
|---|----------------|
| EXPENDITURES: | |
| Dividends on preference stock: | |
| 2% paid Oct. 1, 1913 | \$1,486,626.79 |
| 2% paid Apr. 1, 1914 | 1,545,026.80 |
| 3,031,653.59 | |
| Dividends on ordinary stock: | |
| 2 1/2% paid Oct. 1, 1913 | 5,000,000.00 |
| 2 1/2% paid Jan. 2, 1914 | 5,000,000.00 |
| 2 1/2% paid Apr. 1, 1914 | 6,500,000.00 |
| 2 1/2% paid June 30, 1914 | 6,500,000.00 |
| 23,000,000.00 | |
| Construction of branch lines | 1,563,086.14 |
| Additions and improvements, main line and branches | 25,891,272.84 |
| Additions and improvements, leased and acquired lines | 5,481,821.57 |
| Rolling stock equipment | 19,855,512.54 |
| Shops and machinery | 1,326,829.40 |
| Ocean, lake, and river steamers: | |
| Additional steamships and appurtenances for Pacific Coast service | \$213,537.57 |

STATEMENT OF EQUIPMENT AT 30th JUNE, 1914.

| | |
|---|--------|
| Locomotives | 2,248 |
| *First and second class passenger cars, baggage cars and colonist sleeping cars | 2,174 |
| First class sleeping, dining and cafe cars | 502 |
| Parlor cars, official and paymasters' cars | 96 |
| Freight and cattle cars (all kinds) | 88,090 |
| Conductors' vans | 1,427 |
| Boarding, tool and auxiliary cars and steam shovels | 5,850 |
| *Includes cars in Line Service as follows: | |
| St. John and Boston Line, 12 cars, 80.04% owned by other lines; Montreal and Boston Line, 14 cars, 68.33% owned by other lines; Toronto, Hamilton and Buffalo Line, 14 cars, 63.96% owned by other lines. | |
| Ocean, Lake and River Steamships: | |
| Atlantic Service, 14; Pacific Service, 5; Pacific Coast Service, 25; Upper Lake Service, 5; B.C. Lake and River Service, 24; Bay of Fundy Service, 2, and Ferry Service, 2. | |

DESCRIPTION OF FREIGHT FORWARDED.

| | |
|-----------------------------------|-----------------------------|
| Flour, barrels | 1913. 1914. |
| 8,093,936 8,802,250 | |
| Grain, bushels | 171,952,738 184,954,241 |
| Live stock, head | 1,782,986 2,481,360 |
| Lumber, feet | 3,210,306,090 2,953,125,699 |
| Firewood, cords | 293,536 287,910 |
| Manufactured articles, tons | 9,519,346 8,148,012 |
| All other articles, tons | 9,625,665 9,159,112 |

FREIGHT TRAFFIC.

| | |
|---------------------------------------|-------------------------------|
| Number of tons carried | 1913. 1914. |
| 29,471,814 27,801,217 | |
| Number of tons carried one mile | 11,470,001,871 10,821,748,859 |
| Earnings per ton per mile | 0.77 cent 0.75 cent |

PASSENGER TRAFFIC.

| | |
|---|-----------------------------|
| Number of passengers carried | 1913. 1914. |
| 15,480,934 15,638,312 | |
| Number of passengers carried one mile | 1,784,683,370 1,587,368,110 |
| Earnings per passenger per mile | 1.99 cent 2.05 cent |

| | 1914. | 1913. |
|--|--------------------|--------------------|
| TRAIN MILEAGE. | | |
| Passenger trains | 21,523,630 | 22,333,592 |
| Freight trains | 24,164,242 | 27,611,103 |
| Mixed trains | 1,890,364 | 1,888,095 |
| Total trains | 47,578,236 | 51,832,790 |
| CAR MILEAGE. | | |
| Passenger. | | |
| Coaches and p.d. and s. cars | 106,852,513 | 110,347,064 |
| Combination cars | 2,904,782 | 3,206,048 |
| Baggage, mail and express cars | 47,355,009 | 46,677,110 |
| Total passenger cars | 157,112,304 | 160,230,222 |
| Freight. | | |
| Loaded | 526,194,125 | 581,397,285 |
| Empty | 169,768,349 | 165,627,992 |
| Caboose | 26,196,664 | 30,617,975 |
| Total freight cars | 722,159,138 | 777,643,252 |
| Passenger cars per traffic train mile | 6.71 | 6.62 |
| Freight cars per traffic train mile | 27.72 | 26.36 |
| PASSENGER TRAFFIC. | | |
| Passengers carried (earning revenue) | 15,449,849 | 15,298,048 |
| Passengers carried (earning revenue) one mile | 1,570,753,210 | 1,766,982,013 |
| Passengers carried (earning revenue) one mile per mile of road | 132,825 | 155,451 |
| Average journey per passenger | 101.67 | 115.51 |
| Average amount received per passenger | 2.06 | 2.28 |
| Average amount received per passenger mile | 2.03 | 1.97 |
| Average number of passengers per train mile | 67.09 | 72.95 |
| Average number of passengers per car mile | 14.31 | 15.56 |
| Revenue from passengers per passenger car mile | 29.05 | 30.72 |
| Total passenger train earnings per train mile | 1.69 | 1.75 |
| Total passenger train earnings per mile of road | 3,345.11 | 3,724.92 |
| FREIGHT TRAFFIC. | | |
| Tons of revenue freight carried one mile | 10,601,426,321 | 11,242,690,998 |
| Tons of non-revenue freight carried one mile | 1,497,306,046 | 1,743,928,157 |
| Total tons (all classes) freight carried one mile | 12,098,732,367 | 12,986,619,155 |
| Tons of revenue freight carried one mile per mile of road | 896,470 | 989,081 |
| Tons of non-revenue freight carried one mile per mile of road | 126,614 | 153,423 |
| Total tons (all classes) freight carried one mile per mile of road | 1,023,084 | 1,142,504 |
| Average amount received per ton per mile of revenue freight, cts. | 0.753 | 0.784 |
| Average tons of revenue freight per train mile | 406.89 | 381.12 |
| Average tons of non-revenue freight per train mile | 57.47 | 59.12 |
| Average tons of (all classes) freight per train mile | 464.36 | 440.24 |
| Average tons of revenue freight per loaded car mile | 20.15 | 19.34 |
| Average tons of non-revenue freight per loaded car mile | 2.84 | 3.00 |
| Average tons of (all classes) freight per loaded car mile | 22.99 | 22.34 |
| Freight train earnings per loaded car mile | 15.17 | 15.15 |
| Freight train earnings per train mile | 3.06 | 2.99 |
| Freight train earnings per mile of road | 6,749.41 | 7,750.78 |

| STATEMENT OF PENSION DEPARTMENT. | | year | 197,581.38 |
|---|--------------|------------------------------------|--------------|
| Balance at June 30, 1913 | \$681,596.60 | Balance in cash and investments .. | \$648,946.42 |
| Amount contributed by company | 125,000.00 | Number on Pension Roll at June 30. | |
| Amount received as interest | 39,931.20 | Under 60 years of age | 68 |
| | \$846,527.80 | Between 60 and 70 years of age ... | 341 |
| | | Over 70 years of age | 268 |
| Payment of pension allowances for | | Total | 677 |

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:—

Interswitching Charges at Fergus.

22189. July 19. Re contract entered into by the Village of Fergus, Ont., and the G.T.R., dated Dec. 3, 1903, for the construction of a branch railway in the village, containing, inter alia, an agreement by the company to transfer freight from and to the said branch to and from the C.P.R. at a rate not to exceed \$3 a carload; and re the complaint of the village that the company refuses to charge the said rate for the transfer service, and has substituted therefor the interswitching tolls of general application as prescribed by order 4988, July 8, 1908. It is ordered that the notice cancelling the exception of the interswitching service between the G.T.R. sidings on the town spur at Fergus and the C.P.R. from the operation of General Interswitching Order 4988, July 8, 1908, the said cancellation having been made effective on April 15, 1914, by Supplement 15 to G.T.R. Special Tariff C.R.C. no. R. 2457, be disallowed, and the toll of \$3 a car for the said service, as published in Tariff R 2457, be restored on lawful notice within ten days from the issuance of this order.

Transportation of Celluloid by Express.

22200. July 11. Re application of Express Traffic Association of Canada for an order prohibiting the carriage by express

of celluloid in certain forms, and prescribing the conditions under which celluloid in other forms may be carried. Upon the consideration of what has been filed in support of the application, the consent thereto of the Canadian Manufacturers' Association and the Boards of Trade of Montreal and Toronto, and the report of the Chief Traffic Officer of the Board; and it appearing that the order applied for will bring the regulations for the carriage of the said articles into conformity with those of the Post Office Department, it is ordered that packages containing celluloid (except liquid celluloid and celluloid scrap), also articles composed wholly or partly of celluloid, for carriage by express between points in Canada, be conspicuously labelled "Celluloid—Inflammable"; also that the carriage of liquid celluloid and celluloid scrap by express be prohibited. And it is further ordered that the Express Classification for Canada be forthwith amended accordingly.

Coal Rates to York, Ont.

22220. July 16. Re application of Canadian Retail Coal Association for a rate of 60c. per ton on coal, in carloads, from Buffalo, Black Rock, or Suspension Bridge, N.Y., to York, Ont. It is ordered that the G.T.R. tariffs on coal, in carloads, from the Niagara frontier gateways, and from Detroit, be amended so as to apply to York, Ont., the rates shown therein as applying to Toronto; said amendments to take effect not later than Sept. 1, 1914.

G.T.P.R. Prairie and Mountain Rates.

22228. July 20. Re complaint of G.T.P. Ry. against the decision of the Board establishing Hinton, Alberta, as the point of juncture of the applicants' prairie and mountain rate scales prescribed in the judgment in the Western Rates Case, dated April 6, 1914. Upon the consideration of written submissions and statistics of construction costs filed with the Board by the applicant, and the Board having, since the issue of its judgment, inspected the applicants' railway between Thornton and Hinton, it is ordered that Thornton, Alberta, instead of Hinton, be the point of juncture of the prairie and mountain scales of rates to be charged by the applicant, as prescribed in the judgment of April 6, 1914.

Rating of Rocmac.

22356. Aug. 6. Re application of Rocmac Road Corporation of America, Ltd., for a reduction in rating in the Canadian Freight Classification from 7th class to 10th class, on Rocmac in carloads. It is ordered that the application be dismissed.

Team Track Delivery at Toronto.

22369. Aug. 10. Re G.T.R. tariff, C.R.C. 2457, and complaint of Toronto Board of Trade and of Leak & Co., Ltd., of Toronto, complaining of refusal of G.T.R. to accept from the Canadian Northern Ontario Ry. carload freight requiring team track delivery at Toronto. It is ordered that the G.T.R. tariff applies to and includes traffic offered to it by the Canadian Northern Ontario Ry. for delivery on team tracks at Toronto; and the G.T.R. is required to accept forthwith carload traffic offered by the C.N.O.R. for team track delivery at Toronto.

Increased Special and Competitive Tolls.

General Order 129. Re increased special and competitive freight and express tolls, and suspensions thereof. In pursuance of the powers conferred upon the Board by secs. 26 and 348 of the Railway Act, and of all other powers possessed by it in that behalf: Upon the recommendation of the Chief Traffic Officer of the Board—It is ordered as follows:—

1. No toll contained in any special or competitive freight or express tariff referred to in subsecs. 3 and 4 of sec. 326, and subsec. 2 of sec. 348 of the Railway Act, shall be advanced until it has been in force for at least 30 days: Provided that when a special or competitive freight or express tariff contains a notice that any reduced toll shown therein will expire upon a given date, which date shall not be less than 30 days from the date upon which the said reduced toll becomes effective, the said notice shall be considered to comply with subsec. 3 of sec. 328 of the Railway Act, as amended by 1-2 George V., chap. 22, sec. 11.

2. Except of its own motion, or on special grounds advanced, the Board will not ordinarily suspend or postpone the effective date of any tariff, or any supplement to a tariff, or any particular rate, or rule, or regulation of the carriers subject to its jurisdiction, which directly, or in effect, increases the charge to be paid for the same or similar service, unless an application for suspension or postponement is received by the Board at least 14 days before the date when the charge complained against is published to become effective; such application to give the C.R.C. number of the schedule and the items thereof complained against.

Baggage car traffic.—The Board of Railway Commissioners will, at its sitting in Ottawa, on Sept. 15, consider the matter of proposed rules governing baggage car traffic.

Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alaska.—It is reported that rapid progress is being made with the United States Government surveys for a railway in Alaska. The surveys are being made under the direction of A. Mears, whose report is expected to be completed in December. The project is to build a line from the Pacific Coast through the centre of Alaska to the International boundary, on the Yukon River. (April, pg. 165.)

Alberta and Great Waterways Ry.—Press reports state that 35% of the grading on this line, from the point of junction with the Edmonton, Dunvegan and British Columbia Ry., to Lac la Biche, has been completed and that the remaining work will be done by Dec. 30. Track laying has been started, and it is hoped that steel will reach Lac la Biche by Dec. 30. (Aug., pg. 370.)

Algoma Central and Hudson Bay Ry.—It is reported that the extension of the line to the National Transcontinental Ry., about 300 miles from Sault Ste. Marie, Ont., will be completed by Sept. 30. (Sept., 1913, pg. 432.)

Burrard Inlet Tunnel and Bridge Co.—We are officially advised that the three offers for the construction of the proposed bridge over the Second Narrows of Burrard Inlet, Vancouver, B.C.—viz., from the Canadian Bridge Co.; the Dominion Bridge Co., and C. A. P. Turner, Vancouver,—have been submitted to R. Mojeski, consulting engineer, Chicago, Ill., for a report. The consideration of the plans was expected to take several weeks. (Aug., pg. 370.)

Dominion Atlantic Ry.—It is estimated, according to press reports, that since the C.P.R. acquired control of the D.A.R. about \$2,500,000 has been expended upon betterments. The bridges on the line have been reconstructed, and the track brought up to C.P.R. standard, the largest work being the reconstruction of the Bear River bridge, the cost of which is put at \$1,500,000. (June, pg. 266.)

Edmonton, Dunvegan and British Columbia Ry.—The bridge which has been completed across the Athabasca River at Smith, has a total length over all of 925½ ft. It consists of four 150 ft. deck truss spans, one 170 ft. through truss span, and two 70 ft. girder spans, resting on concrete piers and abutments. The through span, which is over the navigable channel, gives a clearance of 42½ ft. above high water. The cost of the bridge was about \$300,000 and it was built in a little over six months. Trains have been passing over it regularly since July 20, when the ballasting of the line to Sawbridge was started, and it was expected to have a regular train service from Edmonton to that place Sept. 1. The track laying gang is expected to reach Big Smoky River by Dec. 31. J. D. McArthur, President and general contractor, returned from a trip over the line early in August. He went out on the route as far as Peace River Crossing, at which point a bridge estimated to cost \$300,000 is to be erected. (Aug., pg. 370.)

Erie and Ontario Ry.—We are officially advised that a contract has been let to Fitch and Douglass, Oshawa, Ont., for grading, and to R. Bennett, Dunnville, Ont., for fencing on the first section of this line to be put under construction, viz.:—from Southville, on the Toronto, Hamilton and Buffalo Ry. to Dunnville, 15 miles. The right of way and the necessary land for terminal purposes are being rapidly acquired.

The extension of the line from Dunnville to Port Maitland, will not be put under contract until 1915. (Aug., pg. 370.)

Esquimalt and Nanaimo Ry.—The extension from Parksville to Courtenay, B.C., was formally opened for traffic, Aug. 6. The extension is 44½ miles long, and the distance from Victoria to Courtenay by rail is 140 miles. The line has been built to the C.P.R. standards, all bridges and other structures being of a permanent character, of the same class as those put in on the original line acquired from the Dunsmuir interests in 1908. At Union, the seventh station from Parksville, a connection is made with the Wellington Colliery Co.'s railway. The station heretofore described as McBride Jct. has been renamed Parksville. The original section of the line from Esquimalt to Nanaimo, including the connection with Victoria, 73 miles, was opened for traffic, Aug. 13, 1886, and no further construction was undertaken until the line passed under C.P.R. control. On Dec. 30, 1911, an extension from Wellington to Port Alberni, 54 miles, was opened for traffic,

The Outlook in Canada

TRULY, it is an ill-wind that blows nobody good. One Continent's "down" is another Continent's "up." The industries of Europe are, generally speaking, at a standstill, and matters will be worse before they can be better.

The whole world is looking to the North American Continent—to Canada and the United States—for much of its provisions, machinery, textiles, boots and shoes, beverages, vehicles, cement, brick, earthenware, fancy goods, furs, glass, garments, paper, soap, tobacco, wood products, and much else. Canada must get ready to meet the demand made upon her. We have continued prosperity ahead of us if our manufacturers and merchants rise quickly to take advantage of their opportunity.

It is a time for business hopefulness, not for business gloom.

and on June 18, 1913, an extension from Duncan to Cowichan Lake, 18 miles, was opened. The opening of the new extension gives the company 189½ miles of line on Vancouver Island.

The B.C. Government has approved of plans for the extension of the line to Duncan Bay, but it has not been decided when the work will be gone on with.

The company's shops, which heretofore have been located at Wellington, have been transferred to Victoria, where new buildings have been erected on the terminal site acquired on the Songhees Indian reserve. A description of these shops, and of the terminal layout was published in Canadian Railway and Marine World for March. (Aug., pg. 370.)

Essex Terminal Ry.—The grading of the extension to Ojibway, Ont., is reported to be completed, and tracklaying is in progress. It is said that when this work is completed, which will give railway connection with all the lines converging on Windsor, the erection of the buildings for the steel works will be started. (Dec., 1913, pg. 570.)

Glengarry and Stormont Ry.—We are officially advised that a contract has been let to Atchison & Co., and Henry Williams, Cornwall, Ont., for the erection of the station buildings at the corner of Pitt and

Sixth streets, Cornwall, Ont. The station will be of the C.P.R. standard type. (Aug., pg. 370.)

Intercolonial Ry.—The general plans for the layout of the new terminals at Halifax, N.S., proposed by Ross and Macdonald, Montreal, are reported to have been approved by the General Manager and the Department of Railways. The general scheme consists of a passenger station building in the form of the letter T, the foot of the letter being at the shore end, and the head at the steamship landing stage. At the shore end of the building will be accommodation for the local trade of Halifax, the city station facing on a plaza between South and Tobin streets. The upper floors of the building will have offices for the general railway and steamship business. The buildings along the stem and foot of the letter will be utilized for the incoming and outgoing steamship business. The landing stage will be 2,800 ft. long, one-third being set apart for passenger, baggage, mail and express traffic, and the remainder for freight traffic.

The question of the extension and improvement of the terminals at Sydney, N.S., was recently discussed with F. P. Gutelius, General Manager. The Board of Trade was informed that it is proposed to make extensive repairs and improvements to the old government wharf at Barrack Point, and after a full discussion the Board passed a resolution approving of the suggestion provided that the wharf be extended 300 ft. It was pointed out that this extension of the wharf would not interfere with the laying out of large ocean terminals at some future time.

Several engineering parties are reported to be in the field in Cape Breton surveying routes for possible extensions or diversions. The principal route being surveyed is from Orangedale to Cheticamp, which would pass through Whycocomagh, Lake Ainslie, Margaree, Dunvegan, St. Rose, Chimney Corner, Belle Cote and Grand Etang. The country through which the line would pass is largely coal bearing, and some small colliery lines have already been built, the most important being the Inverness Ry. and Coal Co.'s line.

An agreement has been reached with the Moncton, N.B., City Council with reference to the elimination of local crossings in the city, subject to the approval of the rate-payers. The agreement provides that subways are to be put in at Main and Lutz streets, and overhead bridges to be erected at Victoria, Church and Union Streets, while Queen St. is to be left as it is at present. The city will contribute \$50,000 towards the cost. The proposition has to be approved by the Minister of Railways.

Tenders are under consideration for the erection of a coaling plant at Newcastle, N.B.

Large forces are at work on the Canada Eastern Division laying new ties, putting down heavier steel, and otherwise improving the old Canada Eastern Ry. The line from Fredericton to Loggieville, 129 miles, is being relaid with 85 lb. steel. The 30 miles between Blackville and Derby Jct. have already been so laid and it is expected that a further distance of 40 miles will be laid this year. (Aug., pg. 370.)

Kettle Valley Lines.—Press reports from Vancouver, B.C., state that the construction reports to July 30 on this line indicate that the work will be so far completed that the Okanagan fruit district will be given a connection with that city via Spence's Bridge, on the C.P.R. by Dec. 31. This simply means that the central part of the line will by that time be linked up with the Nicola, Kamloops and Similkameen Ry. at Merritt,

over which traffic can be carried to Spence's Bridge. This section will not be connected with the Midway-Hope line until some time in 1915. Construction on this east and west line, which is the main line, is reported to be progressing favorably. (Aug., pg. 370.)

Lake Erie and Northern Ry.—The question of the building of a station in Brantford, Ont., is being held up following the recent decision of the Board of Railway Commissioners not to permit the use of the park property at the foot of Scarfe Ave. and Church St.

It is said that while the line from Brantford to Galt, Ont., will be operated by steam power, as soon as the whole line is completed the passenger traffic will be operated by gasoline cars. (Aug., pg. 370.)

Medicine Hat Southern Ry.—The Board of Railway Commissioners has authorized the company to build its line across the C. P.R. in Medicine Hat, Alta.

The M. H. S. R. Co. was incorporated by the Alberta Legislature in 1913, to build a railway from sec. 2, tp. 11, range 6, west of the 4th meridian, northerly to sec. 2, tp. 12, range 6, and on to the limits of the city of Medicine Hat. The company may use electricity, steam or any other motive power. The provisional directors are:—L. Hunt, H. O. Knowles, S. G. Bannan, Medicine Hat.

Pacific Great Eastern Ry.—Press reports state that track has now been laid from Squamish to beyond Cheakamus, and that grading has been completed to Lillooet, mileage 120 from Squamish. It is expected to have the grading from Lillooet to Clinton completed in the autumn, and track laid by the end of the year. About 10% of the grading is reported to have been done between Clinton and Lac la Hache, and considerable work has been done thence to Fort George. It is reported that further subcontracts have been let at this end of the line which is being built from Fort George, as follows:—Welch and Kennedy, 4 miles; Rankin and Kellett, 20 miles; Madden Bros., 6 miles.

A temporary bridge has been erected across the Nechaco River at Fort George, to facilitate the preliminary work on the extension to the Alberta boundary. Location surveys are reported to be well advanced, and it is expected that construction work will be started as soon as possible. Local reports state that it is intended to build a branch to Dawson, Yukon, and that Finlay Forks has been selected as the point from which it will start. (Aug., pg. 371.)

Pacific, Peace River and Athabasca Ry.—We are officially advised that this company was incorporated last session of the Dominion Parliament to build a line from the mouth of the Naas River, B.C., to Prince Albert, Sask. The route to be followed is by the Naas River, Courier Creek, Skeena River, Bear River, Bear Lake, Driftwood River, North Tacla Lake, via Hogan Pass to the Omineca River, the Findlay branch of the Peace River, along the north side of the main Peace River easterly and northerly to the Vermillion rapids or chutes, thence crossing the river at this point and continuing down the right bank of the Peace River to Point Providence, thence easterly to the mouth of the Athabasca River, along that river to Fort McMurray, thence easterly to Clearwater and Pembina River, and by the Bear River easterly, southerly and easterly to Prince Albert, Sask. The line projected would have a total length of 1,500 miles; the capital of the company is fixed at \$15,000,000, and the principal promoter is D. A. Thomas, Cardiff, Wales, one of the largest coal operators in the world. The statutory meeting for the organization of the company will be held Sept. 8.

The company has five survey parties in the field engaged on reconnaissance work, viz.:—From Prince Albert to Fort McMurray; from Fort McMurray to Peace River Crossing; from Peace River Crossing to Findlay Branch of Peace River; thence to Ground Hog Mountain Coal Basin; thence to the mouth of the Naas River.

In connection with this enterprise the Peace River Tramway and Navigation Co. was incorporated last session of the Dominion Parliament. It has an authorized capital of \$1,000,000 and power to issue bonds for \$30,000 a mile of line. The company proposes to build a tramway around the Peace River Falls or chutes below Fort Vermillion, three miles, and another on the Slave Lake from Smiths Landing to Fort Smith, 16 miles, opening direct transport through to the Arctic Ocean. The company is also authorized to operate steamships and to generate and dispose of electric energy, and to operate docks, wharves, elevators, etc. The location surveys for the two tramways are practically completed and everything should be ready for construction in the spring of 1915. The statutory meeting for organization is to be held early in September. C. F. Law, Vancouver, B.C., is Canadian agent for both companies. (Aug., pg. 371.)

Peace River Tramway and Navigation Co.—See Pacific, Peace River and Athabasca River Ry.

Will Canada Carry Her Burden?

GREAT BRITAIN and Europe, where productive industry has been paralyzed, have mouths to feed, bodies to clothe, constructive operations to carry through, and a thousand-and-one wants and needs to be satisfied—and Great Britain and Europe look to Canada in confidence for much of the needed supplies.

It were folly for Canadian manufacturers and merchants to be down-hearted during these terrible times in Europe. A great burden—a great duty—a great responsibility—has been imposed on Canadian manufacturers, merchants, bankers and workers. Shall Canada and Canadians shirk this burden, this duty, this responsibility?

What's the Answer?

Quebec Central Ry.—The extension along the Chaudiere River valley, we are officially advised, is being gradually pushed forward to Lac La Frontier, Montmagny county, Que. The first five mile section from St. Sabine to St. Camille was put under contract in 1913, and the work is completed. P. J. Wolfe, Sherbrooke, Que., who had the contract, was given a contract this year for the construction of a further five miles beyond St. Camille. This is now in hand, and it is expected to have it completed by Oct. 31. On this section there is one large bridge, consisting of three spans of 80 ft. each, which is being erected by the Dominion Bridge Co., and was expected to be completed by Aug. 31. As soon as this section is completed the 10 miles from St. Sabine will be put in operation. The extension from St. Camille to Lac La Frontier, 15 miles, will, it is expected, be put under contract in 1915. (Aug., pg. 371.)

St. John and Quebec Ry.—Press reports state that a sub contract has been let to Kennedy and McDonald for grading on the Centreton-Andover section of this line, now under construction along the St. John River Valley in New Brunswick. (Aug., pg. 371.)

Timiskaming and Northern Ontario Ry.—A contract is reported let to Sherwood and

Sherwood for the erection of a station at Elk Lake. (May, pg. 215.)

The Van Buren Bridge Co. has deposited with the Secretary of State, at Ottawa, certified copy of its charter granted by the State of Maine; certified copy of the Act of Congress of Mar. 4, 1913; and a transfer of the rights of the Restigouche and Western Ry. to build a bridge across the St. John River at St. Leonards, N.B., to Van Buren, Me. The object is to provide a railway connection in the United States for the line from Campbellton to St. Leonards. The principal promoters of the railway, which has just been taken over by the Dominion Government as a branch of the Intercolonial Ry., was T. Malcolm, who is also the principal promoter of the Van Buren Bridge Co.

The Minister of Railways has approved route plan of the line from the International Ry. of New Brunswick, in St. Leonards, N.B., to the International boundary at the centre of the St. John River.

The Act of the Dominion Parliament vesting the charter rights of the Restigouche and Western Ry., so far as its rights to build this bridge are concerned, was brought into effect by proclamation, July 13. (July, 1913, pg. 333.)

Western Dominion Ry.—We are officially advised that the entire location of this projected railway was completed in 1912. The route is from the International boundary, in range 23 west of the 4th meridian, north-westerly via Cardston and Pincher Creek to Lundbreck, on the C.P.R. Crowsnest branch, thence northerly in the valley between the Porcupine Hills and the foothills of the Rocky Mountains to Calgary, 201 miles. The location on the southern section of the line was done under the charge of J. H. Fine, and that on the northern section under the charge of H. W. Goodman.

Construction has been started on the section between Pincher Creek and the crossing of Waterton River. J. F. H. Connell, Calgary, Alta., is Chief Engineer. (Aug., pg. 371.)

Winnipeg.—The Commissioners for the Greater Winnipeg Water District have let a contract to C. J. E. Maxwell, Transcona, Man., for a residence for the Superintendent of the Commissioners' railway, a station and other buildings, at Deacon, Man., at a cost of \$13,000. (Aug., pg. 371.)

Railway Terminals in Victoria.—In connection with the laying out of the Songhees Indian Reserve at Victoria, B.C., for railway terminals by the Esquimalt and Nanaimo Ry. (C.P.R.) and the Canadian Northern Ry., a bridge is to be erected giving connection with the business part of the city. The estimated cost is \$400,000, excluding the approaches, and the cost of the land, which is put at an additional \$275,000. The city will provide the land on the east side of the bridge and build the approaches; the Provincial Government will provide the land on the west side of the bridge. The bridge itself will be erected by the E. and N. Ry., the B.C. Electric Ry. and the Provincial Government. It will be provided with one track for the E. and N. Ry., two tracks for the B.C.E. Ry., and two roadways each 11 ft. wide. Provision will be made for the passing of vessels, either by a 130 ft. bascule span, or by two 110 ft. draw spans.

Locomotive Cleaning.—The practice of washing down locomotives with a spray of hot water and fuel oil, instead of wiping them down, is reported to have been adopted on the Delaware, Lackawanna and Western Rd., the Atlantic Coast Line and a few other roads, and it is said that uniformly satisfactory results have been secured, both on the basis of results and cost of doing the work.

Railway Finance, Meetings, Etc.

Algoma Central Terminals, Ltd.—In commenting on the recent failure of the Canadian Agency, Ltd., in London, Eng., the Canadian Gazette stated recently that in Mar., 1913, the Canadian Agency offered for public subscription £527,300 of 5% first mortgage bonds of A. C. T., Ltd., at 96, interest and principal guaranteed by the Lake Superior Corporation. The payment of the instalments was completed in the following May, but the bonds have not been delivered in exchange for the Canadian Agency scrip, though interest has been paid each August and February. Now on the failure of the Canadian Agency, it is found that about £100,000 of the money subscribed has been "disapplied," and the question is, how is this altogether unprecedented difficulty to be met? All the parties concerned are, no doubt, to blame, the subscribers who did not insist on the delivery of the bonds on the payment of the scrip coupon of Aug. 1 last year, and the Algoma Central Terminals, Ltd., and the Lake Superior Corporation, on whose behalf the bonds were issued.

It is announced by the scrip holders' committee that an agreement has been reached with the company regarding the undelivered bonds. Each holder of the Canadian Agency scrip for Terminal bonds, on payment to the company or its nominee, of 10% of the face value of his scrip, shall be entitled to receive from the company, on the surrender of his scrip for cancellation, his pro rata proportion of the £127,000 Terminal bonds, carrying Aug. 1, 1914, and subsequent coupons. Each scrip holder will, on payment, simultaneously receive his pro rata proportion of the £400,000 bonds now held by the committee on their behalf. The company agrees to pay stamp duty on bonds thus distributed. Under this arrangement, the holders of scrip for £1,000 bonds will, on payment of £100, be entitled to receive £1,000 bonds duly stamped. The company agrees to provide funds to meet any prior interest unpaid on scrip surrendered under the foregoing scheme, and to cover the payments which the committee has to make for legal and other expenses. The company will assign to a trustee on behalf of the scrip holders, all rights and claims it possesses against the Canadian Agency in respect of the last instalment of purchase money. All sums recovered in respect of such rights or claims to be applied by the trustee, as to that proportion which represents scrip holders who make the 10% payment, on behalf of the scrip holders, and the balance as the company directs. Only those scrip holders who make the 10% payment are to be entitled to the benefit of the agreement, which is without prejudice to the company's rights against the other scrip holders.

Canada Atlantic Ry.—The certificate of the chairman of the general meeting of shareholders held in Ottawa, July 29, showing that amalgamation of the C. A. Ry. Co. with the G.T.R. Co. was assented to, as required by the Amalgamation Act of 1914, has been filed with the Secretary of State at Ottawa.

Canadian Northern Ry.—There has been deposited with the Secretary of State at Ottawa a deed, dated Feb. 21, between the company and the National Trust Co., securing an issue of bonds, which, with prior issues now outstanding, will amount to \$15,000 a mile on certain of the company's lines in Manitoba and connecting therewith.

There has also been filed with the Secretary of State a mortgage deed, dated July 15, made between the company, Mackenzie, Mann & Co., Ltd., the National Trust Co.,

the British Empire Trust Co., and the Dominion, securing an issue of \$45,000,000 of bonds authorized by last session's legislation.

Canadian Pacific Ry.—A special general meeting of shareholders has been called for Oct. 7, following the annual general meeting, for the purpose of considering the question of increasing the capital stock of the company from \$260,000,000 to \$335,000,000, this being the full amount authorized by the Dominion Parliament. According to the President's statement it is not intended that there shall be any new issues at the moment, but this is merely to enable the directors to provide for the future capital requirements as and when they arise.

Central Ry. of Canada.—A meeting of shareholders has been called to be held at Montreal, Sept. 8, to transact general business.

Grand Trunk Pacific Ry.—The shareholders, at a meeting in Montreal, July 22, ratified the provisions of the mortgage to be entered into with the Dominion Government to secure the additional amount of bonds guaranteed by Parliament last session.

Courage, Canada

CANADA is favored among the nations. We have peace within our own borders. We have learned the lessons taught by lean times, and so are prepared to face the days ahead. Our farmers are prospering by reason of the present conditions—and when agriculture flourishes, the business outlook is one of good hope and good cheer.

Some Canadian industries and mercantile enterprises must suffer because of the partial suspension of trans-oceanic trade. But more industries will be stimulated to supply our home demand, which MUST be satisfied. It is a time of business opportunity in Canada.

Let Courage Possess Us.

Supplementary deeds have been deposited with the Secretary of State at Ottawa, securing bonds to be issued on the company's branch lines in Saskatchewan and Alberta, the bonds being guaranteed by the Provinces of Saskatchewan and Alberta respectively.

Lake Huron and Northern Ontario Ry.—A special meeting of shareholders was called to be held at Bruce Mines, Ont., Aug. 25, for the purpose of approving a contract for the building of the main and branch lines authorized, and for the equipment of the same. The notice calling the meeting was signed by G. P. McCallum, President, and H. Appleton, Secretary.

New York, New Haven and Hartford Ry.—According to an arrangement made between the United States Government and the directors, Aug. 11, the company will be dissolved into its original component parts and the proceedings against it under the Sherman anti trust law will be abandoned. It is stated that as a result of this arrangement the interests of the shareholders will be better conserved than if the proceedings were continued. Among the companies involved are the Boston and Maine Rd., the Maine Central Rd., and the Rutland Rd., all of which have Canadian connections.

The cases against directors and officials in the criminal courts of New York are not affected by this arrangement. They have

been set down for hearing at the September sittings.

Quebec Oriental Ry.—A deed dated June 28, between the company and the Royal Trust Co., securing an issue of £100,000 of 5% prior lien bonds on the Matapedia section, has been filed with the Secretary of State at Ottawa. This deed cancels the deed of Oct. 22, 1912, securing an issue of £50,000 of bonds previously deposited.

St. Mary's and Western Ontario Ry.—A duplicate of an indenture made June 22, between H. S. Osler, Toronto, the company and the C.P.R., has been deposited with the Secretary of State at Ottawa.

Temiscouata Ry.—Net earnings for June, \$7,513; aggregate net earnings for 12 months ended June 30, \$64,787.

White Pass and Yukon Route.—Gross earnings from Jan. 1 to July 21, \$746,782, against \$437,423 for same period 1913.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1912-13, from July 1, 1913:—

| | Gross Earnings | Expenses | Net Earnings | Increase |
|-------|----------------|--------------|--------------|-----------|
| July | \$1,928,800 | \$1,414,500 | \$514,300 | \$19,700 |
| Aug. | 1,824,800 | 1,416,200 | 408,600 | 37,800 |
| Sept. | 1,994,900 | 1,470,000 | 524,900 | 101,400 |
| Oct. | 2,687,100 | 1,683,000 | 1,004,100 | 298,800 |
| Nov. | 2,673,300 | 1,708,500 | 964,800 | 87,000 |
| Dec. | 2,256,000 | 1,632,000 | 624,000 | 43,000 |
| Jan. | 1,570,000 | 1,218,000 | 352,000 | 82,700 |
| Feb. | 1,324,600 | 1,086,000 | 238,600 | x29,900 |
| Mar. | 1,533,400 | 1,173,000 | 360,400 | x71,100 |
| Apr. | 1,610,000 | 1,195,800 | 414,200 | x88,900 |
| May | 1,641,600 | 1,160,000 | 481,600 | x98,600 |
| June | 1,655,300 | 1,192,000 | 463,300 | x79,200 |
| | \$22,700,700 | \$17,349,000 | \$6,351,700 | \$302,700 |
| Incr. | ..... | ..... | \$ 302,700 | ..... |
| Decr. | \$ 279,100 | \$ 581,800 | ..... | ..... |

x Decrease.
The mileage operated at the end of June was 4,670, against 4,297 at the same period 1913. Approximate gross earnings for July, \$1,594,300, against \$1,928,800 for July, 1913.

Canadian Pacific Railway, Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1912-13, from July 1, 1913:—

| | Gross Earnings | Expenses | Net Earnings | Increase or Decrease |
|-------|-----------------|----------------|----------------|----------------------|
| July | \$11,993,062.27 | \$7,876,269.09 | \$4,116,793.18 | x\$331,353.72 |
| Aug. | 11,434,459.53 | 7,473,320.64 | 3,961,138.24 | x756,786.42 |
| Sept. | 12,157,082.17 | 7,741,503.48 | 4,415,578.69 | 165,274.84 |
| Oct. | 14,480,216.73 | 8,877,358.94 | 5,602,857.79 | 541,970.60 |
| Nov. | 13,407,015.31 | 8,518,769.25 | 4,888,246.06 | 630,107.02 |
| Dec. | 11,814,325.67 | 7,557,503.96 | 4,256,821.71 | x108,897.80 |
| Jan. | 7,916,216.25 | 6,916,042.19 | 1,000,174.06 | x662,199.72 |
| Feb. | 7,594,172.73 | 6,122,596.27 | 1,471,576.46 | x1,048,492.88 |
| Mar. | 9,447,461.24 | 6,348,222.37 | 3,099,238.87 | x756,178.02 |
| Apr. | 9,720,461.58 | 6,375,596.56 | 3,344,865.02 | x600,212.53 |
| May | 9,795,928.94 | 6,832,917.24 | 2,963,011.70 | x541,018.16 |
| June | 10,054,421.06 | 6,718,796.16 | 3,335,624.90 | 292,129.68 |

\$129,814,823.83 \$87,388,896.15 \$42,425,927.68 \$3,819,946.47
Decr. \$9,580,876.15 \$ 5,760,929.68 \$ 3,819,946.47

x Decrease.
Approximate gross earnings for July, \$10,041,000, against \$11,555,000 for July, 1913. At the end of July, the mileage under operation was increased to 12,227.

Grand Trunk Railway Earnings.

The following figures show the earnings of the Grand Trunk Ry., Grand Trunk Western Ry., and Detroit, Grand Haven and Milwaukee Ry., for July, compared with those for July, 1913. As the Canada Atlantic Ry. has now been amalgamated with the G.T.R., its figures are incorporated with those of the G.T.R.:—

| | 1914 | 1913 | Increase | Decrease |
|---------------|-------------|-------------|----------|-----------|
| G.T.R. | \$3,894,339 | \$4,205,576 | ..... | \$311,237 |
| G.T.W.R. | 610,854 | 632,633 | ..... | 21,779 |
| D.G.H. & M.R. | 222,018 | 207,350 | \$14,668 | ..... |
| Totals | \$4,727,211 | \$5,045,559 | ..... | \$318,348 |

Grand Trunk Pacific Railway Earnings.

The approximate earnings for the Prairie Section and Lake Superior Branch, 1,104 miles, for July, were \$429,753, against \$519,556 for July, 1913.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 16th of the month preceding the date of publication.

TORONTO, CANADA, SEPTEMBER, 1914.

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The Effect of the War on Transportation.

A comparatively few years ago, certainly within the memory of many persons now living, a war in any particular part of the world was practically localized, both as to its theatre and its effect. With the vast improvements which have taken place in modes of transportation and communication within the past fifty years or so, it is now impossible for a war of any magnitude to take place anywhere without some effect being immediately apparent throughout the world. The present war involves the greatest naval and military powers, and a number of minor ones, and practically the whole of Europe has been drawn into the vortex.

It would be idle to deny that the war has a depressing effect on business generally, but now that the first alarm has passed, it can be seen that in many ways not only is the present a good time in which to take stock and prepare for the inevitable rush of business which will occur on the cessation of hostilities, but that, for those concerned with business in general on the American continent, it is the time to step into the breach made by the withdrawal of European competition, and by a judicious and possibly lavish expenditure of money and labor, to supply the demands of those who have been accustomed to purchase in foreign countries, and in addition meet all the require-

Good Times Ahead

THE sudden breaking out of war caused many to "run to cover." Like the chicken on whom the rose leaf fell, some of us became a prey to fear and were ready to declare "the sky is falling."

Now our vision is clearing, our alarm has fled, we have recovered our poise and our courage. We are seeing, also, our opportunity. Swiftly and almost overwhelmingly has come to us the perception of the fact that the competition of Continental Europe has been taken away. We are faced with a condition and an opportunity both tending to our advantage as a country of industry, agriculture and trade. Good times are ahead, if Canada and Canadians see and seize the present opportunity for enlarging their industries and trading.

We must be careful. We must have courage.

ments of Great Britain and the friendly nations, so far as foodstuffs and other necessary materials are concerned.

The safety of the ocean roads for British shipping is practically assured, and in fact it was never seriously menaced. The predominance of British shipping on the high seas would possibly have made it comparatively easy for a foreign nation to deal a series of disastrous blows, but the very prompt action of various sections of the British Navy practically cleared the seas of German shipping in a short time and kept in check the German war vessels scouring the seas in the hope of disorganizing British shipping.

During the first week of August there was some necessary dislocation of service between the American continent and Europe, and between Canada and the Orient, part of which was due to the withdrawal of vessels from their respective routes for British Government service, and part due to "safety first." So far as British vessels were concerned, those which had but recently left ports on this side were recalled by wireless telegraphy to await a better opportunity of crossing; others, which were nearer the British side of the ocean, pro-

ceeded to the nearest British port with caution, and no instance has been reported of loss. Regarding German vessels, they were in a different position, as, it being practically impossible for them to make any German port, and impossible, under the circumstances, to put in at a British port, at whatever point of their voyage they happened to be when they received messages their only course was to make with all speed for a neutral port or be captured. Some captures have been reported, but a number of the finest ocean-going vessels flying the German flag are laid up in New York harbor, where, for the time being, they are useless. In this connection the North German Lloyd and the Hamburg-American Line have announced that they are willing to sell the vessels lying in neutral harbors, and it is reported that United States capitalists are negotiating for their purchase. Legislation is being discussed in Washington, by which the U.S. Government would appropriate \$25,000,000 towards such purchase and possibly make up any difference should a specified amount not be realized by public subscription, and thus form the basis of a Government controlled merchant marine.

Proclamations have been issued covering regulations prohibiting residents in the Dominion from trading with residents of the German Empire, or with Austria-Hungary, and no British ship is permitted to leave for, or communicate with any port or place in either of the countries named. The exportation of arms of all kinds, explosives, etc., and a number of other articles of use in times of war, is prohibited to any country except the United Kingdom and British possessions, and the exportation of coal is prohibited except to the United Kingdom, British possessions, the United States, Japan, France and Russia.

Canadian Northern Railway to be Pushed to Completion.

A Vancouver press dispatch of Aug. 26 credits Sir Donald Mann with saying there:—"Despite the chaotic conditions of the money markets, due to the war situation, we intend to finish up the transcontinental line as quickly as possible."

Sir Donald, who went on to Victoria to confer with the Premier, Sir Richard McBride, is also reported to have said that the company has 3,000 men employed in British Columbia and will keep them at work until rail laying is finished. Grading, he believes, will be finished by the end of September. Steel has been delivered or is en route for all sections of the main line west of Yellowhead Pass, and the line north of Lake Superior will be in operation this autumn.

Route Maps Approved.—The following route maps have been approved by the Minister of Railways since July 17:—Canadian Pacific Ry.—From Dunelm to Instow, Sask., 42.5 miles. Toronto and Niagara Power Co.—Transmission lines in Welland county from Niagara Falls to Thorold and Welland, Ont., 40 miles. Van Buren Bridge Co.—From junction with the International Ry. of New Brunswick in St. Leonards, N.B., to the International boundary at St. John River, one mile.

Canadian Ticket Agents' Association.—As previously announced, the annual outing will be held at Chicago, Oct. 6, 7 and 8. The business meeting will be on Oct. 6 at the Hotel Sherman, which will be the headquarters.

The C. P. R. will, in its building at the San Francisco exposition, have moving pictures of Canadian scenery and products.

Two Railways Bought for the Intercolonial.

The Department of Railways took over at midnight, July 31, two railways in New Brunswick, and is operating them as branches of the Intercolonial. The purchase of these lines is part of the Government's general policy to acquire as feeders for the I.R.C. some, if not all, of the small, independent and not particularly profitable lines in Quebec, New Brunswick and Nova Scotia, which connect with the I.R.C. This policy took shape during the closing years of the late administration, and while there is no enactment authorizing the Government to acquire the lines, the general policy is to acquire from time to time such lines as may be useful, subject to the subsequent ratification of Parliament. In connection with the development of this policy, the Department of Railways acquired the line formerly operated by the Nova Scotia Steel Co., in the vicinity of New Glasgow, N.S., and undertook the construction of the line from Dartmouth, N.S., through the Musquodoboit River Valley, which private interests had been trying to finance for many years. The additional lines now purchased are the International Ry. of New Brunswick, and the New Brunswick and Prince Edward Island Ry.

International Railway of New Brunswick.

The history of this line starts with the passing by the New Brunswick Legislature in 1897 of an Act incorporating the Restigouche and Western Ry. Co. to build a railway from Campbellton to the St. John River, at some point between Grand Falls and Edmundston, N.B. Three years later the company was granted authority by the Dominion Parliament, subject to the necessary authorization by the United States being obtained, to build a bridge across the St. John River, at whatever point was selected as the western terminus of the line, such bridge to be considered to be a work for the general advantage of Canada. Subsequently, authority was obtained from the Quebec Legislature and from the Dominion Parliament to build a bridge across the Restigouche River at the eastern end of the line so as to connect it with the line to Gaspé, Que. The N. B. Legislature and the Dominion Parliament voted subsidies in aid of the line, and construction was started at Campbellton by T. Malcolm, the promoter and general contractor. In 1905 the International Ry. of New Brunswick was incorporated under the N.B. Companies Act to carry on the work. In 1906 the Legislature passed an Act ratifying the incorporation of the International Ry., and providing that in the event of the R. and W. Ry. not redeeming \$150,000 of debentures within three months the 10 miles of line built would become vested in the International. This was subsequently done, and construction proceeded. The guarantee of bonds by the N.B. Legislature, which stood at \$5,000 a mile, was increased to \$8,000 a mile in 1907. The line from Campbellton to St. Leonards, on the St. John River, was completed and put in operation Dec., 1910. The Dominion Government does not acquire the rights of the Restigouche and Western Ry. to build a bridge across the St. John River, these having been transferred under an Act passed last session to the Van Buren Bridge Co.

The financial statement at June 30, 1913, shows:—Capital stock outstanding, \$1,320,000; bonds outstanding, \$896,000; total, \$2,216,000. The Dominion Government subsidy paid was \$725,288.07; the New Brunswick subsidy was \$275,000, and there was a municipal subsidy of \$5,000. The operating statistics for the year ended June 30, 1913, showed:—Passenger earnings, \$42,117;

freight earnings, \$69,137; gross earnings, including miscellaneous earnings, \$111,932; Expenditure—maintenance of way and structures, \$19,462; maintenance of equipment, \$11,049; traffic and transportation expenses, \$43,589; general expenses, \$4,996; total, \$79,096. Passengers carried, 32,143; freight carried, 106,632 tons. Revenue train mileage, 124,042 miles. The company owned 3 passenger and 3 freight locomotives, 2 first class, 1 second class and 2 combination passenger cars; 1 baggage express and postal car; 6 box cars; 85 flat cars; 1 official car; 2 cabooses and 1 other company car.

The officers and staff of the line were:—President and General Manager, T. Malcolm; Secretary, A. B. McKnight; Purchasing Agent, E. H. Anderson; Car Accountant and Traffic Manager, A. A. Andrew; Freight and Passenger Agent, R. B. Humphrey, St. John, N.B.; Mechanical Superintendent, C. C. Johnson; Roadmaster, Jas. Bury; Storekeeper, G. McRae. With the exception specially mentioned, all these had their headquarters at Campbellton, N.B.

The line is now being operated as part of district 2, I.R.C., under the jurisdiction of Evan Price, Superintendent at Campbellton. Jas. Bury has been retained as Roadmaster, and C. C. Johnson, heretofore Mechanical Superintendent, has returned

The Right Kind of Courage.

It is not our practice to refer in our reading columns to advertisements published in Canadian Railway and Marine World, and this is the first occasion in the history of the paper on which we have done so.

But we cannot omit to call special attention to the Northern Electric Company's advertisement which appears on page 444 of this issue.

It offers no goods, but it sounds the true note for all business men, "Stand Firm."

Everyone should read it and act on its advice.

to his former position as locomotive driver. G. McRae, heretofore Storekeeper, has been given a location temporarily in the freight shed at Campbellton, and the others have retired from the service.

New Brunswick and P.E.I. Railway.

The N.B. and P.E.I. Ry. extends from Sackville, N.B., on the Intercolonial Ry., 38 miles east of Moncton, to Cape Tormentine, on Northumberland Strait, 36 miles. The predominant cause for its purchase is the approaching completion of the car ferry terminals at Cape Tormentine and at Carleton Point, P.E.I., between which will be operated a car ferry, to give rail connection between the I.R.C. and the P.E.I. Ry. The company was incorporated in 1873, and the line was completed and put in operation at the close of 1887. It was for some years practically owned by Hon. Josiah Wood, and was sold by him on his appointment as Lieutenant Governor of New Brunswick, in 1910, to C. W. Fawcett, a manufacturer at Sackville; M. G. Siddall, a farmer of Port Elgin, N.B., and the late T. D. Picard. The first board of directors consisted of:—President, C. W. Fawcett, Sackville; Manager and Treasurer, F. C. Harris, Sackville; C. Picard, M. G. Siddall, F. B. Black, H. E. Fawcett, H. M. Wood. The secretary was T. D. Picard, Sackville.

The financial statement at June 30, 1913, shows:—Capital stock, \$214,850; bonds,

\$96,000; total, \$310,850. The Dominion subsidy paid was \$113,440; the New Brunswick subsidy, \$99,708.90. The operating statistics for the year ended June 30, 1913, show:—Passenger earnings, \$12,717; freight earnings, \$30,636; gross earnings, including miscellaneous items, \$43,394. Expenditures—maintenance of way and structures, \$7,340; maintenance of equipment, \$9,176; traffic and transportation expenses, \$16,937; general expenses, \$2,700; total, \$36,153. Passengers carried, 22,292; freight carried, 49,793 tons; revenue train mileage, 56,810 miles. The company owned 3 locomotives, 2 second class and 1 combination passenger cars, 4 box cars, and 41 flat cars.

The line is in a poor physical condition, notwithstanding the fact that certain work was done on it during 1913 under the direction of Intercolonial officials. It has been decided to do a good deal of betterment work this year. A good deal of the right of way will have to be cleared up, as outside the actual track it is covered with a scrub growth. About 600 ties per mile of track will be put in, and about 18 miles will be relaid with 56 lb. rails, and a lift of ballast will be put on over the whole line. In a year of two the line will be relaid with heavier steel to provide for the increased traffic which will result from the operation of the car ferry.

The line is being operated as part of district 3, I.R.C., under J. T. Hallisey, Superintendent, with headquarters at Truro, N.S. F. C. Harris, who was Manager and Treasurer, is being retained as an agent in the meantime, reporting to Mr. Hallisey.

Smoke Prosecution.—The C.P.R. was fined \$5 and \$2, at Ottawa, recently, for allowing black smoke to be emitted from its locomotive house smoke stack for periods varying from 10 to 37 minutes continuously. On behalf of the company, evidence was given to show that it was highly improbable such a thing could take place. Two minutes was the average time that dense smoke was emitted after coal had been placed on the fires. Notice of appeal was given.

Steel Specifications.—The American Society for Testing Materials has added to its specifications for reinforcing steel rolled from billets, an intermediate grade between the structural and hard grades. This new grade is to have a yield point of 40,000 lbs., and an ultimate tensile strength of from 70,000 to 85,000 lbs.

Grand Trunk Pacific Ry. Hotels.—In addition to the Fort Garry at Winnipeg, which is open, and the Macdonald, at Edmonton, and the Qu'Appelle, at Regina, which are approaching completion, the company contemplates erecting a large hotel at Prince Rupert and summer hotels in Jasper and Mt. Robson Parks.

The Granger Collieries, Ltd., is applying to the Alberta Legislature for authority to build an aerial wire rope tramway from its collieries on sec. 11, Tp. 24, range 10, west of the 5th meridian to the C.P.R., or to a spur line in sec. 13, in the same township and range, and to expropriate 100 ft. right of way.

The Canadian Northern Ry. Montreal staff has organized a rifle club, and has obtained a grant of rifles from the Militia Department. The number enrolled is, at present, 45, and shooting practice is had at the Longue Pointe ranges under qualified instructors.

A. E. Gough, Train Dispatcher, C.P.R., Farnham, Que., writes Canadian Railway and Marine World:—"Enclosed is money order for subscription to your valuable publication. I would not care to miss a number."

Mainly About Transportation People.

Lady MANN has returned to Toronto, after spending some months in Europe.

SIR WILLIAM MACKENZIE has given \$10,000 to the Toronto and York Patriotic Fund.

SIR THOMAS SHAUGHNESSY spent part of the summer at his seaside residence, St. Andrews, N.B.

Mrs. F. B. MOFFITT, wife of the Canadian Passenger Agent, Delaware and Hudson Co., Montreal, died there, Aug. 5.

A. H. REID, son of the harbormaster at Vancouver, B.C., has been appointed to H.M.S. Hearty, in the British Navy.

ANGUS MACMURCHY, K.C., Local Solicitor, C.P.R., Toronto, who was in Europe when the war broke out, has returned home.

SIR WILLIAM MACKENZIE, President, Canadian Northern Ry., returned to Canada, early in August, from Great Britain.

SIR WILLIAM VAN HORNE, accompanied by his son, R. B. Van Horne, returned to Canada from Europe towards the end of July.

Mrs. R. C. VAUGHAN, wife of the Assistant to the Third Vice President, Canadian Northern Ry., returned to Toronto after a short visit to England.

H. L. DRAYTON, K. C., Chief Commissioner, Board of Railway Commissioners, arrived in London, England, with his wife and two daughters, on a visit.

A. E. COX, General Storekeeper, Canadian Northern Ry., Winnipeg, and Mrs. Cox, celebrated their silver wedding by a reception at their home, Aug. 8.

S. C. PETIT, stationer, Grand Trunk Pacific Ry., read a paper on the handling of stationery at the convention of the Railway Storekeepers' Association recently.

A. W. SMITHERS, Chairman, G. T. R., who was to have sailed from England, Aug. 1, for his annual trip of inspection over the system, cancelled the trip.

The marriage of Miss M. Wainwright, daughter of the late W. WAINWRIGHT, Vice President, G.T.R. and G.T. Pacific Ry., to R. D. Bell, took place at Montreal, Aug. 19.

A. D. CARTWRIGHT, Secretary, Board of Railway Commissioners, Ottawa, has recovered from his recent attack of ptomaine poisoning, and spent the summer vacation at Brackley Beach, P.E.I.

L. O. N. McPHERSON, formerly of the Land Department, C.P.R., has been appointed Manager in Great Britain of the Alberta Loan and Investment Co., which has its head office at Calgary.

D. B. DALY, who acted as a superintendent of construction on a contract for building the National Transcontinental Ry. east of the Quebec Bridge, died at Montreal, Aug. 9, after a very short illness.

Lady MACKENZIE presented pipes to the smokers among the recently recruited Princess Patricia Light Infantry, raised and equipped by H. Gault, Montreal, for service in the war.

R. Redmond, and Mrs. Redmond, daughter of SIR THOMAS SHAUGHNESSY, who were motoring in France at the outbreak of war, returned to London, without much difficulty.

NORMAND R. DES BRISAY, whose appointment as General Travelling Passenger Agent, C.P.R., Montreal, with some biographical data, was given in our last issue, was born at Minneapolis, Minn., May 18, 1888.

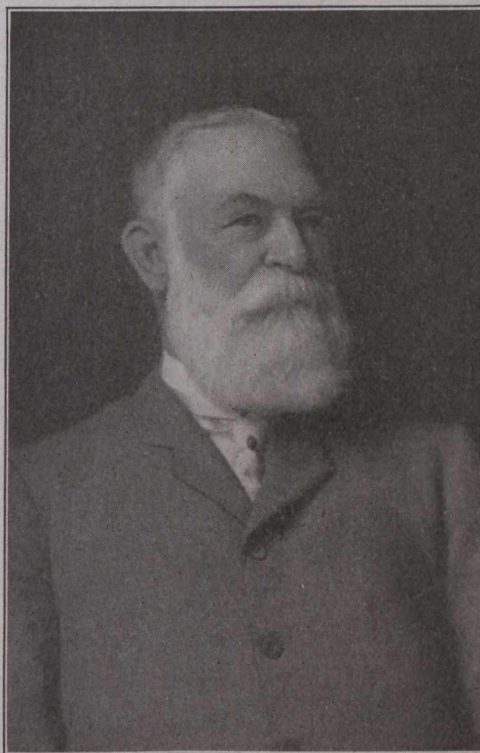
A. BERNIER, K.C., Mayor of Levis, and

intimately associated with The Levis Ferry, Ltd., who spent the summer in Europe, experienced considerable difficulty in returning to Great Britain, prior to embarking for Canada.

W. H. CLANCY, City Passenger and Ticket Agent, G.T.R., Montreal, who is on leave of absence, was on the Continent and is reported to have reached London, Aug. 21, via Paris and Boulogne. He is expected to sail for Canada Sept. 5.

DAVID B. MULLIGAN, who has been appointed General Superintendent, Grand Trunk Pacific Ry. Hotels, was at one time one of the lessees of the Russell House, Ottawa, and for the past three years was Manager of the Hotel Breslin, New York.

HUGH SUTHERLAND, Executive Agent, Canadian Northern Ry., Winnipeg, who was in Vienna at the end of July, is reported to have experienced considerable discomfort in returning to England, on account of the war



J. D. Evans, M. Can. Soc. C.E.,
Division Engineer, Ottawa Division, Canadian
Northern Railway.

troubles. He returned to Canada during August.

JOHN S. GALBRAITH, S. Can. Soc. C. E., of Toronto, son of the late John Galbraith, Dean of the Faculty of Applied Science, University of Toronto, was married at Port Credit, Ont., July 28, to Miss Eileen Haney, youngest daughter of M. J. Haney, M. Can. Soc. C. E.

Miss J. Bosworth, sister of G. M. BOSWORTH, Vice President, C.P.R., has returned to Canada after a holiday on the continent. She was detained at Aix-les-Bains for some little time, until an automobile was arranged for to take her to Havre, whence she crossed to England.

A. L. HERTZBERG, M. Can. Soc. C.E., Division Engineer, C.P.R., Toronto, returned home early in August from a trip to Europe. He experienced considerable inconvenience in getting from the continent to England, where, with others, he had to wait for a vessel, owing to the disorganization of the trans-oceanic services.

Miss H. McNicoll, daughter of D. McNICOLL, Vice President, C.P.R., who was on a sketching tour in France, returned to London, Aug. 9, having been met at Valery-sur-Somme by a member of the C.P.R. London staff. She had left her heavy baggage at Longwy, and it was not deemed advisable to go for it.

ALLAN CAMERON, Superintendent, Land Branch, Department of Natural Resources, C.P.R., Calgary, Alta., who has been in Europe for a few weeks on business connected with his department, in company with E. Moore, of the same department, were in Christiania, Norway, during August, and sailed from England, for Canada, Aug. 28.

F. C. SALTER, European Manager, G.T. R. and Canadian Express Co., has received the thanks of a number of parties from both Canada and the United States for his personal efforts, and those of his staffs, for relief afforded in London during the period when it was practically impossible to obtain ready money in exchange for cheques, etc.

JOHN DEMPSTER, who died in England recently, was one of the founders of Elder, Dempster and Co., which later developed into a large shipowning and general mercantile business. The company, at one time, owned the Beaver Line, operating vessels between England and Canada, and which was subsequently acquired by the C.P.R.

H. L. DRAYTON, K.C., Chief Commissioner, Board of Railway Commissioners, who is spending the vacation in Great Britain, immediately on the outbreak of war, placed his services at the disposal of the acting High Commissioner in London, and has since rendered valuable service in connection with locating and caring for a number of Canadians, whose holidays in different parts of the continent were interfered with.

JOSEPH BILLINGHAM, who has been appointed Superintendent of Motive Power, G.T. Pacific Ry., Transcona, Man., was born in England and served his apprenticeship with the London and North Western Ry. He was afterwards Master Mechanic, Baltimore and Ohio Rd., and subsequently was appointed European Manager, Galena-Signal Oil Co., and later returned to the U.S. as Superintendent of Works, American Locomotive Co., Schenectady, N.Y.

JAMES A. YATES, Secretary, Montreal and Southern Counties Ry., who has also been appointed Assistant Treasurer, G.T.R. and G.T.P.R., Montreal, was born at Montreal, Nov. 30, 1876, and entered G.T.R. service in Feb., 1891, since when he has been, to Dec., 1906, clerk and insurance clerk, Treasurer's office, Montreal; Jan., 1907, to Dec., 1911, chief clerk, same department, G.T.P.R., Montreal; Jan., 1912, to July 31, 1914, chief clerk, same department, G.T.R. and G.T.P.R., Montreal.

GEORGE WILLIAM COBURN, whose appointment as Resident Engineer, C.P.R., Brandon, Man., was announced in our last issue, was born at Upper Melbourne, Que., June 24, 1877, and entered C.P.R. service in March, 1896, since when he has been, to Dec., 1900, rodman and draughtsman, Farnham, Que.; 1901 to 1907, draughtsman and Assistant District Engineer, Souris and Brandon, Man., and Moose Jaw, Sask.; 1907 to 1914, District Engineer and Resident Engineer, Souris and Brandon, Man.

WILLIAM CHESTER TOMKINS, who has been appointed Assistant to Vice President (Finance), G.T.R. and G.T.P.R., Montreal, was born at Montreal, May 19, 1871, and entered G.T.R. service Sept. 1, 1885, since when he has been, to May 13, 1887, in office of Auditor of Pay Rolls; May 14, 1887, to Sept. 1, 1888, in General Manager's

office; Sept. 1, 1888, to May 1, 1908, clerk in General Manager's and President's office, G.T.R. and G.T.P.R.; May 1, 1908, to Aug. 1, 1914, secretary to Vice President.

WALTER HARDMAN ARDLEY, who has been appointed Comptroller, G.T.R. and G.T.P.R., Montreal, and whose portrait appears in this issue, was born in London, England, Apr. 24, 1858, and entered G.T.R. service Nov. 5, 1884, since when he has been, to Nov. 1, 1893, clerk in General Auditor's office, Montreal; Nov. 1, 1893, to Dec. 31, 1907, chief clerk and general book-keeper, Montreal; Dec. 31, 1907, to Aug. 31, 1908, Auditor of Disbursements, Montreal; Aug. 31 to Dec. 31, 1908, acting General Auditor, Montreal; Dec. 31, 1908, to Aug. 1, 1914, General Auditor, G.T.R. and G.T.P.R., Montreal.

At the laying of the corner stone of the Sir William Whyte school at Winnipeg, Aug. 18, the Principal of Manitoba College said that the name of the school would be a symbol to future generations who received their education there, of the heights to which industry can bring an aspiring man. When children heard the name they would be told the tale of SIR WILLIAM WHYTE and his remarkable rise from obscurity to a great position on the greatest railway corporation in the world, without the aid of a thorough education. The name and its associations would be an inspiration to young people.

WILLIAM NEWMAN, who died at Victoria, B.C., recently, aged 68, came to Canada in 1884, and was employed on construction work on the C.P.R. along the north shore of Lake Superior, and in 1886 he was transferred to British Columbia, at Donald, then a divisional point. In 1897 he was moved to Revelstoke and acted as Roadmaster over a considerable portion of the line, remaining there until 1905, when the C.P.R. took over the management of the Esquimalt and Nanaimo Ry., when he was appointed to the joint positions of Roadmaster and Bridge and Building Master. He retired from active service about a year ago.

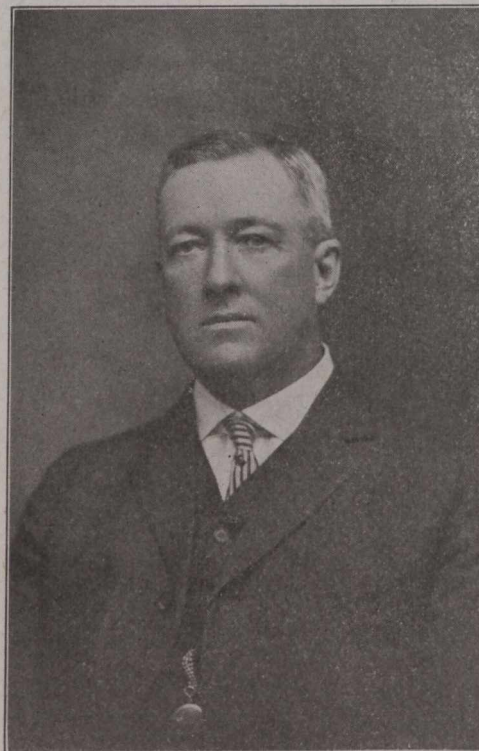
FREDERICK C. JOHNSON, who was recently appointed Night Locomotive Foreman, C.P.R., Transcona, Man., was born at Montreal, Feb. 26, 1885, and entered railway service as an apprentice with the G.T.R., at Montreal and Belleville, Ont., after which he worked as machinist for various railways in Canada and the United States, from June, 1905, to June, 1910, since when he has been, to Sept., 1912, machinist, Canadian Northern Ry., Winnipeg; Sept., 1912, to Apr., 1913, machinist, C.P.R., Winnipeg; Apr. to Sept., 1913, Night Shop Foreman, C.P.R., Winnipeg; Sept., 1913, to May, 1914, Day Shop Foreman, C.P.R., Winnipeg.

JAMES ALEXANDER MACGREGOR, who has been appointed Superintendent, District 4, Alberta Division, C.P.R., Edmonton, was born at Dufftown, Scotland, Apr. 5, 1873, and entered C.P.R. service, May, 1892, since when he has been, to Feb., 1903, clerk, stenographer, chief statistical clerk and Travelling Car Agent, Montreal; Feb., 1903, to June, 1904, Car Service Agent, Winnipeg; June, 1904, to Oct., 1908, Assistant Superintendent Car Service, Winnipeg; Oct., 1908, to Oct., 1909, Superintendent, Souris, Man.; Nov., 1909, to Sept., 1913, Superintendent, Brandon, Man.; Sept., 1913, to July, 1914, Relieving Superintendent on various divisions.

JAMES RAMSAY WATSON, whose appointment as Assistant Superintendent, Sleeping, Dining and Parlor Cars and News Service, Eastern Lines, C.P.R., Montreal, was announced in our last issue, was born at Morpeth, Northumberland, England, Feb. 8, 1873, and entered C.P.R. service June, 1903, since when he has been, to June, 1907,

dining car steward, Montreal; June to Aug., 1907, dining car inspector, Glen Yards, Montreal; Aug., 1907, to July, 1914, consecutively, Travelling Dining Car Inspector, Eastern Lines; Travelling Dining Car Inspector, Western Lines; Terminal Inspector, Winnipeg; and Inspector, London Office, London, Eng.

ARTHUR JOHN HILLS, whose appointment as General Superintendent, Ontario Division, Canadian Northern Ry., Toronto, was announced in our last issue, was born at Toronto, Feb. 15, 1879, and entered Canadian Northern Ry. service, Apr., 1899, since when he has been, to June, 1901, Stores and Material Agent, Construction Department in Manitoba; June, 1901, to Dec., 1903, clerk, General Superintendent's office, Winnipeg; Dec., 1903, to Jan., 1908, in Third Vice President's office, Toronto; Jan., 1908, to July, 1914, Superintendent, C.N. Ontario Ry., Toronto. He was educated at Ridley College, St. Catharines, Ont., Upper Canada College, Toronto, and the University of Toronto.



S. R. Payne,
General Manager, Ottawa and New York Railway.

M. G. HURD, whose appointment as Chief Dispatcher and Trainmaster, District 4, Western Division, Canadian Northern Ry., Calgary, Alta., was announced in our last issue, was born in Toronto, and entered railway service in 1881 as operator, Georgia Pacific Ry., Atlanta, Ga., and subsequently served as agent, operator and dispatcher on various U.S. railways, until June 1, 1910, since when he has been, to Sept. 1, 1910, dispatcher at Port Arthur and Rainy River, Ont., consecutively, Canadian Northern Ry.; Sept. 1, 1910, to Nov. 5, 1913, dispatcher, C.N.R., Saskatoon, Sask.; Nov. 5, 1913, to July 5, 1914, Chief Dispatcher, District 2, Western Division, C.N.R., Saskatoon, Sask.

GERALD HIAM, who has been appointed District Freight Agent, C.P.R., Fort William, Ont., was born at Montreal, Dec. 14, 1888, and entered railway service in June, 1904, since when he has been, to June, 1905, junior clerk, C.P.R., Montreal; June, 1905, to Apr., 1907, stenographer, C.P.R., Montreal; Apr., 1907, to Jan., 1908, on survey, Canadian Northern Ry., St. Jerome, Que.;

Jan. to July, 1908, stenographer, Cuba Rd., Canagney, Cuba; July to Sept., 1908, stenographer, C.N. Ontario Ry., Toronto; Sept., 1908, to May, 1910, stenographer, C.P.R., Montreal; May, 1910, to Jan., 1914, clerk in Tariff Bureau, C.P.R., Montreal; Jan. to July, 1914, Travelling Freight Agent, C.P.R., Toronto.

A. CATTONI, Agent, C.P.R., Paris, France, earned the thanks of many Canadians and others, during the early part of August, for services rendered to those who were more or less stranded there, owing to the banks there declining to cash cheques on London. Hearing that the French post offices were cashing postal orders up to 1,000 francs he wired the Dominion Express Co. in England to send him postal orders, and so obtained money to meet emergencies. Arrangements were then made with Canadians that they could draw individually up to \$20 a day for personal expenses, and if they wished to leave France money was provided for travelling expenses, with a margin in case they were delayed at the coast.

KNOWLSON ELLIOTT, who has been appointed City Freight Agent, C.P.R., Calgary, Alta., was born at Gorrie, Ont., June 26, 1884, and entered railway service in Jan., 1903, since when he has been, to Oct., 1905, car checker, Michigan Central Rd., Jackson, Mich.; Nov., 1905, to Jan., 1909, clerk, Local Freight Department, C.P.R., Winnipeg; Jan. to Oct., 1909, rate clerk, General Freight Department, C.P.R., Winnipeg; Oct., 1909, to June, 1911, Soliciting Freight Agent, Minneapolis, St. Paul and Sault Ste. Marie Ry., Winnipeg; June, 1911, to July 1, 1912, Soliciting Freight Agent, C.P.R., Winnipeg; July 1 to Dec. 31, 1912, chief clerk, Division Freight Agent, C.P.R., Winnipeg; Jan. 1, 1913, to July 1, 1914, chief clerk to Assistant Freight Traffic Manager and General Freight Agent, C.P.R., Winnipeg.

GEORGE COLLINS, whose appointment as Superintendent, Ottawa Division, Canadian Northern Ry., Trenton, Ont., was announced in our last issue, was born at Carrying Place, near Trenton, Ont., July 20, 1860, and entered railway service, June 1, 1882, since when he has been, to May, 1884, timekeeper, Central Ontario Ry., Trenton; May, 1884, to May, 1890, agent, same company; May, 1890, to May, 1892, dispatcher, same company; May, 1892, to May, 1894, Secretary-Treasurer and Assistant Superintendent, same company; Apr., 1894, to Oct., 1902, General Superintendent and Secretary, same company; Oct., 1902, to Dec., 1906, Receiver and Manager, same company; Dec., 1906, to July, 1914, General Manager and Secretary, same company; May, 1903, to July, 1914, also director, and from Mar., 1910, also General Manager, Iroindale, Bancroft and Ottawa Ry.

JOHN C. O'DONNELL, whose appointment as Superintendent, District 3, Western Division, Canadian Northern Ry., Edmonton, Alta., was announced in our last issue, was born at Cobden, Ont., Dec. 17, 1879, and entered railway service, Sept. 15, 1899, since when he has been, to Sept. 1, 1901, freight brakeman, C.P.R., Chapleau, Ont.; Sept. 1, 1901, to May 1, 1902, freight conductor, C.P.R., Chapleau, Ont.; June 10, 1902, to May 1, 1905, brakeman and conductor, C.P.R., Cranbrook, B.C.; May 5 to July 2, 1905, brakeman, Canadian Northern Ry., Kamsack, Sask.; July 2, 1905, to Nov. 1, 1909, conductor, C.N.R., North Battleford, Sask.; Nov. 1, 1909, to Feb. 20, 1911, Trainmaster, C. N. R., Dauphin, Man.; Feb. 20, 1911, to June 30, 1912, Trainmaster, C. N. R., Winnipeg, Man.; July 1, 1912, to July 1, 1914, Trainmaster, C.N.R., Rainy River, Ont.

THOMAS TURNBULL, whose appointment as Assistant Chief Engineer, Canadian

Northern Ry., Winnipeg, was announced in our last issue, was, from 1881 to 1889, transitman on location and Resident Engineer on construction on various parts of the C.P.R.; 1889 to 1891, with Newfoundland Government, in charge of location party and construction work on Halls Bay railway; 1891 to 1897, Assistant Engineer Maintenance and Construction, Western Division, C.P.R.; 1897 to 1900, Chief Engineer, west of Winnipeg, Canadian Northern Ry.; 1900 to 1901, on contract work bridging on C. N.R.; 1901 to 1902, reconnaissance work for Dominion Government; 1902 to 1904, inspecting surveys for Dominion Government; 1904 to 1910, Assistant Chief Engineer, C. N.R.; 1910 to 1912, Assistant Chief Engineer, Hudson Bay Railway; 1912 to 1913, Chief Engineer, Edmonton, Dunvegan and British Columbia Ry.

JAMES FREDERICK GILDEA, who has been appointed District Master Mechanic, C.P.R., Montreal, and whose portrait appears in this issue, was born at Strood Park, near Horsham, Sussex, England, July 7, 1884, and educated at Bromsgrove School, Worcestershire. He entered railway service in June, 1900, since when he has been, to June, 1904, engineering apprentice, London and South Western Ry., Nine Elm Works, London, Eng., at the conclusion of which he was presented by the directors with a special prize for the highest place in the apprentices' technical examinations, with 100%; June, 1904, to June, 1905, fireman, all classes of service, L. & S.W.R., Salisbury, Eng.; June, 1905, to Jan., 1906, on engineering staff, Southampton Docks and R.M.S. Alberta, L. & S.W.R., Southampton, Eng.; Jan. to June, 1906, locomotive draughtsman, L. & S.W.R., Nine Elm Works, L. & S.W.R., London, Eng.; June, 1906, to Jan., 1907, supervising locomotive statistics and operation, L. & S.W.R., Nine Elm Works, London, Eng.; Feb., 1907, to Mar., 1908, fitter, Angus Shops, C.P.R., Montreal; Mar. to Oct., 1908, in tests department, Angus Shops, C.P.R., Montreal; Oct., 1908, to July, 1909, Assistant Locomotive Foreman, C.P.R., North Bay, Ont.; Aug., 1909, Assistant Locomotive Foreman, C.P.R., Chapleau, Ont.; Sept., 1909, to Sept., 1912, Locomotive Foreman, C.P.R., Schreiber, Ont.; Sept., 1912, to July, 1914, Locomotive Foreman, C.P.R., Hochelaga, Que.

JOHN NIBLOCK, who died at Victoria, B.C., July 30, was born at Scarborough, York County, Ont., Dec. 21, 1849, and entered railway service as switchman on the G.T.R., Aug. 21, 1870. He served two years as brakeman and two years as conductor, when he resigned to go into the fruit and ornamental tree business, where he remained for five years. In 1880 he entered the Dominion Government railway service on the original C.P.R. as conductor, and as such, made the first crossing of the Louise Bridge at Winnipeg in Aug., 1880, and ran the first train between Winnipeg and Portage la Prairie, Dec. 1, 1880. He entered the C.P.R. service on its inception in 1881, as conductor, and was appointed Trainmaster, Sept. 9, 1882, and Superintendent, Port Arthur-Winnipeg Section, Sept. 14, 1883. On May 21, 1887, he was transferred to Medicine Hat, Alta., as Superintendent, and in Oct., 1899, was transferred to Calgary, Alta., in a similar capacity, where he remained until Nov. 1, 1909, when he retired from active railway work. During his superintendency west of Winnipeg he assisted in the building of about 1,000 miles of line. He will always be remembered as the founder of the Medicine Hat General Hospital, which proved a great blessing in the earlier days of settlement when there was no other hospital on the line of railway west of Winnipeg, and to which he contributed liberally, personally, and raised a

considerable sum by persistent personal exertion. He has been interested in fruit growing in the Okanagan Valley for several years, and since his retirement from railway service spent most of his time there. The funeral took place at Calgary, Alta.

Railway Rolling Stock Notes.

The C.P.R. has ordered two all steel mail cars from its Angus Shops.

The Prince Edward Island Ry. is reported to have received three passenger cars and one baggage car, from Moncton, N. B.

The Crossen Car Co. has ordered 7 steel frames and trucks for tourist cars from the Canadian Car and Foundry Co.

The Pacific Great Eastern Ry. has received two consolidation locomotives from the Canadian Locomotive Co.

Baldry, Yerburch and Hutchinson, contractors on the Welland Ship Canal, have received two 6 wheel saddle tank locomotives from the Canadian Locomotive Co.



J. F. Gildea, Master Mechanic, District 2, Eastern Division, Canadian Pacific Railway.

The G. T. R. has received 10 suburban cars and one suburban second class and baggage car, from the Canadian Car and Foundry Co., and 7 first class cars from the Osgood Bradley Car Co.

The C.P.R., between July 15 and Aug. 15, received the following additions to rolling stock from its Angus Shops:—110 steel frame box cars, 7 steel colonist cars and 40 refrigerator cars.

The Intercolonial Ry. has received 5 express refrigerator cars from its Moncton shops, and 35 box cars, 80,000 lbs. capacity, completing an order for 180, from Canadian Car and Foundry Co.

During 1913, the C.P.R. built 81 locomotives in its shops, standing second in a list of all railways building their own locomotives on the American continent. The Pennsylvania Rd. built 179 in its shops.

The International Ry. of New Brunswick's official car, heretofore used by T. Malcolm, President, has been assigned for use by Evan Price, Superintendent, Inter-

colonial Ry., Campbellton, N.B., under whose jurisdiction the International Ry. has been placed since its purchase by the Dominion Government recently.

The Canadian Northern Ry., between July 14 and Aug. 15, received the following additions to rolling stock:—9 colonist cars from Canadian Car and Foundry Co.; 5 colonist cars from Crossen Car Co.; 5 baggage cars from Preston Car and Coach Co.; and 3 locomotives from Canadian Allis-Chalmers, Ltd.

The Canadian Car and Foundry Co., during July, delivered the following stock,—83 underframes and trucks for 40 ton tank cars, and 10 underframes and trucks for 30 ton tank cars, for Imperial Oil Co.; 11 steel frame suburban cars, and 3 steel frame combination baggage and suburban cars, for G. T. R.; 10 wooden colonist cars, for Canadian Northern Ry., and 80 steel frame box cars, 40 tons capacity, for Intercolonial Ry.

Following are chief details of the six class 464 locomotives, which the G.T.R. has ordered from the Montreal Locomotive Works, for suburban service, as mentioned in our last issue:—

| | |
|---|------------------------|
| Cylinder, diar. and stroke | 21 by 26 ins. |
| Tractive power | 30,940 lbs. |
| Factor of adhesion | 4.53 |
| Wheel base, driving | 15 ft. 8 ins. |
| Wheel base, total | 39 ft. 4½ ins. |
| Weight in working order | 250,000 lbs. |
| Weight on drivers | 139,500 lbs. |
| Weight on trailer | 59,000 lbs. |
| Weight on engine truck | 51,500 lbs. |
| Boiler, type | Straight |
| Boiler, diar. first ring | 71 9-16 ins. |
| Boiler, pressure | 200 lbs. |
| Firebox, length and width | 129¾ by 75¼ ins. |
| Crown staying | Radial |
| Tubes, no. and diar. | 191 2 ins.; 26 5¾ ins. |
| Tubes, length | 11 ft. 10 ins. |
| Heating surface, tubes and flues | 1,604 sq. ft. |
| Heating surface, firebox and arch tubes | 204 sq. ft. |
| Heating surface, total | 1,808 sq. ft. |
| Superheating surface | 3,532 sq. ft. |
| Grate area | 47 sq. ft. |
| Driving wheels, diar. | 63 ins. |
| Other wheels, diar. | 31 ins. |
| Driving journals, main | 9½ by 20 ins. |
| Driving journals, others | 9½ by 12 ins. |
| Engine truck journals | 6½ by 10½ ins. |
| Trailing truck journals | 6 by 11 ins. |
| Journal boxes | Cast steel |
| Air brakes | Westinghouse American |
| Tank, type | Water bottom |
| Tank capacity, water | 3,500 U. S. gal. |
| Tank capacity, coal | 5 tons |

Central Ry. of Canada and its Contractors.

—The judgment of the Imperial Privy Council in the case of Wills and Sons against the Central Ry. of Canada was announced in London, Eng., Aug. 5. The company entered into a general contract for the building of a line from Montreal to Georgian Bay, and work was started from near Hawkesbury, Ont., in the direction of Montreal. Subsequently the company became involved in difficulties of various kinds, and the contractors claimed that the company had broken the contract by not making payments at the times fixed in the contract as the work progressed. The company, on the other hand, claimed that the contractors had failed to prosecute the work with due diligence and proceeded to let other contracts, and the contractors sought an injunction to prevent this. The Privy Council dismissed the appeal of the contractors, which sought to set aside the finding of Court of Appeals which set aside the injunction obtained in the lower courts restraining the company from letting construction work to any other firm than the plaintiffs. The suits for damages on either side which were brought were not involved in the appeal, having been arrived at in the course of the hearings.

The Intercolonial Ry. elevator at St John, N. B., with 750,000 bush. of grain, was burnt, Aug. 13. A freight shed, train shed and three freight cars were also burnt.

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.

Canadian Government Railways.—The jurisdiction of the general officers has been extended over the International Ry. of New Brunswick and the New Brunswick and Prince Edward Island Ry., which have been purchased by the Government.

The International Ry. of New Brunswick is now part of district 2, I.R.C., under Evan Price, Superintendent, Campbellton, N.B.

The New Brunswick and Prince Edward Island Ry. is now part of district 3, I.R.C., under J. T. Hallisey, Superintendent, Truro, N.S.

CAMPBELL R. MacKENZIE has been appointed General Superintendents' Accountant, to inspect superintendents' accounting, advise and instruct their accountants as far as schedules are concerned, check up accounting, time keeping, etc., in the superintendents' accounting offices and bring about uniform work. Office, Moncton, N.B.

See also Intercolonial Ry., International Ry. of New Brunswick, New Brunswick and P.E.I. Ry.

Canadian Northern Ry.—S. McELROY, heretofore conductor, has been appointed Trainmaster, District 1, Central Division, vice J. C. O'Donnell, appointed Superintendent at Edmonton, Alta., as announced in our last issue. Office, Rainy River, Ont.

G. A. KEELER has been appointed Resident Manager, Prince Edward Hotel, Brandon, Man.

E. R. CUNNINGHAM has been appointed Passenger Agent, Prince Albert, Sask., vice J. H. Norton, promoted.

J. H. NORTON, heretofore Passenger Agent, Prince Albert, Sask., has been appointed City Ticket Agent, Calgary, Alta.

Canadian Pacific Ry.—C. POWERS, heretofore District Master Mechanic, District 3, Eastern Division, Montreal, has been appointed District Master Mechanic, District 1, Atlantic Division, vice D. L. Jones, transferred to Eastern Division. Office, Brownville Jct., Me.

J. H. DUFF, heretofore Assistant Superintendent, District 3, Eastern Division, Montreal, has been appointed Chief Dispatcher, Farnham, Que.

C. W. LOTT, heretofore Assistant Superintendent, Chapleau, Ont., has been appointed Assistant Superintendent, District 3, Eastern Division, vice J. H. Duff. Office, Montreal.

F. NOWELL, heretofore District Master Mechanic, District 2, Eastern Division, has been appointed District Master Mechanic, District 3, Eastern Division, vice C. Powers, transferred to Atlantic Division. Office, Montreal.

J. F. GILDEA, heretofore Locomotive Foreman, Hochelaga, Que., has been appointed District Master Mechanic, District 2, Eastern Division, vice F. Nowell, transferred. Office, Montreal.

W. H. PEARSON, heretofore General Foreman, Wood, Freight and Steel Car Shops, Montreal, has, on account of ill health, been relieved, and assigned to the position of Assistant General Foreman, Wood Freight Car Shop, vice P. A. Crysler, resigned.

M. D. BOMHOWER, heretofore Assistant General Foreman, Passenger Car Shops, Montreal, has been appointed General Foreman, Wood, Freight and Steel Car Shops, vice W. H. Pearson, relieved on account of ill health.

W. FORREST, heretofore Car Foreman, London, Ont., has been appointed Assistant

M.C.B. Inspector, Eastern Lines, Montreal.

W. C. MAYO, heretofore Locomotive Foreman, Port McNicoll, Ont., has been appointed Locomotive Foreman, Trenton, Ont. This is a new position.

JOHN TREGASKIS, heretofore Assistant Foreman, Lambton, Ont., has been appointed acting Locomotive Foreman, Trenton, Ont., vice W. C. Mayo, on leave of absence. He will also relieve C. Wheeler, Locomotive Foreman, Muskoka, Ont.

W. WALSH, heretofore wrecking foreman, Lambton, Ont., has been appointed Car Foreman, Trenton, Ont.

A. FROST, heretofore Roadmaster, Orangeville, Ont., has been appointed Roadmaster, West Toronto.

F. RONALDSON, heretofore Locomotive Foreman, Lambton, Ont., has been appointed acting District Master Mechanic, relieving District Master Mechanics in the division, who are on vacation.

J. BANNON, heretofore Car Foreman, Lambton, Ont., has been appointed Car



Frank Scott,
Vice President and Treasurer, Grand Trunk
Railway and Grand Trunk Pacific Railway.

Foreman, West Toronto, Ont., vice J. Cowley, transferred.

S. ILLINGSWORTH, heretofore Night Locomotive Foreman, has been appointed Locomotive Foreman, Lambton, Ont., vice F. Ronaldson, promoted.

G. MURPHY, heretofore Assistant Foreman, has been appointed Night Locomotive Foreman, Lambton, Ont., vice S. Illingsworth, promoted.

J. E. HUGHES, heretofore Car Foreman, North Bay, Ont., has been appointed Car Foreman, Lambton, Ont., vice J. Bannon, transferred.

C. T. RIDALLS, heretofore Car Foreman, McAdam Jct., N.B., has been appointed Car Foreman, London, Ont., vice W. Forrest, transferred to the Master Car Builder's staff at Montreal.

J. WRIGHT, heretofore Assistant Locomotive Foreman, Havelock, Ont., has been appointed Locomotive Foreman, Port McNicoll, Ont., vice W. C. Mayo, transferred.

J. GOODMAN, heretofore section foreman and extra gang foreman, Muskoka Subdivision, has been appointed Roadmaster, Orangeville, Ont., vice A. Frost, transferred.

H. H. THOMAS has been appointed Car Foreman, Schreiber, Ont., vice E. F. Mascoe, transferred.

W. SHEPHERD has been appointed Car Foreman, North Bay, Ont.

J. COWLEY, heretofore Car Foreman, West Toronto, Ont., has been appointed Car Foreman, North Bay, Ont., vice J. E. Hughes, transferred.

GERALD HIAM, heretofore Travelling Freight Agent, Toronto, has been appointed District Freight Agent, Fort William, Ont., vice Carl Morse, transferred, as reported in our last issue.

The Alberta Division has been divided into five districts, as follows:—

District 1, comprising Medicine Hat, Calgary, Empress, Bassano, Suffield, Langdon, Irricana and Gleichen Subdivisions. J. M. CAMERON, Superintendent, Medicine Hat.

District 2, comprising Lethbridge, including Dunmore Terminal, Crownsnest, Aldersyde, Macleod, Coutts, Cardston, Woolford and Foremost Subdivisions. F. WALKER, Superintendent, Lethbridge.

District 3, comprising Calgary Terminals, Laggan and Red Deer Subdivisions. P. F. WEISBROD, Superintendent, Calgary.

District 4, comprising Edmonton, including Red Deer Terminal, Hardisty, Lacombe, Coronation and Alberta Central Subdivisions. J. A. MacGREGOR, Superintendent, Edmonton.

District 5, comprising Cranbrook, including Crownsnest Terminal, Sirdar, Kingsgate, Kimberley, Waldo and Fort Steele Subdivisions. A. C. HARSHAW, Superintendent, Cranbrook, B.C.

A. F. HAWKINS, heretofore General Yardmaster, Fort William, Ont., has been appointed Trainmaster, District 1, Alberta Division, vice J. M. McArthur. Office, Medicine Hat.

W. J. MANLEY, heretofore Chief Dispatcher, Macleod, Alta., has been appointed Chief Dispatcher, Lethbridge, Alta.

E. B. SKEELS, heretofore Resident Engineer, Calgary, Alta., has been appointed Resident Engineer, Lethbridge, Alta.

W. McKINTY, heretofore Bridge and Building Master, Cranbrook, B.C., has been appointed Bridge and Building Master, Lethbridge, Alta.

E. J. LEMIEUX, heretofore Roadmaster, Medicine Hat, Alta., has been appointed District Master Mechanic, Lethbridge, Alta.

W. J. RENNIX, heretofore District Master Mechanic, Cranbrook, B.C., has been appointed District Master Mechanic, Calgary, Alta., vice G. Glasford, transferred.

J. M. MacARTHUR, heretofore Trainmaster, Medicine Hat, Alta., has been appointed Terminal Trainmaster, Calgary, Alta., vice A. N. Hobkirk, on leave of absence.

C. E. MANSFIELD has been appointed Chief Dispatcher, Calgary, Alta.

W. S. HALL, heretofore Yardmaster, Cranbrook, B.C., has been appointed Trainmaster, District 4, Alberta Division. Office, Red Deer.

A. J. IRONSIDES, heretofore District Master Mechanic, Saskatoon, Sask., has been appointed District Master Mechanic, District 4, Alberta Division. Office, Edmonton.

H. MARSHALL, heretofore Bridge and Building Master, Saskatoon, Sask., has been appointed Bridge and Building Master, District 4, Alberta Division. Office, Edmonton.

C. W. FISHER, heretofore Trainmaster, Edmonton, Alta., has been appointed Chief Dispatcher, District 4, Alberta Division. Office, Edmonton.

C. FLINT has been appointed Resident

Engineer, District 4, Alberta Division. Office, Edmonton.

T. J. BROWN, heretofore Resident Engineer, Cranbrook, B.C., has been appointed Resident Engineer and Bridge and Building Master there, vice W. McKinty, Bridge and Building Master, transferred.

G. GLASFORD, heretofore District Master Mechanic, Calgary, Alta., has been appointed District Master Mechanic, Cranbrook, B.C., vice W. J. Rennix, transferred.

W. E. CLINE has been appointed Chief Dispatcher, Cranbrook, B.C.

NELSON FLEMING, heretofore Travelling Freight Agent, Portland, Ore., has been appointed District Freight Agent, Tacoma, Wash., vice O. H. Becker, transferred.

O. H. BECKER, heretofore District Freight Agent, Tacoma, Wash., has been appointed District Freight Agent, Portland, Ore., vice E. L. Cardle, resigned.

Grand Trunk Pacific Ry. — FRANK SCOTT, Vice President and Treasurer, G. T.R., has also been appointed Vice President and Treasurer, G.T.P.R. Office, Montreal.

W. H. ARDLEY, Comptroller, G.T.R., has also been appointed Comptroller, G.T.P.R. Office, Montreal.

JAMES A. YATES has been appointed Assistant Treasurer. Office, Montreal.

G. R. MARTIN has been appointed Assistant Auditor of Disbursements. Office, Montreal.

JOSEPH BILLINGHAM, formerly Superintendent of Works, American Locomotive Co., Schenectady, N.Y., has been appointed Superintendent of Motive Power, G.T.P.R. vice G. W. Robb, resigned. Office, Transcona, Man.

A. J. ROBERTS, heretofore Locomotive Foreman, Edson, Alta., has been appointed Locomotive Foreman, Transcona, Man., vice A. J. Bell, resigned.

D. B. MULLIGAN has been appointed General Superintendent of the company's hotels, vice F. W. Bergman, resigned. The hotels include the Fort Garry, at Winnipeg, which is operation, and the Macdonald, at Edmonton, and the Qu'Appelle, at Regina, which are approaching completion. Office, Winnipeg.

The following station agents have been appointed:—Loverna, Sask., R. W. Stockdale; Zelma, Sask., C. W. Collicutt; Coalspur, Alta., J. O'Leary.

Grand Trunk Ry.—Owing to the death of M. M. REYNOLDS, Vice President, in charge of Finance and Accounting, that position has been abolished.

FRANK SCOTT, heretofore Treasurer, has been appointed Vice President and Treasurer, in charge of all finance of the company, reporting to the President. Office, Montreal.

W. H. ARDLEY, heretofore General Auditor, has been appointed Comptroller in charge of all accounting of the company, reporting to the President. Office, Montreal.

W. C. TOMKINS, heretofore secretary to Vice President (Finance), has been appointed Assistant to Vice President and Treasurer. Office, Montreal.

JAMES A. YATES has been appointed Assistant Treasurer. Office, Montreal.

G. R. MARTIN has been appointed Assistant Auditor of Disbursements. Office, Montreal.

E. R. BATTLE, heretofore Locomotive Foreman, Fort Erie, Ont., has been appointed General Foreman, supervising Motive Power Department work at Portland Terminals, Me., vice Jas. Gibson, resigned, as reported in our last issue. The position of Assistant Master Mechanic there has been abolished.

D. ROSS, heretofore Locomotive Foreman, Coteau, Que., has been appointed Locomotive Foreman, Southwark Terminals,

Montreal, vice G. W. Clark, assigned to other duties.

F. W. WARREN has been appointed Locomotive Foreman, Coteau, Que., vice D. Ross, assigned to other duties.

J. B. DUNLOP has been appointed Locomotive Foreman, Fort Erie, Ont., vice E. R. BATTLE, promoted, as reported in our last issue.

J. E. D'ALTON, heretofore Soliciting Freight Agent, New York, has been appointed Travelling Freight Agent there, vice H. H. Hammell.

The following station agents have been appointed:—St. Agapit, Que., J. A. Provencher; Millbrook Jct., Ont., W. T. Byam; Stoney Point, Ont., R. Wilkinson; Humberstone, Ont., R. A. Starling; Norwich, Ont., H. C. Elder; Tara, Ont., C. Dopfer; Shallow Lake, Ont., L. K. Fox; outside agencies:—Perth, Ont., H. C. Stone; Smiths Falls, Ont., J. E. Burns.

Intercolonial Ry.—J. C. FULMORE, heretofore Roadmaster, Point Tupper to Sydney, Sydney, N.S., has been appointed Roadmaster, Truro, N.S., to Painsec Jct., N.B., vice G. Cooper, who returns to the position of section foreman at Shediac, N.B. Headquarters, Truro, N.S.

JAMES BURY, heretofore Roadmaster, International Ry. of New Brunswick, Camp-

bellton, N.B., has been appointed Roadmaster, International Branch, District 2, I.R.C., between Campbellton and St. Leonards. Office, Campbellton, N.B.

International Railway of New Brunswick.—The Canadian Government Railways, having taken over this line, the jurisdiction of the general officials of the C.G. Rys. has been extended over it. The positions heretofore held by E. H. Anderson, Manager and Purchasing Agent; A. A. Andrew, Traffic Manager; C. C. Johnson, Mechanical Superintendent; G. McRae, Storekeeper, Campbellton, and B. H. Humphrey, Freight and Passenger Agent, St. John, have been abolished. James Bury, Roadmaster, Campbellton, has been retained in the Intercolonial Ry. service, in charge of the International Branch, as the International Ry. is now called. It is under the jurisdiction of E. Price, Superintendent, District 2, I.R.C.

New Brunswick and Prince Edward Island Ry.—The Canadian Government Railways, having taken over this line, its officers will report to the C.G.R. general officers at Moncton, N.B.

F. C. HARRIS, heretofore Manager and Treasurer, Sackville, N.B., is acting as agent, reporting to J. T. Hallisey, Truro, N.S., Superintendent, District 3, I.R.C., to which the N.B. and P.E.I. has been attached.

(See also Canadian Government Railways.)

Northern Pacific Ry.—D. C. PETTIBONE has been appointed General Baggage Agent. Office, St. Paul, Minn.

Oregon-Washington Rd. and Navigation Co.—J. H. CUNNINGHAM has been appointed Travelling Freight and Passenger Agent, Vancouver, B.C., vice A. E. D. Stewart, reporting to the Assistant Traffic Manager, Seattle, Wash.

Union Stock Yards, Ltd.—A. M. LAMBERT has been appointed Secretary-Treasurer, vice W. Sanford Evans, resigned, owing to press of other business.

Motor Omnibus Matters.

The Vancouver, B. C., and the Hamilton, Ont., city councils have under consideration propositions for the operation of motor bus services.

Bodies for a number of motor driven vehicles to be operated in Edmonton, Alberta, have been built by the Preston Car and Coach Co. They have a capacity of 26 passengers each. The same company is



Motor Omnibus for Service in Edmonton, Alta.

also building a number of bodies for Robins, Ltd., Toronto.

The Stratford, Ont., City Council has authorized the running of a motor bus service in the city. It is proposed to adopt the p.a.y.e. type of sightseeing cars for the service. A service has already been put in operation with another type of car by N. R. Thompson.

The Toronto City Council proposes to ask the ratepayers to vote on a by-law providing \$150,000 for the purchase and equipment of motor vehicles for transporting passengers in the city. The vote will not be taken until Jan. 1. A motion authorizing the council to hire a number of motor busses to experiment with prior to the going into the business definitely, was rejected.

The Winnipeg Works and Property Committee which was considering a proposed bylaw to grant a motor bus franchise in the city, threw out the section giving an exclusive franchise, and the company's representatives withdrew. At a subsequent meeting, Aug. 15, the committee decided by five to three to recommend the adoption of the exclusive clause in the proposed franchise. A. J. Andrews, K.C., represented the company, which is a British one.

Electric Railway Department

Judgment in the Vancouver Bridges Case.

As stated in our August issue, the Judicial Committee of the Privy Council gave judgment June 26 in the case of the British Columbia Electric Ry. vs. the Vancouver, Victoria & Eastern Ry. and Navigation Co. et al. As the judgment, which was delivered by Lord Sumner, is of great importance to electric railway companies generally it is given in full as follows:—

The appellant, the B. C. Electric Ry. Co. (referred to herein as the "Tramway Company"), is a company operating street railways in the City of Vancouver under powers conferred upon it by an act of the British Columbia Legislature. Its railways are local street railways wholly situated within the province of British Columbia, and have not been declared to be for the general advantage of Canada or for the advantages of two or more provinces, so that they have not passed into the domain of legislation of the Dominion Parliament.

The respondent, the Vancouver, Victoria and Eastern Ry. and Navigation Co. (referred to herein as the "Railway Company"), is a company owning and operating a railway which has been declared to be a work for the general advantage of Canada. It is therefore under Dominion legislation. Its tracks run through the City of Vancouver, of which the other respondent (hereinafter referred to as the "Corporation") is the municipal authority.

The litigation out of which the present appeal arises relates to a portion of the track of the railway which runs along the bottom of a valley with somewhat deep sides, the general direction of which is north and south. That valley is included within the limits of the City of Vancouver, and streets run across and along it, but owing to the inequality of the levels there has been but little building along those streets. One street, Raymur Ave., runs along the valley parallel to the railway track and near to it. Four streets, whose direction is east and west, cross Raymur Ave. and the railway track at right angles. These streets are Hastings, Pender, Keefer, and Harris. Tracks of the tramway company pass along Hastings and Harris Streets, and cross the tracks of the railway company by level crossings.

For some time prior to July, 1912, the corporation had under consideration a plan for carrying the four streets above referred to across the railway track on viaducts, so as to avoid the gradients due to the low level of the railway track. Owing to its not having decided whether or not it should adopt this plan, it had been unable to grant any of the numerous applications which had been made to it for building permits along those streets, inasmuch as the grades of the streets could not be determined. Early in 1912, however, it passed a bylaw authorizing the construction of these four viaducts. Such a bylaw required the assent of the citizens to give it validity, and on being put to the vote it failed to obtain the requisite support, on account of the great expense that the construction of the viaducts would entail on the corporation.

Under these circumstances the corporation proceeded to apply to the Board of Railway Commissioners for an order authorizing the construction of the viaducts and declaring the respective proportions in

which the cost of the bridges, etc., should be borne by the railway company and the corporation. Originally no notice of this application was served upon the tramway company. But at the hearing of the application it was pointed out that inasmuch as the proposed constructions would affect the crossings of the tramway company it ought to be served with a copy of the application. Counsel representing the tramway company were present in the court at the time and consented to accept service so that the hearing was continued without interruption. But although the tramway company were thus a party, its counsel took no part in the discussion, except to oppose the contention put forward by counsel on behalf of the railway company, that the tramway should bear a part of the cost

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 Dube, 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.

of the construction of the viaducts and the street improvements connected therewith.

At the conclusion of the hearing the Board of Railway Commissioners indicated that they would grant the application of the corporation and apportion the cost of the works among the railway company, the corporation and the tramway company, and on Oct. 14, 1912, they accordingly made an order, the operative part of which is as follows:—

"1. The applicant is hereby authorized to construct Hastings, Pender, Keefer and Harris streets across the Vancouver, Victoria and Eastern Ry. and Navigation Co.'s tracks, in the City of Vancouver, by means of overhead bridges, as shown on the plan filed with the Board, detail plans of the structures to be submitted for the approval of the Chief Engineer of the Board.

"2. Twenty per cent. of the cost of the actual construction work at each of the crossings on Pender and Keefer streets, not to exceed in each case \$5,000, shall be paid out of the railway grade crossing fund; 25% of the remainder of the cost of such work shall be borne and paid by the applicant, and 75% by the Vancouver, Vic-

toria and Eastern Ry. and Navigation Co. Twenty per cent. of the cost of constructing Harris St. bridge, not to exceed \$5,000, shall be paid out of the railway grade crossing fund; 20% of the remainder of such cost to be paid by the applicant; 20% by the B.C. Electric Ry. Co., and 60% by the Vancouver, Victoria and Eastern Ry. and Navigation Co. Twenty per cent. of the cost of constructing the Hastings street bridge shall be paid by the applicant; 20% by the British Columbia Electric Ry. Co., and 60% by the Vancouver, Victoria and Eastern Ry. and Navigation Co.

"3. The cost of depressing the tracks of the Vancouver, Victoria and Eastern Ry. and Navigation Co. shall be included in the cost of the work.

"4. The cost of maintaining the Keefer, Pender, Harris and Hastings street bridges shall be borne and paid: 50% by the applicant, and 50% by the Vancouver, Victoria and Eastern Ry. and Navigation Co.

"5. In case of dispute between the parties in carrying out the terms of this order, the same shall be settled by the Chief Engineer of the Board."

The tramway company thereupon applied to the Supreme Court of Canada for leave to appeal to that court from the above order in so far as the order directed that the tramway company should pay a portion of the cost of construction of the Harris and Hastings street bridge, and obtained permission so to appeal on the ground that the Board of Railway Commissioners had no jurisdiction to order the tramway company to pay any proportion of the costs of the bridges and other works mentioned in the order. The appeal came on before the Supreme Court of Canada on April 7, 1913, and was dismissed with costs by a majority of the judges of that Court, Duff and Brodeur, J.J., dissenting. The order dismissing the appeal is dated May 6, 1911, and it is from this order that the present appeal is brought.

Their Lordships entirely agree with the remarks of Duff, J., as to the ground and reason of the application of the corporation to the Board of Railway Commissioners. Referring to the statement made at the hearing by Mr. Baxter, who represented the corporation, he says:—"Mr. Baxter's statement makes it quite clear that the occasion for the application arose from the necessity of determining the permanent grade of these four streets. It was a question," he said, "whether on the one hand the grade was to be elevated, or on the other, the grade was to be made to conform to the grade of the railway tracks and level crossings established. It was necessary to have the matter disposed of because people were applying for permits to build upon these streets, and these could not be granted owing to the inability of the municipality to give the grade of the streets. The council preferred the former of the two alternative courses because they recognized that the street grades were too low and must inevitably be raised."

It follows, therefore, that the application was a matter between the corporation and the railway company alone. The tramway company was entitled to be present to see that its interests were not prejudiced by any order which might affect injuriously property belonging to it. But the application was not made against it, nor was it

Montreal Tramways Company Annual Report.

asking any privilege from the Board of Railway Commissioners, so that its presence did not give to the Board any jurisdiction to make this order against it. If the Board possessed any such jurisdiction it must be derived from the provisions of the statutes which created it and gave to it its powers. Their Lordships can find nothing in those statutes which empowers the Board to make any such order against the tramway company. The only portion of the tramway lines which was subjected to the jurisdiction of the Board was the actual crossings, and those only so far as concern secs. 227 and 229 of the Railway Act, and these sections have nothing whatever to do with such matters as these streets improvements. So far as concerns the cost of the bridges or the cost of lowering the track of the railway company (which by the order was included in the cost of the viaducts), the tramway company was in precisely the same position as any private citizen of the City of Vancouver. It is evident from the reasons given by the Board of Railway Commissioners that they directed the tramway company to pay a proportion of the cost of the improvements because they were of opinion that the tramway company would benefit by them. They say:—"It being a substantial benefit to them we are of opinion that they should contribute to the cost of the two bridges they will use. That is, the bridges at Hastings and at Harris."

The same language might have been used about a private citizen owning some large shop on one of the streets, or owning premises on either side of the valley, who would profit by the connection being on the level instead of by two steep and opposite grades, and such a private individual would be just as much under the jurisdiction of the Board as was the tramway company. The fundamental error underlying the decision of the Board is that they have considered that the fact that the tramway company would be benefited by the works gave them jurisdiction to make it pay the cost or a portion of it. There is nothing in the Railway Act which gives any such jurisdiction.

An attempt was made to treat the order of the Board as being made under the powers of sec. 59 of the Railway Act, and it was contended that such section entitled the Board to require that the tramway company should pay a portion of the expense. It is sufficient to point out that the order is not made under sec. 59, nor does it come within its provisions. It does not direct that any work should be done. It is an order of a purely permissive character, granting a privilege to the corporation which it may exercise at the expense of a third party, and it leaves it to the corporation to decide whether it shall avail itself of it or not. The provisions of sec. 59 relate to a wholly different class of cases.

It is not necessary for their Lordships to deal with any of the other weighty reasons given in the judgment of Duff, J. On the grounds above stated they are of opinion that the order so far as it directed the appellants to pay a portion of the costs was made without jurisdiction, and they will humbly advise His Majesty that the appeal should be allowed with costs, and that the order of the Supreme Court should be set aside, and that in lieu thereof an order should be made, with costs, allowing the appeal to the Supreme Court of the present appellants, and setting aside the order dated Oct. 14, 1912, of the Board of Railway Commissioners, in so far as the said order directs that the B.C. Electric Railway Co. shall pay a certain proportion, as provided in the said order, of the cost of the construction of the Harris and Hastings street bridges referred to.

The following report for the year ended June 30, was presented at the annual meeting, Aug. 4:—

Your directors beg to submit their third annual report, accompanied by the financial statements, which show the following results:—

| | |
|---|-----------------------|
| Gross Earnings | \$7,142,804.19 |
| Operating Expenses | 4,206,114.57 |
| Net earnings | \$2,936,689.62 |
| From which deduct:— | |
| City percentage on earnings | \$527,383.98 |
| Interest bonds and loans | 787,768.83 |
| Interest debenture stock | 800,000.00 |
| Taxes | 84,700.00 |
| | \$2,199,852.81 |
| Net income | \$ 736,836.81 |
| Dividends | 242,056.00 |
| Surplus | \$ 494,780.81 |
| Less:— | |
| Balance of discount on bonds sold | \$ 82,236.83 |
| Transferred to contingent renewal account | 275,000.00 |
| | \$ 357,236.83 |
| Transferred to general surplus | \$ 137,543.98 |

The gross earnings have increased during the year \$388,576.82 or 5.75%, the operating expenses \$173,450.00 or 4.30%, and the net earnings \$215,126.82 or 7.90%. The ratio of operating expenses to earnings is 58.89%, compared with 59.71% last year, which is considered satisfactory. \$417,124.99 has been charged to contingent renewal account during the year representing expenditures made for special renewals. \$829,706.18 has been expended on the maintenance of properties, plant and equipment, and charged to operating expenses. This amount, together with \$417,124.99 charged to renewal account, makes a total expenditure of \$1,246,831.17 during the year on the upkeep of the properties. This is equal to 17.46% of the gross earnings. During the year there has been expended on capital account for additional rolling stock, extensions and improvements to the property, \$2,711,572.19. During the year there has been redeemed and cancelled \$313,893.27 of the underlying bonds of the company. The amount of underlying bonds redeemed to date is \$838,606.59.

Large additions have been made to rolling stock during the past year. A new type of motor car and trailer has been introduced which has very materially helped the service on St. Catherine St., its main line, and the company is now considering the advisability of building more cars of this type as requirements may warrant. The increased rolling stock and extensions made have necessitated further extensions of power requirements, which has also been materially increased during the past year. The company has also completed a large portion of the rebuilding of its track, which it is proposed to continue as fast as possible. Owing to the rapid growth of the city, for some time past the city has been requesting the company to make numerous extensions of its service in outlying wards not covered by the contract between the city and the company, and negotiations are now pending for a readjustment of the existing contract, and it is hoped that a satisfactory agreement will be completed which will provide the company with the proper facilities to meet the constant demand necessitated by the rapid growth of Greater Montreal.

In conclusion, your directors desire to place on record their appreciation of the valuable and faithful services rendered by officers and employes of the company.

STATISTICS.

| | |
|------------------------------|-------------|
| Expenses % of earnings | 58.89 |
| Passengers carried | 168,472,952 |

| | |
|--|-------------|
| Car earnings per passenger | 4.11 |
| Transfers | 58,120,066 |
| Total passengers carried | 226,593,018 |
| Car earnings per passenger total carried | 3.05 |

ASSETS.

| | |
|--|------------------------|
| Cost of road and equipment to June 30, 1913. | \$33,889,816.68 |
| New construction for the year | 2,711,572.19 |
| | \$36,601,388.87 |
| Accounts receivable .. | 346,985.92 |
| Stores | 554,940.14 |
| Cash:— | |
| In bank and on hand ... | \$216,869.02 |
| Underlying securities redemption fund | 308,434.76 |
| | \$525,303.78 |
| Investments | \$ 366,262.50 |
| | \$38,394,881.21 |

LIABILITIES.

| | |
|--|------------------------|
| Capital stock (common) subscribed \$3,000,000.00 | |
| Less unpaid and subject to call | \$ 2,548,580.00 |
| Debenture stock | * 16,000,000.00 |
| First and refunding mortgage | |
| 5% gold bonds due July 1, 1941 | 13,335,000.00 |
| Underlying bonds:— | |
| 4 1/2% due Aug., 1922 | 681,333.33 |
| 4 1/2% due May, 1922 | 1,500,000.00 |
| 4 1/2% due May, 1922 | 2,238,666.67 |
| | 4,420,000.00 |
| Less redeemed and cancelled to date | 838,606.59 |
| | 3,581,393.41 |
| Mortgages | 26,863.00 |
| | \$35,491,836.41 |
| Accounts and wages payable .. | 623,604.34 |
| Accrued interest .. | 234,352.00 |
| Accrued tax on earnings .. | 396,402.39 |
| Employes' securities .. | 24,907.28 |
| Unclaimed dividends .. | 1,956.57 |
| Unredeemed tickets .. | 157,476.34 |
| Suspense .. | 143,801.02 |
| Dividend payable Aug. 1.... | 63,739.00 |
| | 1,646,238.94 |
| Capital reserve ... | 600,000.00 |
| Contingent renewal reserve .. | 117,631.01 |
| Surplus .. | 539,174.85 |
| | 1,256,805.86 |
| | \$38,394,881.21 |

*This includes the amount due on shares not yet exchanged.

The proceeding were of a purely formal character, the President, E. A. Robert, stating that the company was in good shape to take advantage of all improvements in transportation that might eventuate. A. Stewart was elected auditor for the current year, and \$23,000 was appropriated for directors' services, a similar amount to that voted in the previous year.

Following are the officers and directors for the current year:—President, E. A. Robert; Vice Presidents, J. W. McConnell and F. H. Wilson; other directors,—Hon. J. M. Wilson, J. M. McIntyre, P. J. McIntosh, W. C. Finley, G. G. Foster and W. G. Ross.

Answers to Questions on Electric Railway Topics.

Following are a few questions on electric railway topics, sent to the American Electric Railway Association's question box, recently, with replies thereto by W. F. Graves, Chief Engineer, Montreal Tramways Co.:—

Minimum Radius Curves. What should be the minimum radius curve to take care of modern railway equipment? The question as it stands is so indefinite that it is rather difficult to answer. Cars with a $4\frac{1}{2}$ ft. wheel base, 20 ft. truck centres, operate readily around curves of 35 ft. radius, and can be operated, by widening throats, around curves of 30 ft. radius.

The Use of Sharp Pointed Spikes. Assuming that a spike with a sharp point is 13% more efficient in holding power than an ordinary chisel edge spike, and costs 15% more than the chisel edge spike, is it good practice to use the sharp point spike? The tendency of a sharp point on a track spike would be to split the tie, particularly in the hard close grained woods. I question very seriously the 13% greater efficiency of the pointed spike over the chiselled point.

Work Inspection. In first class track construction should there be inspection of work during execution by others outside of the supervising force in actual charge of the construction? I believe that engineering inspection of track construction outside of department supervision is a very good thing, particularly in view of the large amount of money expended per mile of track in first class track construction. Care should be taken however to make sure that outside inspectors work in perfect harmony and accord with the department heads. Otherwise friction results which is much to the detriment of the construction itself.

Inspection Records of Bridges and Buildings. Should there be a monthly inspection record of buildings and bridges? By all means, a monthly inspection record of bridges and buildings should be on file in the department files. It is our practice to have the Superintendent of Bridges and Buildings make a personal inspection once each month, occasionally accompanied on these inspections by the Assistant Chief Engineer, and decisions have in a number of instances been made on the ground, as to construction and repair work of the department. These inspections are joint inspections and are matters of record.

Automobiles Passing Standing Electric Cars.

Canadian Railway and Marine World for August contained, on page 387, particulars of cases tried at Ingersoll, Ont., July 18, in which charges against two automobile drivers for passing an electric car when it was standing at Beachville were dismissed by the magistrate on the ground that the Motor Vehicles Act (Ontario), 1913, chap. 52, sec. 4, only applies to electric railways in a city or town, or not more than a mile and a half beyond the limits thereof. The following comments on the case are reproduced from the Woodstock Sentinel Review:—

"The Ingersoll magistrate has decided that a street car is not a street car, within the meaning of the law, when it reaches Beachville though it is a street car within the meaning of the law in Woodstock or Ingersoll. According to the law, it is an offence to drive a motor vehicle past a street car standing to take on or discharge

passengers. Cars running between Woodstock and Ingersoll cross at Beachville, and frequently a car is held there for several minutes awaiting the arrival of another. The Beachville constable summoned some automobile drivers for driving past while trolley cars were standing on the track at the village. For the defence the point was raised that the trolley car was not a street car in a village; that it was a street car only when it was running on the street of a town or city, or a mile and a half beyond the limits of the town or city, as defined by the Railway Act. The magistrate held that the point was well taken and dismissed the cases.

"The incident shows that there is need for some amendment or addition to the law to make it more serviceable and more readily understood. The point at Beachville where the cars cross is a danger point. A good many passengers are received and discharged there, right on the open highway. There ought to be some protection for them. On the other hand, it would be absurd to hold up an automobile all the time a trolley car may be standing at Beachville awaiting the arrival of another car. There ought to be some check on reckless driving which would not, at the same time, be an unnecessary hardship to responsible drivers. The incident serves the purpose of drawing attention to the fact that there is a law which makes it an offence to drive an automobile past a street car which is standing to take on or discharge passengers. Presumably this law is enforceable in Woodstock and, according to the decision of the Ingersoll police magistrate, a mile and a half beyond the city limits. Certainly it has not been enforced. Is it necessary to wait until an accident occurs?"

Electrification of the London and Port Stanley Railway.

The work of renovating this line, preparatory to its electrification by The London Railway Commission, is progressing rapidly, a good portion being completed. The whole line is being reballasted by the Pere Marquette Rd., which is still operating it. The steel on the main line, with the exception of around the switches at the terminals, has been renewed with 80 lb. rails, Canadian Northern Section, and the ties are being replaced with new untreated cedar ties. The following contracts were made: Algoma Steel Co., 3,000 tons of rails and angle bars, 30,000 tie plates; J. J. Gartshore, 380,000 spikes; Canadian Ramapo Iron Works, 52 sets of switches and frogs; Steel Co. of Canada, 34,000 track bolts and 65,000 tie plates; and Canadian Concrete Products Co., 1,100 ft. of concrete piping of various sizes. The inspection of most of the material was made by R. W. Hunt and Co.

Specifications are nearing completion for the electrification of the line, including substations, overhead construction, bonding, cars and locomotives. Terminal plans are also being considered. The engineering work is all being handled by the engineering staff of the Hydro Electric Power Commission of Ontario, F.A. Gaby, Chief Engineer.

The electro-pneumatic signal, whether installed with low voltage battery current or high voltage line current, is instantaneous in its action, reliable, and can be depended on to transmit signals correctly and distinctly, eliminating entirely the elapsed time between the pulling of the cord and the signal reaching the engineman, no matter how fast the cord is pulled, or how short an interval is allowed between the blasts.

Moose Jaw Electric Railway Company's Annual Report.

Following are extracts from the third annual report for the calendar year 1913, issued over the signatures of A. A. Dion, President, and D. R. Street, Secretary-Treasurer, both of Ottawa:—

The revenues from all sources aggregate \$136,300.48. The expenses of management, operation and maintenance, together with bank interest, amount to \$96,906.11, leaving a surplus of revenue over expenditure of \$39,394.37. During the year \$150,221.14 was expended on capital account, which includes the completion of car barns, the purchase of 10 new cars, the addition of a generating unit, consisting of a 500 h.p. Diesel engine with generator, also the extension of the line north through Lynbrooke and Boulevard Heights.

The balance at credit of profit and loss account, after the addition of this year's surplus, was \$54,753.96, from which your directors have paid quarterly dividends at the rate of 6% per annum, aggregating \$35,842.35, leaving \$18,911.61 at the credit of this account. The traffic increases have not been quite up to expectations, Moose Jaw, like other cities throughout Canada, having been seriously affected by the financial stringency. Your directors, however, consider the results satisfactory, in view of the fact that during the past year municipal street railway undertakings generally throughout the west have been operated at a loss, but it is confidently felt that an improvement of financial conditions, which is expected with the next crop, will be reflected advantageously upon the company's earnings.

At the close of last year an offering of \$50,000 of new stock was made to the shareholders. The fact that this was largely over subscribed proved the confidence that the shareholders have in the future of this undertaking.

The average number of cars in use during 1913 was 11.26, against 7.45 in 1912. The lowest monthly average in 1913 was 9 in March, April and May, and the highest monthly average was 14.2 in August.

The average earnings per car mile in 1913 were 21.79c. The total number of passengers carried in 1913 was 2,440,190, against 1,619,805 in 1912.

ASSETS.

| | |
|--|--------------|
| Cash on hand | \$ 3,334.91 |
| Property, plant and equipment | 720,349.47 |
| Expenditure, including insurance, etc., paid on account of period beyond Dec. 31, 1913 | 7,364.05 |
| Accounts receivable | 752.72 |
| | <hr/> |
| | \$731,801.15 |

LIABILITIES.

| | |
|---------------------------|--------------|
| Bills payable | \$ 42,000.00 |
| Accounts payable | 19,879.20 |
| | <hr/> |
| To the public | \$ 61,879.20 |
| Capital paid in | 640,845.00 |
| Profit and loss | 13,921.61 |
| Dividends unpaid | 10,765.34 |
| | <hr/> |
| To the shareholders | \$669,921.95 |
| | <hr/> |
| | \$731,801.15 |

The directors are A. A. Dion, President; N. J. Ker, Vice President; D. R. Street, Secretary-Treasurer; A. H. Dion, General Superintendent; C. E. Armstrong, E. J. Daly, P. B. Mellon, D. O'Connor, T. F. Ahearn.

Ontario West Shore Railway.—We are officially advised that no tender was received by the Trustee up to August 15 for the purchase of this uncompleted road.

During June, only one death was reported of an employe on electric railways in the Dominion. It was that of an employe of the incline railway at Hamilton, Ont., who was struck by a falling cross tie.

Electric Railway Projects, Construction, Betterments, Etc.

Berlin and Northern Ry.—We are officially advised that the line now being operated extends from Berlin to Bridgeport, and that it is being extended northerly from Bridgeport to Bloomingdale, Ont. It is owned and operated by a private company, W. H. Breithaupt, Berlin, being President. The company runs two cars on the line, and secures power from the city of Berlin. (Aug., pg. 385.)

British Columbia Electric Ry.—Construction is being proceeded with rapidly on the new car barns at Fourteenth Ave. and Main St., Vancouver.

Application has been made to the company to extend its lines on Fifty-Fifth Ave. between Victor and Kerr Roads, Vancouver.

A contract is reported let to M. J. Coughlan and Sons for the erection of a steel bridge across False Creek at Kitsilano, on the Eburn line, to replace the present wooden trestle.

It is said that the basis of an agreement was reached Aug. 13, between the company and the Vancouver City Council on the bridge question. In consequence of this it is reported that the improvements and extensions on the Hastings St. East, and Nanaimo St. lines will be gone on with at once.

Various questions have been raised between the city of Vancouver and the company as to the use of bridges. It was recently found that the company was not paying rental for the right to cross certain bridges, and pending the settlement of the matter, the company has decided not to do anything in the way of track extensions arranged for. In some cases the city proposes to charge up to \$10,000 a year for the use of a bridge, while the company contends it should not pay more than the interest on the cost of the tracks. A number of meetings have been held, but nothing like a decision has yet been reached. (Aug., pg. 385.)

Edmonton Interurban Ry.—Press reports state that the line between Edmonton and St. Albert, Alberta, is being electrified, that power for its operation will be supplied by the City of Edmonton, and that operation will be resumed Oct. 1. W. T. Woodroffe, formerly Superintendent, Edmonton Radial Ry., is reported to be in charge of the work. (July, pg. 335.)

Fort William Electric Ry.—It is reported that there are only two small gaps to complete the connections of the new lines with the rest of the system. Altogether about five miles of new track have been laid this year. (Aug., pg. 385.)

Hamilton St. Ry.—The extension along Main St., in Barton Tp., just outside the city limits of Hamilton, is reported completed. The connecting link along Kenilworth Ave., in the city, is nearly completed. (Aug., pg. 385.)

Hull Electric Co.—Press reports state that some improvements are about to be made on the company's lines, although it is not at all likely that a second track will be built on the Chelsea Road line this year. This is a revival of the reports officially contradicted earlier in the year. (May, pg. 231.)

Since the foregoing was written, we have been officially advised that the company proposes constructing a Y at the terminus of the Chelsea Road line, to permit of the operation of single end cars. A second track will not be built on the Chelsea Road this year.

Hydro Electric Power Commission of Ontario Projected Railway.—The first of a

series of bylaws for raising funds to build the proposed electric railway from Toronto to Markham, Port Perry and other points, under the scheme originated by the Hydro-Electric Power Commission of Ontario, will be submitted to the ratepayers of Scarborough township, Sept. 21. Meetings in furtherance of the projected line are being held at various centres in the district to be served, the speakers including Hon. Sir Adam Beck, Chairman of the Commission. (July, pg. 337.)

London and Lake Erie Ry. and Transportation Co.—W. N. Warburton, General Manager, is reported to have stated in Stratford, Ont., Aug. 4, that the company had in view a number of extensions of its line, one being from London to Stratford, and that the company did not propose to ask for a franchise for city lines, but simply an entrance for a radial line, with a terminus at the G. T. R. station. (June, pg. 283.)

Medicine Hat, Alberta.—We are officially advised that the Montreal Engineering Co., having failed to carry out its agreement for the building of an electric railway in the city, it will in all probability fall through, and the company will be called upon to compensate the city for its failure to comply with the terms of the agreement. An extension of time for carrying out the agreement was granted the company, but proceedings were taken against the Council to have the extension set aside, on the ground that it could not be valid without a bylaw having been passed by the ratepayers. The action was finally defeated on technical grounds.

We are also advised that the city council is negotiating with an Ottawa syndicate respecting the building of an electric railway under practically the same agreement as that made with the Montreal Engineering Co., and that a bylaw granting a franchise will be submitted to the ratepayers at an early date. (July, pg. 335.)

Montreal and Southern Counties Ry.—E. J. Chamberlin, President G. T. R., which controls the M. and S. C. Ry., completed a trip of inspection recently over the line, which is in operation to St. Cesaire, and under construction to Granby, Que. He is reported to have said that work is progressing satisfactorily and that everything is being got ready for the opening of the extension.

The bridge across the Yamaska River at St. Cesaire has been completed. It consists of three spans of 80 ft. each, resting on two concrete piers and two abutments, built on 40 ft. piles. Ross and McCombe were the contractors for the substructure, which necessitated the placing of 2,000 cu. yds. of concrete, and 1,000 cu. yds. of rip rap. Some trestle approach has yet to be completed before cars will be run across the bridge.

Press reports state that a contract for the final section of the line into Granby will be let at an early date. (Aug., pg. 385.)

Morrisburg and Ottawa Electric Ry.—We are officially advised that three tenders were submitted for the building and equipment of this projected electric railway, from Ottawa to Morrisburg, Ont., 55 miles, of which one by a New York construction company is under consideration. The company offers to build the line provided the various municipalities through which it would pass are prepared to guarantee about one sixth of the bond issue, which with the company's stock, would be handed over to the construction company in payment for building and equipping the line. The M. and O. E. Ry.

will have bylaws providing for this guarantee submitted to the ratepayers of the different municipalities, at an early date. The company owns about 300 acres of gravel, averaging about 35 ft. in depth, close to the route of the line, and about 25 miles from Ottawa, which will be valuable for ballasting purposes. President, J. G. Kilt; Secretary, R. A. Bishop; Chief Engineer, L. Von Sydow; offices, Union Bank Building, Ottawa.

The company is reported to have offered the Ontario Government 40 or 50 ft. of its right of way between Ottawa and Morrisburg, on condition that a provincial road is built alongside the tracks.

The Morrisburg Town Council has been asked to give a guarantee on \$25,000 of bonds, and is considering the proposition. Gloucester township was asked to guarantee \$70,000 of bonds, but on Aug. 12 passed a resolution declining to take any action. The Williamsburg township council, which was also asked to guarantee \$70,000 of bonds, asked the ratepayers to vote on a bylaw Aug. 17.

Port Arthur Electric Ry.—Bylaws were approved Aug. 3, by the ratepayers of Port Arthur, Ont., authorizing the expenditure of \$12,000 for a three part double track Y to be placed at the corner of Arthur and Cumberland Streets, to enable the cars to turn either way without delaying traffic; of \$2,620 to lay a passing track on Arthur St.; to provide \$26,000 to purchase certain lots, part of which is required for the extension of the line through the O'Brien addition, the balance of the lots to be sold at a future date. (April, pg. 184.)

Prince Albert, Sask.—We are officially advised that the offer of the interests associated with the Moose Jaw Electric Ry., for a franchise for an electric railway in Prince Albert, Sask., will not be further considered until several months hence. A proposition had been submitted to the Prince Albert Council from another source, in respect of which some sort of option was given, and until this expires nothing further can be done.

A bylaw to raise \$250,000 for the building of a municipal railway will be submitted to the ratepayers at an early date. (July, pg. 306.)

St. John Ry.—Press reports state that the company is contemplating extending its line through Glen Falls subdivision as far as Maynor House, St. John, N. B. (June, pg. 283.)

The Sandwich, Windsor and Amherstburg Ry. has, in accordance with an order of court, restored Ferry St., Windsor, Ont., to the condition it was in prior to the attempt to lay the new track there. (Aug., pg. 386.)

Three Rivers Traction Co.—The question of the franchise proposed to be granted this company for the building of an electric railway in Three Rivers, Que., has been further considered by the Council, but no definite decision has been announced. (Aug., pg. 386.)

Toronto and York Radial Ry.—The extension of the track on the Lake Shore Road from the old terminus at the G. T. R., Sunnyside crossing, across the new highway bridge to the front of Sunnyside station, King St., has been completed, and the company is operating its cars over it. The track has been built by the city, as an extension of the Sunnyside-Humber section of the Lake Shore division of the T. and Y. R. Ry. acquired recently upon the expiration of the franchise. This section of the line is still being operated by the company under an agreement with the city. The city is now

paving the track allowance on this section of the line. (Aug., pg. 386.)

Toronto Civic Lines.—Plans have been prepared for the erection of a carbarn at Hillingdon Avenue on the Danforth car line, at an estimated cost of \$25,000. The building will be L shaped, 198 by 199 ft., of brick and terra cotta on a steel framework. Six tracks will be run into it, and the offices will be in the wing at the rear end. Work is to be started at once, and the barn is expected to be ready for occupation early in 1915.

The Toronto City Council has decided to grade Queen St., Balmy Beach, so as to provide a satisfactory right of way for the stub line, which is being operated by the Toronto and York Radial Ry. The materials have been ordered for the track work. Commissioner Harris is quoted as saying Aug. 12, that grading the street would be started at once.

Toronto Ry.—The Toronto City Council has authorized the expenditure of \$25,065 for paving the track allowance and any necessary turn outs on the extension of the Terauley St. line from Agnes St to College St., recently ordered by the Ontario Railway and Municipal Board to be built.

Toronto Suburban Ry.—Construction was resumed on the section of the Lambton-Guelph line between Lambton and Islington, Aug. 4, and it was expected that track would be laid under the C.P.R. and as far as the bridge across Mimico Creek before Aug. 31. The concrete abutments for this bridge have been completed, and it will only take a short time to place the steel girders as soon as they are delivered. Track has been laid from Islington to beyond Georgetown, and carloads of ties and rails are being sent forward from the storage yard at Cooksville towards Guelph. A first lift of ballast has been given on several miles of track. While it is reported that the line will be in operation to Guelph in the autumn, it does not appear to be at all likely, considering the number of men employed, and the fact that nothing has been done in the construction of the bridge across the Humber at Lambton. (Aug., pg. 386.)

Tramways, Limited, is promoting a project for the building of an electric railway from Edmonton to Namao and Fort Saskatchewan, Alberta. To make the proposal successful it was desired to secure a right of way to the public market in Edmonton, and negotiations were entered into with the City Council. The Council agreed to grant running rights over the city lines to the market place, for 25 years, upon favorable terms, but insisted on the insertion of a clause giving the Council the right to terminate the agreement at the end of any 12 months, by giving three months notice. The agreement was fully discussed July 28, when it was intimated on the part of the company that the restriction inserted in the agreement would prevent construction being undertaken this year. The city offered as a compromise to deliver the company's passengers, freight and express at a terminal point in the city, in the event of the running rights being withdrawn. Among those interested in Tramways, Limited, are:—Messrs. Stutchbury, Farncombe, and Hogan of Edmonton; G. Carson, of Namao; A. H. Wilkinson, J. Broomfield, A. Carson, of Sturgeon district. (April, 1913, pg. 186.)

Transcona, Man.—Work is reported to have been started on the line from Transcona to the Winnipeg city boundary. Ties were being distributed along the right of way, Aug. 4, and it is reported that the steel rails are en route. (Aug., pg. 386.)

The Winnipeg Electric Ry. Co. has laid

before the City Council two sets of plans for the bettering of traffic conditions at St. James' subway. One provides for the laying of a new track on the north side of the roadway, and a rerouting of traffic, and the second provides for the building of a subway in the middle of Portage Ave. These are under consideration in the engineering department.

A report on the condition of the Winnipeg, Selkirk and Lake Winnipeg Ry., by B. S.

Mackenzie, Consulting Engineer, was laid before the Manitoba Public Utilities Commissioner Aug. 1. The report suggests that considerable improvement to the roadbed is necessary to bring it up to a proper condition, and points out that satisfactory progress is being made upon work for the betterment of the line. The entrance to Selkirk is on a curve, at the bottom of a 2.5% gradient, and it is claimed that it is not sufficiently protected. (Aug., pg. 387.)

Electric Railway Notes.

Port Arthur, Ont., ratepayers have passed a bylaw authorizing the purchase of at least four new street cars at a cost of \$22,000.

The Calgary Municipal Ry. gives employment to 301 men, and the total daily wage paid them amounts to \$957.73.

The Port Arthur Electric Ry. has received four single truck, double end, p.a.y.e. type cars, equipped with two Westinghouse 101 B2 motors, from the Preston Car and Coach Co.

The matter of the connection between the British Columbia Electric Ry.'s Fraser Valley branch, and the Chicago, Milwaukee and Puget Sound Rd. line at Sumas, B. C., for the interchange of freight is, we are officially advised, still in abeyance.

The residents of St. Thomas, Ont., have expressed themselves strongly against any further attempts being made to stop Sunday traffic on the London and Lake Erie Ry. and Transportation Co.'s line between London and Port Stanley, Ont.

The Winnipeg Electric Ry.'s entire stock of cars is to be adapted for p.a.y.e. service. City Traffic Supervisor Lewis reported to the Board of Control, Aug. 1, that this would necessarily take some time. There were on that date 33 p.a.y.e. cars in operation in the city.

The Calgary, Alberta, City Council is considering a proposal for the carrying of freight on the city's electric railway. It is proposed to run spur tracks into the industrial district, and to have connections with the different steam railway tracks entering the city.

We are officially advised that the position of Traffic Agent, British Columbia Electric Ry., Vancouver, rendered vacant by the resignation of J. B. Rannie, as announced in our last issue, will not be filled, the duties connected with that office being divided among other officials.

The one man car system is now in full operation on the Lethbridge Municipal Ry., and, we are officially advised, it has so far proved very successful. During the exhibition week about 12,000 people a day were handled without the slightest hitch, and on a faster schedule than in previous years with two men to the car.

The London and Lake Erie Ry. and Transportation Co. has made arrangements with the Canadian Express Co. for the carriage of express matter over the section of its line between St. Thomas and Port Stanley, Ont., and has made application to the St. Thomas City Council for permission to run over the city's line to the G. T. R. station on Talbot St., in order to carry out the agreement.

The Winnipeg Electric Ry. placed an order in its own shops at the beginning of the year for building 20 double truck closed cars, 46 ft. 10 ins. over all, and 8½ ft. wide, all of which will be for p.a.y.e. service. The Company is also adapting a number of its other cars for p.a.y.e. service, which simply involves putting doors on the rear vestibules and a dividing railing for en-

trance and exit. All the cars which the company has built in recent years have long platforms, suitable for p.a.y.e. work.

J. M. Lord, a storekeeper on Ferry St., Windsor, Ont., has entered an action against the Sandwich, Windsor and Amherstburg Ry. for \$10,000 damages, alleged to have been sustained owing to the torn up condition of Ferry St., in front of his place of business. The matter of building a loop line along this street has formed the subject of a long controversy between the company and the City Council.

It is announced that the city of Birmingham, England, has withdrawn its first class cars from service, because of insufficient patronage. Some years ago several of the larger cities adopted the system of placing so-called first class cars on selected parts of their systems and charging higher fares for their use, but in no case has it been of any advantage. Some of these class cars are still in use in Liverpool, a higher fare being charged for the use of the lower compartment, but they are not well patronized, and their discontinuance is an early possibility.

The London St. Ry. has ordered four single truck, p.a.y.e. cars, from the Preston Car and Coach Co., similar to those ordered last year, and added to the company's equipment during the current year. These cars were fully described and illustrated in Canadian Railway and Marine World of Dec., 1913. The company has also decided to remodel four large open cars so that they will be suitable for winter service, and yet be convertible to open cars at a small expense. This will give eight additional cars for winter service. It has also been decided to remodel the older cars to the p.a.y.e. system, as rapidly as they can be spared from the service.

The Public Service Commission of Massachusetts has issued an order to all street railway companies in the State, that all passenger cars hereafter purchased and operated shall be equipped with steps not over 15 ins. high, the bottom step to be measured from a point even with the top of the rail; that all passenger cars now owned and operated, and which are to be operated after July 1, 1915, shall, prior to that date, be so altered that no step shall be more than 17 ins. high, provided, however, that a street railway, by reason of its financial condition, or of the large amount of equipment now owned by it which must be altered in compliance with this order, or for other good cause shown, may, upon application to the Commission, have such time extended if in the Commission's judgment such company shall have shown reasonable progress in complying with this order consistent with its financial ability to do so. In addition, it has been ordered that all street railway companies shall, before purchasing new passenger cars or making substantial changes in their present equipment, submit to the Commission for approval, plans or drawings in sufficient detail to show the type of cars to be purchased or the changes to be made in the equipment now in use.

Electric Railway Finance, Meetings, Etc.

Brandon Municipal Ry.—The operations for June are reported to have resulted in a surplus of \$500 over operating expenses. The revenues for July, owing to the annual exhibition, and the operation of the cars on Sundays, are expected to show a much better result.

Brantford St. Ry.—Grand Valley Ry.—All the details affecting the transfer of these lines to the Brantford, Ont., City Council, having been settled, they were formally taken possession of Aug. 5 on behalf of the city by C. H. Hartman, W. R. Turnbull and A. K. Bunnell, the Commissioners appointed for their management until the municipal elections in January, 1915. The officials in charge at the time of transfer have been retained for the present, namely:—J. P. Verner, acting Superintendent; and J. Creasser, acting Secretary.

British Columbia Electric Ry. and Allied Companies. Gross earnings for June, \$660,383; operating expenses, maintenance, etc., \$509,417; net earnings, \$150,966, against \$680,693 gross earnings; \$488,785 operating expenses, maintenance, etc.; \$191,908 net earnings for June, 1913. Aggregate gross earnings for 12 months ended June 30, \$8,789,287; net earnings \$2,348,462, against \$8,492,239 aggregate gross earnings, \$2,425,573 net earnings for same period 1912-13.

Cape Breton Electric Co.—Gross earnings for June, \$29,696.95; operating expenses and taxes \$17,595.13; net earnings \$12,101.82; interest charges \$5,228.27; balance \$6,873.55; bond sinking and improvement funds \$1,190; balance for reserves, depreciation, etc., \$5,683.55, against \$30,644.70 gross earnings; \$17,913.18 operating expenses and taxes; \$1,731.52 net earnings; \$4,891.66 interest charges; \$7,839.86 balance; \$1,190 bond sinking and improvement funds; \$6,649.86 balance for reserves, depreciation, etc., for June, 1913. Aggregate gross earnings for six months ended June 30, \$168,733.25; net earnings \$68,573.61; interest, bond sinking and improvement funds \$38,215.84; net balance \$30,350.78, against \$173,215.38 aggregate gross earnings; \$68,760.65 net earnings; \$36,571.15 interest, bond sinking and improvement funds; \$32,194.50 net balance for same period 1913.

Edmonton Interurban Ry.—Two calls of 10% on the capital stock have been made on the shareholders, payable Sept. 23 and Nov. 23, respectively. These are the final calls on the present issue of stock.

A meeting of shareholders was held in Edmonton, Alberta, Aug. 17, to authorize the directors to issue debenture or other stock to secure \$75,000 for the purposes of the company's undertaking and to execute the necessary mortgage.

Edmonton Radial Ry.—Gross earnings for June, \$59,856; operating expenditure, \$26,076; cost of power, \$12,055; cost of maintenance, \$8,725; total charges, \$46,856; net revenue, \$13,000; fixed charges, etc., \$26,731; deficit, \$13,731. Passengers carried, 1,252,303; average fare, 4.8c. This is the first complete month's operation under the increased fare.

Fort William Electric Ry.—For July a profit is shown over operating expenses, sinking fund and all other items. The total revenue was \$13,256.84; operating expenses, \$8,548.99; interest and sinking fund, \$5,415.43, and added to this, 5% of the gross receipts are set aside for accidents and other causes, bringing the total expenditure to \$14,727.26, leaving a net profit of \$529.58.

London and Lake Erie Ry. and Transport

tion Co.—A special meeting of shareholders was held in London, Ont., Aug. 18, to authorize an issue of bonds at the rate of \$30,000 a mile. The proceeds will be used for retiring the existing issue, and for other purposes.

Port Arthur Electric Ry.—The report of the operations of the line for the six months ended June 30 was presented to the City Council recently. Gross earnings were \$66,350.50; operating expenses, \$51,905.72; operating income, \$14,444.78. Against this, interest and sinking fund were \$31,837.02, and accidents, \$3,317.50, a total of \$35,154.52, showing a net loss of \$20,709.74, irrespective of any allowances for depreciation.

Saskatoon Municipal Ry.—Gross revenue for June, \$13,720; operating expenses, \$14,266.

Sutherland extension.—Receipts for June, \$1,320; operating expenses and capital charges, \$966.50.

Sudbury-Copper Cliff Suburban Electric Ry.—A general meeting of shareholders has been called to be held at Sudbury, Ont., Sept. 7, for the purpose of organization. The notice is signed by W. J. Bell, W. Cochran, J. Mackey, D. N. Morin and L. Laforest, provisional directors.

Toronto Ry., Toronto and York Radial Ry., and Allied Companies.—Gross earnings for June \$861,938; operating expenses, maintenance, etc., \$445,105; net earnings \$405,337 against \$815,206 gross earnings; \$405,337 operating expenses, maintenance, etc.; \$409,869 net earnings for June, 1913. Aggregate gross earnings for six months ended June 30, \$5,025,926; net earnings, \$2,411,667, against \$4,655,486 aggregate gross earnings; \$2,249,433 net earnings for same period 1913.

Winnipeg Electric Ry.—Gross earnings for June, \$335,012; operating expenses \$187,570; net earnings \$147,442, against \$321,037 gross earnings; \$173,270 operating expenses; \$147,767 net earnings for June, 1913. Aggregate gross earnings for six months ended June 30, \$2,091,552; net earnings \$877,850, against \$1,972,374 aggregate gross earnings; \$876,989 net earnings for same period 1913.

Personal Paragraphs.

D. M. McINTYRE, K. C., Chairman, Ontario Railway and Municipal Board, was installed as Grand Master, Grand Lodge, I. O. O. F., at Toronto, Aug. 14.

W. V. HUNT, Electrical Engineer, British Columbia Electric Ry., Vancouver, has resigned to commence private practice there. He was in the company's service for a number of years.

W. Y. SOPER, director, Ottawa Electric Ry., returned to Canada from Europe, July 31, accompanied by his two sons and daughter, the last mentioned having been at school in Switzerland.

R. H. SPERLING, who has been appointed Assistant to the Chairman, British Columbia Electric Ry., in London, Eng., was given an appreciative send off on leaving Vancouver. At New Westminster, July 28, he was the guest of the Board of Trade at a complimentary dinner; on Aug. 1, the company's employes in Vancouver presented him with a gold cigar box, and a diamond ring for Mrs. Sperling; while the employes at North Vancouver gave him a large framed group photograph; and on Aug. 3 he was the guest of the executive officers of the company in B. C. at Vancouver.

Lethbridge Municipal Railway's Financial Statement

The following figures respecting the municipal electric railway at Lethbridge, Alta., are taken from the City Auditors' report for the year 1913:—

| Assets. | |
|---|--------------|
| Cost of Property: | |
| Car barns | \$57,861.54 |
| Roadbed and track | 191,068.51 |
| Overhead | 22,217.27 |
| Rolling stock | 67,635.99 |
| Miscellaneous Equipment | 4,148.55 |
| Shop tools and machinery | 502.43 |
| Track tools | 1,186.09 |
| Engineering | 3,896.90 |
| Construction interest | 3,753.31 |
| | \$352,275.59 |
| Supplies on hand | \$3,306.24 |
| Unexpired insurance | 656.63 |
| | 3,962.87 |
| Cash on hand and in Bank | \$3,566.71 |
| Sundry accounts receivable | 391.12 |
| | 3,957.83 |
| Sinking Fund—deducted per contra | \$7,281.12 |
| Debenture funds unexpired—Due from city's general account | 17,224.41 |
| Discount on debentures | \$39,377.24 |
| Loss on operating 1912 | 5,176.05 |
| Loss on operating 1913 | 30,831.22 |
| | 75,384.51 |
| | \$452,805.21 |
| Liabilities. | |
| Debentures | \$408,877.24 |
| Less: Sinking fund | 7,281.12 |
| | \$401,596.12 |
| Due to city on loan account | \$36,007.27 |
| Due to city on current account | 3,281.20 |
| Sundry | 3,247.76 |
| | 42,536.23 |
| Unredeemed tickets | 1,391.74 |
| Sinking fund reserve | 7,281.12 |
| | \$452,805.21 |
| Revenue. | |
| Car earnings | \$59,045.42 |
| Advertisements | 1,564.20 |
| | \$60,609.62 |
| Net loss on earnings carried down | 4,147.75 |
| | \$64,757.37 |
| Balance, being deficit for year carried to balance sheet | 30,831.22 |
| | \$30,831.22 |
| Expenditure. | |
| Car service | \$30,198.85 |
| Electric power | 15,886.48 |
| Car maintenance | 1,415.84 |
| Track cleaning | 2,818.00 |
| Car house expense | 764.32 |
| Changing switches | 442.36 |
| Oil and waste | 565.83 |
| Sundries | 824.69 |
| | \$52,916.37 |
| Repairs, cars | \$1,576.18 |
| “ motors | 1,996.70 |
| “ air brakes | 1,774.91 |
| “ tools and machinery | 12.49 |
| “ miscellaneous equipment | 65.63 |
| “ overhead | 576.54 |
| “ track and roadbed | 954.59 |
| | 6,957.04 |
| Direct operating expenses | \$59,873.41 |
| Salaries | \$1,762.00 |
| Printing and stationery | 211.67 |
| Insurance | 716.63 |
| Office expenses | 307.10 |
| Amusements | 1,431.26 |
| Damages | 455.30 |
| | 4,882.96 |
| Working expenses | \$64,757.37 |
| Net loss on earnings brought down | \$4,147.75 |
| Debenture interest | \$14,812.99 |
| Other interest | 4,982.35 |
| Sinking fund | 6,888.13 |
| | 26,683.47 |
| | \$30,831.22 |

The railway is in charge of Arthur Read, Commissioner of Public Utilities.

Marine Department

National Transcontinental Railway Car Ferry Leonard, for St. Lawrence River.

A detailed description of the construction and equipment of the car ferry Leonard, which is intended for conveying trains across the St. Lawrence, pending the completion of the Quebec Bridge, was given in Canadian Railway and Marine World for March, page 143, with an illustration, showing the train deck raised to the upper level. The vessel was recently completed at Birkenhead, Eng., and underwent a series of exhaustive trials, covering her propelling machinery, as well as the train deck raising and lowering mechanism, with entirely satisfactory results. The owners were represented at the trials by Chas. Duguid, Chief Constructor, Department of Marine, Ottawa, and J. E. Hamilton, Resident Surveyor.

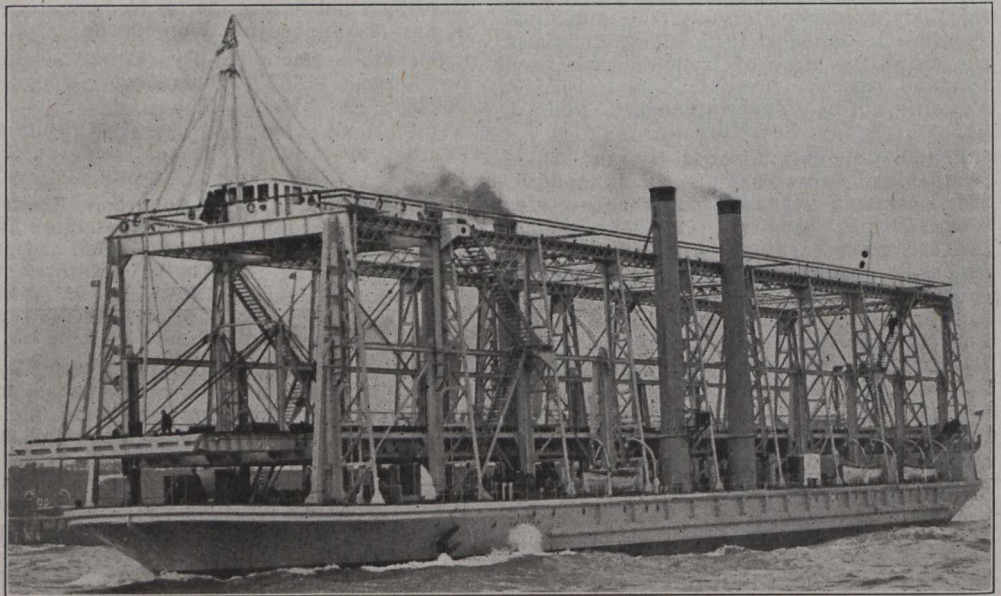
It has been designed for transporting standard passenger and freight trains across the river at all seasons of the year, between Quebec and Levis, the average weight of such train being 1,285 tons. It is calculated that the time taken in running the train on to the ferry, traversing the river, 2½ miles, landing and coupling up the train on the other side, will not take more than three quarters of an hour.

She is of the twin screw type with a third ice breaking propeller at the forward end, and is generally strengthened for service in ice. As a train ferry she represents a new departure, several unique ideas being embodied in her construction. The special feature of the design is the movable tidal car deck. The railway tracks on land at either

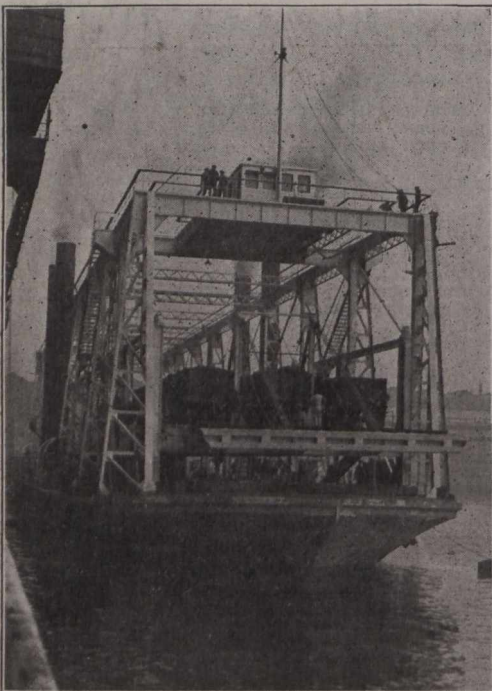
deck the necessary range of action to suit the various conditions of the tide. Three lengths of track are placed on the tidal deck, each supported on lattice girders. The length of each track is 272 ft. At each end of the tidal deck is an adjustable hinged gangway suspended by means of treble purchases from struts fixed on the deck. These

ball bearings supported on strong columns, which in turn are stayed by lattice buttresses against fore and aft and transverse thrusts, while below the main deck a specially strong braced strut is built, in way of each column, which distributes the load to the keel.

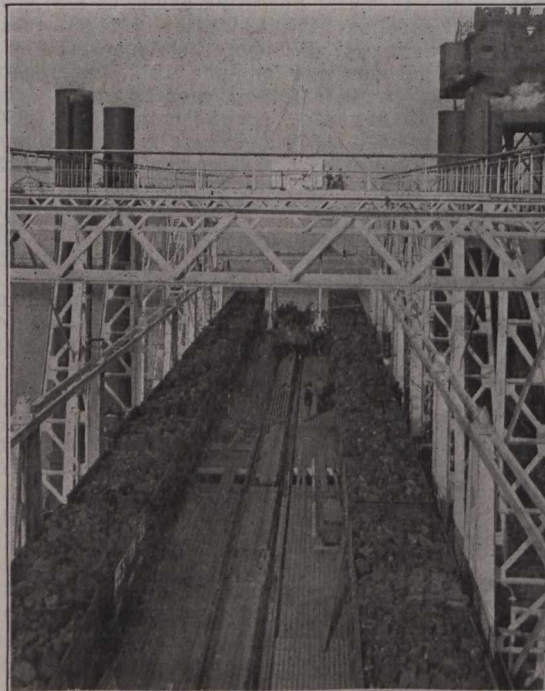
Accommodation is arranged for officers



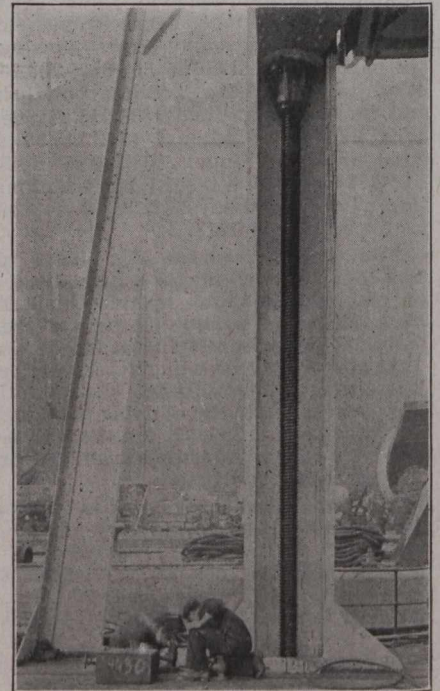
National Transcontinental Ry. Car Ferry, Showing Adjustable Tidal Deck.



Bow View of Car Ferry, Showing Tidal Deck and Hinged Apron.



Looking Down on the Tidal Deck, Showing Two of the Three Tracks Loaded.



One of the Elevating Screws for Raising the Tidal Deck.

side of the river are at a fixed level, and the vessel is arranged with a tidal deck to take the cars from the fixed track at any state of the tide, the range being 18 ft. The tidal deck is arranged above the main deck and has 10 transverse girders, each end of which rests on a large nut which works up and down on a vertical screw, giving the

gangways are arranged with ball and socket joints at the ends of each of the girders carrying the rails, to allow for any heel of vessel, or change of trim which takes place when loading or unloading the cars. A special motor is arranged in conjunction with each gangway for controlling same. The tidal deck lifting screws are hung from

and crew on a flat below the main deck forward on both sides, and everything necessary for full day and night crews is provided. The vessel is fitted with electric light throughout, and an electric winch with two winding drums is fitted between girders of the tidal deck for hauling cars off and on the vessel. Two powerful steam windlasses

are fitted, one on each side with slip drums for mooring. A complete installation of auxiliary machinery has been provided and the hull and machinery complies with Lloyd's requirements.

Although it was anticipated that some delay would occur in allowing the vessel to cross the Atlantic, she arrived at Quebec safely, Aug. 18.

Shipping Interests Oppose Vancouver Harbor Dues.

Considerable opposition has materialized to the recently announced scale of harbor dues to be imposed by the Vancouver Harbor Commission. Until the incorporation of the Harbor Commission, about a year ago, Vancouver was practically a free port, apart from the dockage dues charged by private dock owners. The completion of the Panama Canal, and the admitted unpreparedness of Vancouver to meet any important increase in shipping, led to an agitation for the improvement of the port in this direction. The Dominion Government awarded contracts for dredging the First Narrows from 440 to 1,400 ft. wide, and for dredging False Creek from its mouth to the Main St. bridge, about 1 1/4 miles, to a depth of 20 ft. at low tide, and a width of 250 ft. The first contract will

| | |
|---|----------|
| Montreal. | |
| Inward pilotage from Father Point to Quebec | \$85.14 |
| Inward pilotage from Quebec to Montreal | 55.00 |
| Outward pilotage from Montreal to Quebec | 55.00 |
| Outward pilotage from Quebec to Father Point | 74.80 |
| Harbor dues, sick mariners dues ... | 50.00 |
| Port Warden dues, inward, say on 2,000 tons of cargo at 2c. | 40.00 |
| Port Warden dues, outward, say on 6,000 tons of cargo at 2c. | 120.00 |
| | \$479.94 |

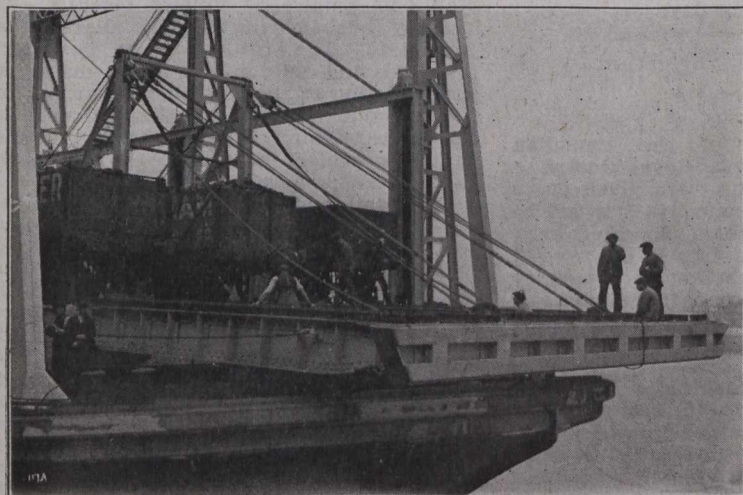
| | |
|--|----------|
| Vancouver. | |
| Pilotage in and out, \$1 per ft. and 1c. a ton, at \$52 | \$104.00 |
| Sick mariners dues at 1 1/2c. per net registered ton, five times a year .. | 45.00 |
| Harbor dues, 3c. per net registered ton, five times a year | 90.00 |
| | \$239.00 |

| | |
|--|----------|
| San Francisco. | |
| Dockage per day or fraction thereof at \$4 for first 200 net reg. tons and 3/4c. for each additional net reg. ton .. | \$ 25.00 |
| Approximate time discharging, four days | 100.00 |
| Inward pilotage dues, \$3 a ft. draught and 3c. per net reg. ton | 156.00 |
| Outward pilotage dues, \$3 per ft. draught and 3c. per net reg. ton .. | 156.00 |
| Inward dues, tonnage, taxes, etc. | 188.20 |
| | \$625.20 |

| | |
|--|---------|
| Portland. | |
| Dockage per day or fraction thereof \$2.50 for first 200 net reg. tons and 3/4c. for each additional net reg. ton .. | \$13.00 |

The Cause of Accidents on the Welland Canal.

The Toronto Globe said recently:—"Accidents on the Welland occur with a frequency that suggests dangerous incompetence. It may or may not be due to the spoils system which impelled the unpardonable dismissal of employes to make places for importunate Government supporters. If this has been a contributing cause it would have been better to pension the seekers for jobs by paying them wages for nothing. Some of the accidents have been clearly due to incompetent management of vessels in the locks. It would be most unfair to charge such accidents against canal employes. But there has been a serious record against the canal operators, and it is time some determined effort were made to avert further loss or injury. Our canals are far too important to be made use of as rewards for election campaign service. If Government supporters must make the public maintain the men who have helped in elections let it be done in or through services in which mistakes do not endanger life and property. Every canal employe should feel that his position depends on the careful and competent discharge of his duties and not on the favor of any man he has helped to elect.



Adjustable Hinged Apron, Connected to Tidal Deck by Ball and Socket Joints.

Main Deck, Showing Tidal Deck Above in Its Raised Position.

cost about \$1,500,000, and the second one about \$1,000,000, by the time they are completed. In addition to these works, the Government is building a dock at an approximate cost of \$2,000,000, and it is stated that these are only the commencement of a series of large works, which will make Vancouver a national port of considerable importance. The local shipping interests oppose the new dues on the ground that they are excessive, and that the cost of the improvements should be paid for by the Dominion. The Vancouver Harbor Commission has recently issued a statement showing the relative harbor dues in each of six ports, three in Canada and three in the United States, as follows:—

| | |
|--|----------|
| Quebec. | |
| Harbor dues, 5c. per net registered ton every entry, and not exempt after five entries as at Vancouver.. | \$150.00 |
| Sick mariners dues 1 1/2c. per net registered ton | 45.00 |
| Inward pilotage, May 1 to Nov. 10 from Father Point, \$3.87 per ft. | 85.14 |
| Outward pilotage, May 1 to Nov. 10 to Father Point, 40c. per ft. | 74.80 |
| | \$354.94 |

Note.—Two C.P.R., and two Allan Line vessels get a flat rate on harbor dues running into Quebec. The rate is \$333 a trip. The C.P.R. is also compelled to keep two men on the Commissioners' wharf at its own expense.

| | |
|---|----------|
| Approximate time discharging, four days | 52.00 |
| Inward bar pilotage dues, \$1.50 per ft. and 1c. per net reg. ton | 63.00 |
| Inward river pilotage, \$1.50 per ft. and 1c. per net reg. ton | 52.00 |
| Outward pilotage dues | 115.00 |
| Inward dues, tonnage tax, etc. | 188.20 |
| | \$483.20 |

Note.—No dockage charge on vessels receiving discharging cargo.

| | |
|---|----------|
| Seattle. | |
| Privately owned wharves charge dockage per day or fraction thereof of \$4 for first 200 net reg. tons and 3/4c. for each additional net reg. ton .. | \$ 25.00 |
| Approximate time discharging, four days | 100.00 |
| Harbor Commissioners wharves charge dockage per day or fraction thereof, \$4 for first 200 gross tons and 3/4c. for each additional gross ton | 42.75 |
| Inward dues, tonnage tax, etc. | 188.20 |
| Pilotage optional | 100.00 |
| | \$455.95 |

Navigation Employes' Fatalities.—During June, 13 employes were killed in the course of their work in connection with navigation in Dominion waters. Of these fatalities 11 were due to drowning, 1 to a fall from a scaffold, and 1 to suffocation as the result of a fall.

The name of the s.s. Lillie Smith, registered at St. Catharines, Ont., no. 94,911, has been changed to Mary Battle.

This matter is too important to be dismissed by some story about some Liberal employe. The public want the assurance of competence, not of campaign arguments."

L. D. Hara, acting Superintending Engineer of the canal, replied as follows:—"There have been four bad accidents on the Welland Canal this year, and in not one instance was blame attributed in any way to those in charge of the locks. In every one of these accidents it was clearly the fault of the vessel. There were three breaks to lock gates last year. In each case the vessel was at fault, and was the cause of the accident.

"Blame for the break at lock No. 12 recently is placed on the vessel, as the mistake was clearly made by canal helpers, who are employed by the steamers for the trip through the canal, and not upon the locktenders. The lockmaster at this lock, who was in charge at the time of the accident, is one of our most experienced and reliable men, having been appointed before 1896. He has been employed continuously ever since, and went through the Liberal regime. There never was a more competent operating staff employed on the canal than there is at present.

"In the last few years traffic and vessel passages through the canal have been in-

creasing at a very rapid rate. In 1911 2,484 passages through the canal were made by vessels. In 1913, 3,247 passages were made, and up to the time of writing 2,078 passages have been made, and the year is hardly half over. Take last year, when the number of passages was 3,247, the number of lockages was 3,247 x 25 (there being 25 locks), 81,175, and the accidents only three in number. This works out to a very low percentage considering the ease with which the gates of the mitering type are unmitered. It also must be borne in mind that in about every instance when an accident occurs the vessel to blame is an old wooden one, poorly equipped, and with not any too good a crew on board. As a rule the accidents happen when one of these old vessels is going up through the canal light."

Stranding of the s.s. Saskatoon.

An enquiry into the causes of the stranding of the Merchants Mutual Line s.s. Saskatoon in the St. Lawrence River, off Portneuf light, July 24, was held recently at Montreal by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Captains F. Nash and J. W. Westcott as nautical assessors.

The vessel was bound to Thorold, Ont., from Anticosti Island, with pulpwood, and was proceeding at about 9½ miles an hour, drawing 11 ft. 11 ins. forward and 15 ft. aft. The pilot, Barthelemi Arcand, boarded the vessel at Quebec, and as soon as the vessel got on her course left the bridge for breakfast, and when he returned was given charge of the bridge, the captain remaining only a few minutes, leaving with the pilot a man who was signed as second mate, but who held no certificate and who was unfamiliar with the navigation of the river, having made only three trips. The captain did not return to the bridge until the vessel had grounded, although he admits having had sufficient rest. When she struck she was heading west by threequarters south, and after sounding it was found that she was in 12 ft. of water, and about 600 ft. on the starboard side, a little on the forward side, was the black gas buoy 51-Q. The vessel remained aground from 11.30 a.m., July 24, to 10.30 a.m., July 27. The second mate stated that the vessel steered well and the pilot's orders were accurately carried out. Just prior to the grounding he told the pilot that the vessel was going in a wrong direction, as there was a rock on the port side and the vessel was on the wrong side of the black gas buoy 51-Q. The second mate did not know the meaning of an ebb tide. The wheelsman stated that he had heard the second mate tell the pilot of the rock, and the pilot answered that it was a piece of wood with a gull on it. The pilot stated that he boarded the vessel without direct orders from the pilotage office, and although it was unusual he left the bridge for breakfast shortly after. The usual courses were steered until the buoy 51-Q was neared, which, having taken for the red buoy 52, he passed about 50 or 60 ft. to the north of. The error, he claimed, was due to a sore eye. In view of the evidence adduced and the antecedents of the pilot, Barthelemi Arcand, who stated that the accidents which happened to vessels which he piloted were so numerous that he did not remember the number, the Court felt bound, in the interest of all concerned, to cancel his license, and his license is hereby cancelled. The Court also felt it its duty to severely criticize the captain of the Saskatoon, William Honsberger, for the apparent lack of interest shown by him with regard to his responsibilities. As soon as the pilot took charge of the vessel he left the bridge, placing in charge with the pilot

a man who signed on as second mate, but who does not possess a certificate, and who is therefore rendered irresponsible, and whose ignorance is so flagrant that he admitted he did not know the meaning of ebb and flood tide. The captain admitted that he was a stranger in the river, but was supposed to familiarize himself with the local conditions, yet he chose, on a fine day, having had sufficient rest, to go to his room, leaving his responsibilities as a master to rest on the pilot, whom he had never seen before, and on one who could not be considered responsible. Moreover, when the vessel grounded, he did not, apparently, think it of sufficient importance to take bearings of objects such as lighthouses or buoys, in order to ascertain the position of his vessel. Therefore the Court felt it incumbent upon it to suspend his certificate for one month, in order that he may be made to realize the importance and responsibility of his position as a master. The pilot claimed that the master used strong and insulting epithets towards him. Whilst the Court does not countenance such language, it thinks that under the circumstances no weight can be attached to the statement. The Court also unanimously agreed that the displacing of the buoy 51-Q by the tug Virginia and tow had nothing to do with the grounding of the Saskatoon, as the displacement occurred after the accident. The buoy was placed in its former position on the following day.

Additional Aid to Navigation by Wireless.

During a recent trip of the Canadian Northern Steamships s.s. Royal George a series of demonstrations were given as to the possibilities of a new wireless aid to navigation. The device is classified as a direction finder, and its duty is to seek out all wireless stations, whether stationary or not, on the coast line or on the high seas, within a radius of 50 miles, and to indicate, for the guidance of the navigating officers, the exact relation of the vessel to these, in terms of latitude and longitude. The present stage is not claimed to be more than experimental, but the results achieved on this trip are said to have been entirely satisfactory to those concerned. The instrument is said to have been accurate to a degree in detecting the compass direction of a number of stations on shore and afloat, among them being those at Cape Race, Cape Ray, Father Point, and on the steamship Columbia, 68 miles distant; Calgarian, 53 miles, and Sicilian, 18 miles.

The device is by no means bulky, the detector box, which is the medium for locating the stations, is just large enough to hold two small switches and a graduated dial fitted with a movable indicator. Connected with this box is the telephone box, equipped with a crystal of carborundum, which translates the wireless into an intelligible signal, through two receivers carried by the operator. The aerials, instead of being composed of several straight parallel wires, consist of two large wire triangles, so arranged that they cannot receive a message at the same time with the same strength. If one receives a message full strength, the other does not receive it at all, and if both receive it, the message is always stronger over one than the other. The position of the sending station is determined by the strength of the message as it is received over each triangle. These two wires are connected to the finder box by two switches. On this box is a dial marked in the degrees of a compass with a movable indicator. Half of this dial is affected by a message coming over one of the triangles, and the other half by the other

triangle, so that the indicator is moved accordingly. When the current is at its strongest the indicator points to the direction of the sending station. To determine the point on the dial at which the message is strongest the operator moves the indicator first one way and then the other, noting the points at which the current disappears. The point midway between these two vanishing points gives the direction of the message. Emilio Ichino, of the Marconi companies, was in charge of the experiments, which were carefully watched by Capt. F. J. Thomson, commander of the s.s. Royal George. This is one of a number of experiments of various devices for aiding navigation which Canadian Northern Steamships, Ltd., has undertaken on its vessels. The company claims to have been the first to employ relay operators in order to secure continuous wireless telegraph service, and later it enabled Professor Barnes, of McGill University, to test his device for the detection of ice at sea, and since that time one of the company's captains has developed a highly efficient device for launching small boats at sea.

Responsibility for Proper Manning of Vessels.

A widow, at Collingwood, Ont., wrote the Mail and Empire as follows recently:—"I lost my husband in the lake disaster of Nov., 1913. The boat he was on was short of a crew and did not have a first mate. Is it a violation of the rules of navigation for a captain to sail without that officer? Is the company in any way responsible for the captain's neglect to procure a first mate before leaving port?"

The Mail and Empire's legal editor replied as follows: "The Canada Shipping Act (R.S.C. chap 113, sec. 97) says: 'No ship registered in Canada, over 200 tons tonnage, and no steamship registered in Canada, and allowed by law to carry more than 40 passengers, shall go on any coasting voyage or shall be licensed or allowed to ply in any Canadian water, unless such ship carries also a "mate" who has obtained a valid certificate of competency, or service as such mate, etc.' And sec. 98 says: 'No officer of the Customs at any port in Canada shall clear any such ship on any such voyage without such certificate being first produced to him.' And sec. 101 says: 'If such ship is required to carry a mate having a certificate of competency, the master shall at the same time produce to such officer of the Customs a certificate of such mate, etc.' There is a penalty of \$100 for non-compliance with these requirements. But the act does not say in so many words that the heirs and personal representatives of a person who lost his life or property on any such ship shall have a right of action for damages on the ground that the ship was not properly manned. But the proof of that fact would be a material element in any such action for damages."

The Strandings of the Steamships Montfort and Saturnia.—These two cases, which were before Capt. H. St. G. Lindsay, R.N.R., when he was Dominion Wreck Commissioner, and in which the pilots concerned were found to blame, and their licenses suspended for three months, were again before the court at Quebec, July 16, on an order for rehearing. The counsel for the pilots, on finding that Capt. L. A. Demers, the newly appointed Dominion Wreck Commissioner, was not hearing the cases, but that Capt. Lindsay was to go over the matter once more, refused to proceed, on which Capt. Lindsay closed the hearing, the former judgments standing.

Shipping Report From Fort William.

F. & W. Jones, grain, vessel and marine insurance brokers, Fort William, Ont., wrote Aug. 15.—Arrivals of coal are keeping up—20 bituminous and 3 anthracite—although this is not up to the arrivals at this point last year. Unloading is very satisfactory, the managers doing all possible by co-operating with the vessel agents, working over time, etc., and facilitating dispatch generally. Only two boats have been held over Sunday and they were Saturday arrivals. Western rail shipments are increasing and will be quite up to normal by the end of the month, and docks are decreasing stocks as rapidly as Western demand will allow. The line up of enroutes is good, and it looks as if the last half of August will be better than the first half, as far as coal arrivals are concerned.

Shipments in grain since the last of July have fallen off steadily, there being only 19 cargoes shipped, two of which were screenings for Duluth. Seven cargoes were oats shipped by Canada for the use of the Imperial Government, the balance, 10 cargoes, were the only commercial grain shipped and were all loaded into Canadian bottoms. Stocks of grain at terminal elevators are very low, there being only 4,500,000 bushels of all kinds of grain, half of which is flax. By the time the new crop is running freely the elevators here will be practically empty. Receipts and shipments since July 31st, and stocks on hand at date are as follows:—

| | Stocks. | Receipts. | Shipments. |
|------------|-----------|-----------|------------|
| Wheat ... | 1,729,972 | 1,352,248 | 2,034,316 |
| Oats | 338,411 | 257,088 | 1,011,088 |
| Barley ... | 161,749 | 119,608 | 145,393 |
| Flax | 2,396,107 | 147,292 | 121,617 |

Reports from western provinces speak of harvesting being in active progress. Generally speaking weather conditions are unfavorable, but not more so than was expected, and no serious results have occurred or are anticipated. The estimate of the total crop is still a matter of conjecture, but prospects point to rather a better total than early predictions. We think it is safe to consider that there will be approximately a total of 200,000,000 bush. of the 1914 crop available for navigation movement. Everything points to a very heavy winter storage business, the unsettled conditions of the European continent must seriously affect export trade, while at the same time grain will probably be rushed to the terminals more than was at first anticipated, far in excess of elevator storage capacity, making storage in vessels a necessity, and probably much winter loading.

Owing to the war the grain elevators at Fort William and Port Arthur have been placed under an armed guard. This is merely to safeguard against damage which might be attempted by sympathizers of hostile forces, and in no way hinders the loading or dispatch of vessels. Masters and crews should report to their agent before coming up town, and secure pass to enable them to return to their vessels.

Lock Gate Accidents on the Welland Canal.

On July 27, the wooden steamboat Sarnor, of the Lake Erie and Quebec Transportation Co., a subsidiary of the Keystone Transportation Co., Montreal, while upbound to Ashtabula for coal, struck and carried out the two head gates of lock 8. The rush of water from above carried the vessel and the gates out into the reach below. The level above lock 8 is a short one, and the level below is about one mile long, consequently practically no water overflowed and

there was no washing away of the banks. The vessel's steering gear was slightly damaged. It is stated that the cause of the accident was that as the vessel was entering the lock the engines were found centred when a signal to go astern was given, and when the engines were finally got going the engineer gave her speed ahead instead of reversing, breaking a 1¼ in. cable and a 5½ in. snub before striking the lock gates. Two spare gates were placed in position and navigation was resumed after an interruption of about 12 hours. It is estimated that the damage was about \$4,000, fully covered by insurance.

Another accident occurred, Aug. 10, when the Montreal Transportation Co.'s wooden steamboat Windsor, upbound to Port Colborne, light, safely entered lock 12. One of the foot gates had been closed, and the other was about to be closed, when the helpers who are hired by vessels navigating the canal, through, it is said, a misunderstanding on their part, opened wide all the valves in the upper gates. The foot gate, which had not been closed, was caught by the current of water thus set up and could not be controlled by the lock operator, with the result that it crashed against the closed gate, mitering with it imperfectly. This sudden closing of the foot gates caused a surge in the lock which carried the vessel, which is full canal size, into the head gates, unmitering them. The rush of water from lock 12 reach carried them out and backed the vessel into the reach below, badly breaking the foot gates as she passed over them. The four gates were found wedged over each other between the lock walls in the lower recess. The canal banks at the head of lock 11 were badly washed out by the overflowing water, but the vessel was practically undamaged. Four spare gates were placed in position after navigation was interfered with for about 24 hours. The damage was estimated at about \$8,000.

We are indebted to L. D. Hara, Acting Superintending Engineer, Welland Canal, for the details of the accidents.

A third accident occurred Aug. 23, when the steel s.s. John B. Ketchum 2nd, owned by the Spokane Steamship Co., and managed by the Reid Wrecking Co., Sarnia, Ont., while upbound from Toronto, light, struck the head gates of lock 6, spreading them so far that the weight of water from

the level tore them loose, as well as one of the foot gates, carrying them, with the vessel, to the level below. The level above is not a long one, and consequently the damage to the neighboring land will not be heavy. The tent occupied by the military guard at lock 5 was flooded. It is stated that the accident was due to mistaken signals between the bridge and engine room, the engines going forward instead of reversing.

Atlantic and Pacific Ocean Marine.

Canada Steamship Lines, Ltd., announced Aug. 7, that conditions necessitated the discontinuance of the steamship service between Quebec and New York, which has been taken by its s.s. Trinidad.

The Cunard Co.'s s.s. Aurania, which is under construction at Wallsend on Tyne, Eng., is intended for the London-Canada service. She will be of the one class type, and will be propelled by geared turbine engines.

The International Mercantile Marine Co. has announced that it will inaugurate its Panama Pacific Line between New York and San Francisco, May 1, 1915. The steamships Finland and Kroonland will be utilized.

The s.s. Cienfugos, which was driven ashore near Louisburg, N.S., during a storm in the latter part of July, is reported to be a total loss. The vessel was en route to Montreal with lumber, and intended calling at Sydney for coal.

The British s.s. Sable I, en route from Glasgow, Scotland to Halifax, N.S., was picked up about 10 miles off Cape Race and towed to Halifax, at the end of July, having become disabled owing to the bursting of a high pressure cylinder.

The Royal Mail Steam Packet Co.'s s.s. Glengyle, intended for service between European and North Pacific ports, was launched in England during August. Her dimensions are, length 516 ft., beam 62.4 ft., depth 37.6 ft., and she has a deadweight capacity of 13,400 tons.

The International Mercantile Marine Co. will, early in 1915, establish a passenger and freight service, with the steamships Finland and Kroonland, between New York

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during July.

| ARTICLES | | CANADIAN CANAL | U. S. CANAL | TOTAL |
|--------------------------|------------|----------------|-------------|-----------|
| Copper..... | Eastbound | | 11,800 | 11,800 |
| Grain..... | " | 1,722,371 | 2,881,677 | 4,604,048 |
| Building stone..... | " | | | |
| Flour..... | " | | 909,210 | 1,194,330 |
| Iron ore..... | " | 285,120 | 1,580,974 | 5,626,737 |
| Pig iron..... | " | 4,045,763 | 5,334 | 5,334 |
| Lumber..... | " | | 74,809 | 77,216 |
| Silver ore..... | " | 2,407 | | |
| Wheat..... | " | | 2,912,852 | 9,910,005 |
| General merchandise..... | " | 6,997,153 | 32,884 | 44,014 |
| Passengers..... | " | 11,130 | 4,788 | 9,722 |
| | | 4,934 | | |
| Coal, hard..... | Westbound | 56,066 | 375,127 | 431,193 |
| Coal, soft..... | " | 287,200 | 1,580,950 | 1,868,150 |
| Flour..... | " | | | |
| Grain..... | " | | | |
| Manufactured iron..... | " | | 18,509 | 34,363 |
| Iron ore..... | " | 15,854 | | |
| Salt..... | " | | | |
| General merchandise..... | " | 17,724 | 42,413 | 60,137 |
| Passengers..... | " | 50,368 | 93,909 | 144,277 |
| | | 6,422 | 4,320 | 10,742 |
| | Summary. | | | |
| Vessel passages..... | Number | 951 | 2,126 | 3,077 |
| Registered tonnage..... | Net | 2,921,890 | 3,864,335 | 6,786,225 |
| Freight—Eastbound..... | Short tons | 4,335,992 | 2,007,387 | 6.3 |
| " —Westbound..... | " | 412,020 | 2,074,857 | 2.4 |
| Total freight..... | " | 4,748,012 | 4,082,244 | 8.8 |

and San Francisco, via the Panama Canal, sailing every three weeks. The trip from New York to San Francisco will be made in 16 days, and the vessels will call either at San Diego or at Los Angeles, Cal.

It is reported that the C.P.R. is making some enquiries on the Clyde, which suggest that it is under consideration to place a contract there for the building of a vessel to replace the lost *Empress of Ireland*. The enquiries, it is said, are directed mainly to finding out the bearing which the general conditions of shipbuilding and the circumstances of the particular yards may be expected to have in the matter of cost and the probable date for delivery.

The wrecked s.s. *Empress of Ireland*, which was reported by divers to be lying on her side, as she sank, was stated recently to be slowly changing her position and attaining an upright position. As a result of this, the masts were reported to be, at low tide, only 35 ft. below the water level, and as this would constitute a menace to navigation, instructions were given to the divers to dynamite the masts. Marine Department officials have no definite views as to the cause of the change of position, but presume that the strong currents may have something to do with it. Capt. Walsh, Marine Superintendent, C.P.R., Quebec denied that there was any change in the position of the vessel or that she was a menace to navigation.

Maritime Provinces and Newfoundland.

We were officially advised Aug. 4, that the Prince Edward Island car ferry would be launched at Newcastle upon Tyne, Eng., Aug. 21.

Two bulk cargo steamships of 11,000 tons capacity are reported to be under construction at Sunderland, Eng., for charter to the Dominion Coal Co., Sydney, N.S. They are being built on the Isherwood system.

The light ship maintained on Lurcher Shoal, off Yarmouth, N. S., will be removed from her station on, or about, Sept. 1, to undergo necessary repairs, during which her station will be marked by a combined gas and whistling buoy, painted red and showing an occulting white light. The light ship will be off her station about four weeks.

The Reid Newfoundland Co.'s s.s. *Invermore*, which ran ashore near Brig Harbor Point in July, has been abandoned as a total loss. The company's s.s. *Kyle*, which was sent to investigate and report on the condition of the wreck, returned to St. John's with the information that nothing can be done in the way of floating the vessel. It was reported that a portion of the cargo had been salvaged, together with some of the ship's furniture. It is stated that the vessel was uninsured.

A press dispatch from Halifax, N.S., says that following on the agreement with the Canadian Government Railways for the taking over of the New Brunswick and Prince Edward Island Ry., an up to date ferry will shortly be placed in service between the main land and Prince Edward Island. It is presumed that this item has reference to the ferry service decided on a year or two ago, the construction of terminals for which is now proceeding at Cape Tormentine, N. B., and Carleton Point, P. E. I., and the vessel being under way in Great Britain. Full details of this work have already been given in various issues of Canadian Railway and Marine World.

The s. s. *Storstad*, which was held responsible for the loss of the C. P. R. s. s. *Empress of Ireland* in the St. Lawrence, at the end of May, has been fully repaired at Levis, and has returned to Sydney, to take

up a renewed charter with the Dominion Coal Co. The officers and crew are the same as were in charge of the vessel before the disastrous collision. It is stated that the *Storstad* will, for the time being, carry coal between Sydney and Newfoundland, but may return to the St. Lawrence route later in the season.

At a sitting of the Dominions Royal Commission to enquire into the possibilities of the extension of trade between Great Britain and the Dominions and colonies, at St. John, N. B., Aug. 11, the Mayor stated that there was upwards of 12,000 lin. ft. of wharf frontage. The average run of tide there is 19.3 ft. The city spent \$1,250,000 on wharf facilities on the west side. The Dominion Government is carrying out dredging operations on a large scale there, the contract for which was let in 1912 to the Norton Griffiths Co., amounting to approximately \$7,500,000, and it is expected that the work would be completed in 1917. He also stated that there are no engineering difficulties in the way of dredging to give a depth of 40 ft. in the harbor. The city's capital expenditure for docks was about \$2,000,000, and the Dominion Government has expended about \$3,500,000 on improvements on the west side, but the amount of expenditures on the Courtenay Bay project is not available. The balance in the wharf finances is against the public, that is, the wharves do not pay for themselves. In 1913 exports were valued at \$25,000,000. Upwards of 6,000 ft. of wharfage at the port had a depth of from 24 to 30 ft.

Province of Quebec Marine.

The name of the s.s. *Bellona*, registered at Montreal, no. 84,134, has been changed to *Desola*.

The work of widening the Rapide Plat Canal was reported completed July 29, when the contractors, Roger Miller and Sons, Toronto, commenced removing their plant.

The grain receipts at the Montreal Harbor Commissioners' elevators, from the opening of the navigation season, to Aug. 8, were 34,383,908 bush., which is considerably in excess of the corresponding period in any previous year.

The Gaspé and Baie des Chaleurs Steamship Co.'s s.s. *Canada*, which ran aground at Cape Chatte, near Matane, early in July, was released July 22 and taken to Quebec for examination and overhaul. The damage sustained was not serious.

The Gaspé and Baie des Chaleurs Steamship Co.'s s. s. *Canada* has been repaired at the Vickers dry dock at Montreal, after having been damaged by grounding at Cape Chatte. The damage was not so great as anticipated, some six or seven of her bilge plates having been set in.

It is reported that the Dominion Government has practically closed negotiations for a site for a new wireless telegraph station in the vicinity of Montreal, to replace the one at Tarte pier. The range will, it is said, be much wider than the present one, giving communication with Kingston, Ont., and Quebec.

St. Omer, Que., has been designated a port under part 12 of the Canada Shipping Act, the limits being all the waters of Chaleur Bay and the navigable portions of streams, ponds, etc., within the prescribed limits east of the west boundary of St. Omer Parish produced west of the east boundary of Carleton West Parish produced and north of the boundary between the provinces of Quebec and New Brunswick.

The harbor of Nouvelle, Que., has been designated a port under part 12 of the Canada Shipping Act. The limits of the port cover all the waters of Chaleur Bay and of the navigable portions of streams, ponds, etc., within the prescribed limits east of a line drawn due north and south astronomically through a point one nautical mile due west of the extremity of Maguacha Point west of the west boundary of St. Omer Parish produced and north of the dividing line between the provinces of Quebec and New Brunswick.

Ontario and the Great Lakes.

The Public Works Department received tenders, Aug. 31, for the construction of a wharf at Kensington, Algoma District.

The St. Lawrence and Chicago Steam Navigation Co.'s s.s. *E. B. Osler* ran aground in St. Marys River, Aug. 24.

The Star-Cole Line s.s. *Huron* ran ashore on Clapperton Island, Lake Huron, towards the end of July, and suffered considerable damage to her hull.

The Port Arthur Board of Trade has asked the Dominion Government to proceed immediately with the erection of a 5,000,000 bush. annex to the Government elevator there.

The salvaged s.s. *I. W. Nicolas*, wrecked in Nov., 1913, which has been purchased by Canadian interests and repaired, has been renamed *Inland*, and placed on the Canadian register.

The St. Lawrence and Chicago Steam Navigation Co.'s s. s. *J. H. G. Haggerty*, built at Collingwood, recently, sailed for Detroit, Mich., Aug. 3, on her maiden trip. Capt. Williams is in command.

The outer and last crib of the extension to the west breakwater at Cobourg, was sunk on July 20, and the gas beacon has been placed 235 ft. back from the outer end of the west breakwater.

The Algoma Dredging Co., Ltd., has been incorporated under the Dominion Companies Act, with \$100,000 capital and office at Sault Ste. Marie, Ont., to carry on a general contracting and dredging business.

Canada Steamship Lines, on Aug. 18, removed its steamships *Corona* and *Chicora* from service for the balance of the season. The former was on the Niagara River route and the latter on the Olcott Beach route.

The s. s. *Turret Chief*, which was driven ashore and damaged during the storm of Nov., 1913, was offered for sale by the underwriters recently, but as no satisfactory bids were received, they are holding her for private sale.

An Ottawa press dispatch states that a new lock is to be built on the Trent Canal at Bobcaygeon to replace the present one, which is in a bad state of repair. The land has been purchased, and tenders have been called for.

Two clerks employed by Canada Steamships Lines, Ltd., were each fined \$200 and costs, at Toronto, Aug. 10, for selling intoxicating liquors, without a license, on board the company's steamships *Cayuga* and *Chippewa*.

What is stated to be a new record for discharging grain to elevators, was reported from Port Colborne, recently, when the steamships *J. T. Hutchinson* and *P. P. Miller*, each with cargoes of 200,000 bush., were discharged in 10 hours.

The wooden s.s. *J. H. Prentiss*, which struck a reef on Manitoulin Island, July 16, and sank, has been released and taken to Sarnia, where she will be repaired. A hole

14 ft. long was cut in the bottom of the hull, and she sank in 25 minutes.

The Great Lakes Dredging Co.'s dredge Shuniah, which has been under rental to the Toronto Harbor Commission, in connection with its work in the Toronto harbor, sank at her moorings, Aug. 16, in 20 ft. of water. It is stated that a seacock was left open.

The Public Works Department has awarded dredging contracts, for work at Little Detroit River, to the C. S. Boone Dredging and Construction Co., at prices approximating \$12,000, and for work at Bruce Mines, to the Soo Dredging Co., for approximately \$6,975.

Plans are stated to have been filed with the Public Works Department, for the removal of the existing breakwater between the C. N. R. and Horne elevators at Port Arthur, and for the construction of another breakwater extending about 1,000 ft. further into the bay.

The back range light at Port Colborne has been removed from the east side of the entrance channel to the vicinity of the outer elbow on the west breakwater pier. When again placed in working order, it will be a red occulting light, to distinguish it from the town lights.

A recent press report from Kingston states that Canada Steamship Lines Ltd. is negotiating for the purchase of Garden Island, now owned by the Calvin Co. It is stated that the company proposes to use the island for a shipyard, where its western steamships may be quartered for the winter.

The dredge Tornado, under construction at Toronto for the Canadian Stewart Co., in connection with that company's contract with the Toronto Harbor Commission, for general harbor improvements, was launched from the Polson Iron Works, Aug. 15. She is similar in type to the Cyclone, launched from the same works in July.

The Keystone Transportation Co.'s s. s. Keynor, which arrived recently at the head of the Great Lakes, on her maiden trip from Sweden with wood pulp, has been placed in regular service on the Montreal grain route. She is a similar type of vessel to others owned by the same company, and was built at Londonderry, Ireland, and engined at Greenock, Scotland.

A. C. Lewis, Secretary, Toronto Harbor Commission, is reported to have stated recently, that the work on the harbor improvements is to be continued in accordance with the plans laid out at the commencement of the season. Approximately \$1,400,000 will be spent on reclamation work, pile driving, piers and the excavation of the ship channel in Ashbridges Bay.

The Westerman Transportation Co., Ltd., has been incorporated under the Dominion Companies Act, with \$100,000 capital, and office at Ottawa, Ont., to carry on a general steamship owning and passenger and freight transportation business. The incorporators are, J. H. Hall, R. T. Holcomb, E. Hall, Ottawa; A. Lefebvre and E. Amyot, Valleyfield, Que.

Canada Steamship Lines s. s. W. Grant Morden, which went into service, May 9, has been carrying some record breaking cargoes. On her first trip she carried 419,000 bush of grain to Port Colborne, and as a return cargo had 12,168 tons of coal, and her last trip in May was with 538,558.20 bush. grain. In all return trips she has carried from 12,000 to 12,500 tons of coal or ore.

A press dispatch from Windsor states that before the fall the harbor planned by the Dominion Government in response to the request of the navigation interests at

Leamington, will be ready for vessels drawing not more than 25 ft. Soundings are being made, and it is expected that a breakwater will be built for about 300 ft. into the lake to the west of the present dock, thus forming a commodious and safe haven for vessels during bad weather.

P. Paton, Assistant Operating Superintendent Passenger Steamers, Canada Steamship Lines, Toronto, announced, Aug. 15, that intoxicating liquor will not, in future, be sold on the company's vessels operating out of Toronto. It has been the custom for several years to supply it on the company's vessels, when called for, and it has also been customary for the license officials to prosecute the captains, and exact fines and costs, towards the end of each season.

A syndicate is reported to have been formed, composed of Windsor and Detroit men, with the object of locating and, if possible, salvaging the car ferry Marquette and Bessemer No. 2, which foundered during a storm, Dec. 9, 1909, when en route from Conneaut, Ohio, to Port Stanley, Ont. The vessel was valued at \$50,000 and the cargo at \$35,000. H. L. Drake, P. D. White, Windsor; E. L. White, St. Thomas; and W. C. Moore, Detroit, are said to be interested.

Bassett Steamship Co., Ltd., has been incorporated under the Ontario Companies Act, with \$100,000 capital, and office at Toronto, to own and operate steam and other vessels. Capt. Bassett, who is chiefly interested in this company, was formerly connected with the Western Steamship Co., Toronto, which owned the steamships J. A. McKee and Wexford. The former was sold recently to the Algoma Central Steamship Line, Sault Ste. Marie, Ont., and the latter was lost in the Great Lakes storm of Nov., 1913.

The U. S. Lake Survey reports the levels of the Great Lakes in feet above tidewater, for July, as follows:—Superior 602.68; Michigan and Huron 580.74; Erie 572.83; Ontario 246.72. Compared with the average July levels for the past ten years, Superior was 0.18 ft. above; Michigan and Huron 0.38 ft. below; Erie 0.07 ft. below, and Ontario 0.035 ft. below. It was anticipated that during August, Superior would rise 0.2 ft.; Michigan and Huron fall 0.1 ft.; Erie 0.2 ft., and Ontario 0.3 ft.

Referring to a recent press dispatch from Cobourg, which stated that a contract had been made between the G.T.R. and C.P.R. to bring in coal for the latter company, by the Ontario Car Ferry Co.'s car ferries, and that in addition to the second car ferry now being built, a third car ferry, not to carry passengers, will also be built, we are officially advised that this is merely a rumor arising from the fact that the Ontario Car Ferry Co. is having a second car ferry built by Polson Iron Works, Toronto. A description of this vessel has already been given in Canadian Railway and Marine World.

The Windsor and Pelee Island Steamship Co.'s steamboat Pelee, which was built at Collingwood, this year, is under lease to the Windsor, Detroit and Wallaceburg Steamship Line, until the middle of September. The proprietor of the line is H. B. Smith, Windsor, Ont., who it is said proposes to incorporate a company early in the new year, and to build a steel steamship at an approximate cost of \$150,000. He is also said to be considering the possibility of chartering a vessel to carry freight during the winter between Sarnia, Amherstburg, Dresden, Sandwich and other ports.

Owen Sound press reports state that F. F. Wood of Niagara Falls, Ont., who controls a charter for a dry dock at Owen Sound, and

who has received local assurance of a subsidy under certain conditions, has assigned two-thirds of his interest in the project to New York capitalists. He is reported to have stated originally, that he had sufficient English capital in sight to build the dock, and though local interests are not impressed with the latest move on the promoter's part, they are awaiting developments, before committing the present scheme to the place where previous Owen Sound dry dock schemes have gone.

The Lake Carriers' Association has engaged in a campaign for the elimination of collisions in the open lake owing to fogs. The association has already decided that all vessels enrolled in the association shall follow separate courses on the Great Lakes, eastbound vessels taking an outside course and westbound vessels an inside course. This rule has not been observed strictly, and a number of collisions have occurred, all being head on collisions, there being no instance of a head to stern collision on the lakes during a fog. The matter is being taken up strongly by owning companies, and the safety factor is being impressed on the masters, it being pointed out that quick passages regardless of safety are not desired, and are only desired when the weather is clear and fair.

In 1912, the Montreal Transportation Co. ordered a vessel in England, with propelling machinery of a distinctly new order for which the inventor and designer claimed a great deal. The principle was a combination of Diesel engine and electric motors coupled direct to the propeller shaft, and was fully described in Canadian Railway and Marine World for Nov., 1912. On her trial trips she proved a failure, and the M. T. Co. declined to accept her. A second series of trials proved no more successful, and the propelling machinery was removed and replaced by an ordinary steam equipment. She sailed from England July 9, and took 19 days in crossing. She is of the ordinary type of lake vessel, and is of the following dimensions,—length between perpendiculars 250 ft., length overall 256 ft., breadth extreme 42½ ft., depth moulded 19 ft., and she has a speed of about 10 knots an hour. She was originally named Tyne-mount, but later her name was changed to Port Dalhousie.

The French River and Nipissing Navigation Co., with its steamboats Elgin L. Lewis, Highland Belle and Northern Belle, and a houseboat, Dundonald, has been acquired by F. E. Macdonald, Newcastle, Ont. The Elgin L. Lewis was built at Orillia, Ont., in 1904, and is screw driven by engine of 6 n.h.p.; dimensions—length 70 ft., breadth 12.3 ft., depth 5 ft.; tonnage, 50 gross, 30 register. She has not yet been placed on a regular route for this season. The Highland Belle was built at Orillia in 1900, and was originally named Van Woodland. She is screw driven by engine of 3 n.h.p., and is of the following dimensions: length 75 ft., breadth 16.8 ft., depth 5.2 ft.; tonnage, 50 gross, 31 register. She runs on a daily schedule out of Sturgeon Falls, three times a week up the west arm of Lake Nipissing to Monetteville, and three times a week to French River and Chaudiere Falls, with J. Hicks as captain and A. Major as chief engineer. The Northern Belle was built at Sturgeon Falls in 1905, and is screw driven by engine of 30 n.h.p. Her dimensions are: length 104 ft., breadth 21.6 ft., depth 7.6 ft.; tonnage, 222 gross, 169 register. She is operated daily from North Bay to the French River and Chaudiere Falls, with A. McKenney captain and J. Coventry as chief engineer. H. H. R. Macdonald, Sturgeon Falls, Ont., is Manager of the company.

Manitoba, Saskatchewan and Alberta.

Regarding the various schemes for making the Saskatchewan River navigable for freight and passenger vessels, between Lake Winnipeg and Edmonton, it has been proposed to increase the flow of water, by diverting the overflow of the northern lakes and streams which feed them, in a southerly direction. The proposals are considered quite feasible, covering a cutting from Green Lake to Crooked River, diverting the Beaver River and also the outflow from Lac la Ronge and Isle a la Cross Lake, as well as Green Lake, southerly through Devils Lake to Shell River and thence to the Saskatchewan River near Prince Albert. Various surveys which have been made from time to time, show that the low water, coupled with the innumerable sandbanks, are at present the chief obstacles to overcome in making a properly navigable waterway.

The Hudson Bay Co., which has been in the transportation business practically ever since 1670, has, this season, issued its first time table. All its service, which covers thousands of miles of river, lake, ocean and land, is operated from Athabasca, the terminus of the Canadian Northern Ry. branch running straight north from Edmonton, Alta. The s.s. Athabasca is run from Athabasca to Mirror Landing, whence there is a drive of about 16 miles to Salteaux Landing, from which point the s.s. Slave River is run to Grouard. From Grouard there is a drive of about 90 miles over an excellent trail to Peace River Crossing, whence the s.s. Peace River runs up and down stream, easterly to Fort Vermilion and The Chutes, and westerly to Fort Dunvegan, Fort St. Johns and Hudson's Hope. From Athabasca North, down stream on the Athabasca River, the scow Transport runs to McMurray, 252 miles, and the s.s. Grahame from McMurray to Fort Chipewyan, Smith's Landing and The Chutes, at the Peace River. Sailings from Smith's Landing northerly are also made at intervals for both passengers and freight. The complete route from Athabasca to Fort McPherson, on the Mackenzie River route, covers 1,854 miles, the fare for the complete distance being \$103 down, and \$133 up.

British Columbia and Pacific Coast Marine.

The C.P.R. recently arranged for a series of six special cruises to Alaska through the Inside Passage.

The Grand Trunk Pacific pier at Seattle, Wash., was destroyed by fire at the end of July. Arrangements have been made for the company's vessels to use no. 2 pier.

The G. T. Pacific Coast Steamship Co.'s s.s. John struck a log when leaving Ikeda, recently, and broke two of her propeller blades. The damage was subsequently repaired at Victoria.

A press report from Victoria states that the Board of Trade received a communication from the U. S. Government recently, to the effect that no duty will be charged on repairs done to U. S. vessels in Canadian ports.

The dredging of the new channel from the Gulf to the Fraser River has been completed, and the sandheads light ship and the buoys marking the old channel will shortly be removed to the new channel. It is stated that the new channel is from 18 to 20 ft. deep at low water, and lies about half a mile north of the old one.

Capt. F. Turner, of the Empire Stevedoring Co., Vancouver, B.C., died at his home there, Aug. 18, after a very short ill-

ness, aged 40. He was for several years in the service of the shipping firm of Andrew Weir and Co., and commanded several of the vessels for which that company acted as agent, the last being the Levernbank.

The Dominion Shipbuilding, Engineering and Dry Dock Co.'s projected plant at Vancouver, it is reported, will eventually comprise seven large building slips, a 1,000 ft. graving dock, machine shops, and a fresh water basin. The Lonsdale estate, comprising about 100 acres with a frontage of 1,400 ft. on Burrard Inlet, is reported to have been acquired.

Negotiations are proceeding with the Puget Sound Navigation Co. for the establishment of a steamship service between Anacortes, Everett, Bellingham, Vancouver and Victoria. It is reported that the company, before committing itself to the proposal, desires to know what likelihood there is of business sufficient to warrant the service, but in any case, nothing can be done until next season.

The Pacific Coast Steamship Co.'s s.s. Curacoa, which was wrecked at Warm Chuck, Alaska, June 21, 1913, has been raised by the Vancouver Dredging and Salvage Co., and taken to Vancouver. When she sank, she had on board, 800 tons of coal, and 750 tons of general cargo. The wreck was located in 78 ft. of water low tide with a tidal range of 15 ft. Her dimensions are, length 257 ft., breadth 38 ft., depth 17.5 ft.

The s. s. Princess Irene, sister vessel of the s. s. Princess Margaret, launched recently for the C. P. R. British Columbia Coast service, at Dumbarton, Scotland, was expected to be launched during August. The equipment of the Princess Margaret is proceeding rapidly, but as the contract time for delivery on the coast is not until early next year, it is stated that this will not be rushed. It was announced a short time ago that both vessels would leave the Clyde early in November for Victoria, by way of the Panama Canal.

It is reported that up to the end of July, the amount of dredging done by the Dominion Government in connection with the Vancouver harbor improvements, covers the removal of 1,700,000 cubic yards of material from the First Narrows, in addition to the clearing away of the Parthia Shoal, and the dredging of a deep water channel in Coal Harbor. Over 1,250,000 cubic yards of material has been taken out of False Creek. The channel at the First Narrows is to be widened to about 1,400 ft., the fair way at present being only about 450 ft.

An inquiry has been held at Vancouver into the collision between the West Vancouver ferry Doncella and the West Vancouver No. 5, in Vancouver Narrows, July 4. Capt. J. D. Macpherson acted on behalf of the Dominion Wreck Commissioner, and was assisted by Capt. Copp and Commander Union, as nautical assessors. The judgment stated that the collision was due to the careless and reckless manner in which P. H. Johnson, master of the West Vancouver No. 5, handled his vessel, and pointed out that the number of complaints that have been made to the harbor officials, show that reckless navigation by many small vessels using the dangerous tidal of the Narrows, has been going on for a considerable time, and as a deterrent, Johnson's certificate was suspended for three months. The master of the Doncella, D. Smith, was absolved from blame, so far as the actual impact was concerned, but censured for not reducing speed earlier and dropping astern, when he saw what the tactics of the other vessel were, and he was warned to be more careful in the

future. The Court also suggested that the ferry managements should so arrange their schedules so that no two vessels should leave at the same time, as such a practice is a strong incentive to racing.

Furness, Withy and Co.'s Report for the year ended Apr. 30, shows profits, including the balance brought forward, of £765,488 12s 11d. After charging directors' fees and income tax there remains £751,949 9s 7d. The usual half yearly dividend on the preference shares was paid Nov. 1, 1913, and three quarterly dividends on the ordinary shares at 10% free of income tax were also distributed, leaving an available balance of £566,639 5s 11d, out of which £350,000 was transferred to depreciation account. The balance was disposed of, as follows:—Preference share dividend at 5%, paid May 1, £35,310 3s 8d, ordinary share dividend at 10% paid May 1, £50,000, carried forward to current year's accounts £131,329 2s 3d. The directors continued the policy of disposing of the older vessels of the fleet, and during the year sold several at satisfactory prices. These vessels are gradually being replaced by new tonnage, specially adapted to the requirements of the various trades. The company has secured an interest in the Johnston Line, Ltd., Liverpool, which the directors feel sure will prove valuable. The company operates vessels to various parts of the world, including Montreal, and the balance sheet includes in the assets an investment of £150,000 in the British Maritime Trust, Ltd., which represents its interest in Canada Steamship Lines, Ltd.

La Compagnie de Navigation St. Laurent-Richelieu, the incorporation of which was announced in our last issue, is reported to have purchased the following steamboats, Terrebonne, R. Paul, Ferdinand, and a steam tug and three barges. It is stated that the Terrebonne will sail from Montreal each Tuesday and Friday, for Sorel, St. Denis, Beloeil and intermediate points, the R. Paul on each Monday, Thursday and Saturday for Varennes, Vercheres, Sorel and St. Joseph de Sorel, and the Ferdinand between St. Tours and Beloeil. The Terrebonne, recently owned by Capt. A. Lamothe, St. Denis, and formerly by the Richelieu and Ontario Navigation Co., was built at Sorel in 1871 and practically rebuilt there in 1895. She is a paddle wheel vessel with engine of 28 n. h. p. Her dimensions are length 156.2 ft., breadth 24.1 ft., depth 7.2 ft.; tonnage, 636 gross, 320 register. The R. Paul was owned by A. Guertin, St. Charles, and was built at Sorel in 1911. She is screw driven by engine of 2 n. h. p., and is of the following dimensions,—length 80 ft., breadth 18 ft., depth 4.6 ft.; tonnage, 61 gross, 28 register. The Ferdinand was owned by Capt. F. Fecteau, St. Antoine, and was built at St. Antoine in 1905. She is screw driven by engine of 28 n. h. p., and her dimensions are, length 87 ft., breadth 17.6 ft., depth 5.4 ft.; tonnage, 76 gross, 48 register.

Comparison of Welland Canal Statistics.—Following are statistics from the American Railroad Journal, Feb. 14, 1835, relating to traffic on the Welland Canal in 1834:—Number of vessels passing through the canal, 570 schooners, 334 boats and scows and 66 rafts; total all vessels, 970, with a total tonnage of 37,927; tolls, approximately, \$21,500; total expenditure on the canal, including 1834, approximately, \$1,800,000. These figures compare with those for the season of 1913 as follows:—Number of vessels passing through the canal, steam 2,867, sailing 362, total all vessels 3,229; total tonnage, 3,164,530; system of tolls abolished; total expenditure on canal, including 1913, \$29,250,951.01.

Canadian Notices to Mariners.

The Department of Marine has issued the following:—

230. July 8. Ontario, Lake St. Clair, Thames River front range light, change in illuminating apparatus.

231. July 8. Ontario, River St. Mary, westward of Vidal shoals, gas buoy established at junction of channels.

232. July 8. United States of America, Lake Superior, off Presque Isle Point, and Marquette, uncharted shoals.

233. July 18. Prince Edward Island, southeast coast, Cape Bear, temporary light.

234. July 18. Quebec, Restigouche River, Battery Point to Campbellton, change in positions of buoys.

235. July 18. Quebec, River St. Lawrence, eastward of Orleans Island, change in characteristic of lights shown from gas buoys placed temporarily for dredging purposes.

236. July 20. Ontario, Lake Superior, Slate Islands, change in character of light, fog alarm established.

237. July 21. New Brunswick, south coast, Bay of Fundy, Martin Head, light-house established.

238. July 21. Prince Edward Island, south coast, Northumberland Strait, off Carleton Head, gas buoy placed.

239. July 21. Canada, caution with regard to sweeping operations.

240. July 21. Ireland, west coast, Great Skellig Island, fog signal established.

241. July 22. New Brunswick, Bay of Fundy, Campobello Island, Head Harbor, fog bell to be discontinued, intended change in position and character of fog alarm.

242. July 22. Nova Scotia, Bay of Fundy, Brier Island, northwest ledge, intended change in position of gas and whistling buoy, submarine bell buoy to be established.

243. July 22. Nova Scotia, Bay of Fundy, Lurcher shoal, light ship to be removed from her station, temporarily, for repairs.

244. July 24. Nova Scotia, south coast, off entrance to Owls Head harbor, bell buoy to be established.

245. July 24. Nova Scotia, Cape Breton Island, Bras d'Or Lake, East Bay, buoys established.

246. July 24. New Brunswick, Miramichi River, Bras d'Or Lake, East Bay, buoys range lights established.

247. July 24. Ireland, south coast, Port of Cork, White Bay, leading lights and light buoy established.

248. July 25. Ontario, Lake Ontario, Cobourg harbor, extension to west breakwater, information.

249. July 25. Ontario, Lake Erie, Port Colborne, intended change in position of back range light, caution.

250. July 25. Ontario, Lake Huron, Southampton, gas buoy replaced by gas and bell buoy.

251. July 25. Ontario, Georgian Bay, east side, Waubune Channel, Lone Rock, gas and whistling buoy replaced by gas and bell buoy.

252. July 25. Ontario, Georgian Bay, east side, Byng Inlet approach, westward of Maganatawan ledges, gas buoy replaced by gas and whistling buoy.

253. July 27. Quebec, River St. Lawrence, Lake St. Francis, Coteau Landing, light on wharf to be shown from gas beacon.

254. July 27. Ontario, Georgian Bay, east side, Giants Tomb Island, change in character of light.

255. July 29. Nova Scotia, west coast, submarine fog bell off Cape Fourchu discontinued, submarine bell buoy to be established near Yarmouth gas and whistling buoy.

256. July 29. Quebec, River St. Lawrence, below Quebec, Empress shoal, gas

buoy established, change in position of gas buoy.

257. July 30. Quebec, River St. Lawrence, Lake St. Louis, buoy established northwestward of Chateauguay lightship.

258. July 30. Quebec, Ottawa River, Lake of Two Mountains, Graham, front range light raised.

259. July 30. Ontario, Lake Ontario, Niagara River mouth, Niagara-on-the-Lake, change in characteristic of fog alarm.

260. July 30. Ontario, Georgian Bay, approach to Midland, eastward of Elimere Point, McNicoll back range lighthouse, slats placed in skeleton frame.

261. July 30. Ontario, Georgian Bay, east side, Roberts Island, Honey Harbor channel, light established on Turning Rock beacon, buoy established.

262. Aug. 4. British Columbia, Vancouver Island, east coast, Baynes Sound, Base Flat, Union Spit, beacons to be replaced by platform buoys.

263. Aug. 4. British Columbia, Chatham Sound, Metlakatla harbor, change in character of buoys.

264. Aug. 5. British Columbia, Strait of Georgia, Fraser River entrance, change in positions of buoys and lightships.

265. Aug. 5. British Columbia, Grenville channel, York Point, day beacon erected.

266. Aug. 5. British Columbia, Grenville channel, entrance to Lowe Inlet, Tom Island, day beacon rebuilt.

267. Aug. 5. British Columbia, Skeena River, Middle passage, Kennedy Island, eastward of Georgy Point, day beacon erected.

268. Aug. 6. Canada, information and regulations relating to war conditions, warnings to mariners.

269. Aug. 6. New Brunswick, Bay of Fundy, Grand Manan Island, uncharted shoal between Green Islands and Big Wood Island.

270. Aug. 6. Nova Scotia, south coast, approach to Halifax, northward of inner gas and whistling buoy, electrically operated submarine fog bell discontinued, submarine bell buoy to be established.

271. Aug. 7. Ontario, Lake Huron, Goderich north breakwater, description of light, alteration to beacon, fog alarm established, fog whistle on Goderich waterworks building discontinued.

272. Aug. 11. Ontario, Detroit River, Limekiln Crossing range lights established, Texas dock eastern and western range lights to be discontinued, old range lights at Bois Blanc Island to be discontinued.

273. Aug. 11. Detroit River, Livingstone Channel, gas buoys established, buoys moved.

274. Aug. 12. Ontario, Georgian Bay, Penetanguishene harbor, dredging, buoyage, lights.

275. Aug. 15. Quebec, Ottawa River, Vaudreuil, change in position of back range beacon.

276. Aug. 15. Ontario, Ottawa River, South Nation River mouth, buoys established.

277. Aug. 15. Ontario, Bay of Quinte, Picton, buoys established.

278. Aug. 15. Ontario, Lake Ontario, Toronto harbor approach, bell buoys placed, gas buoy placed.

279. Aug. 15. Ontario, Georgian Bay, Thornbury, bearing of range lights.

280. Aug. 15. Ontario, Georgian Bay, east side, Waubune channel, southwestward of Oak Island, uncharted rock, intended change in position of buoy.

281. Aug. 15. Canada, warning, British ships must show their colors when signalled.

282. Aug. 18. Nova Scotia, south coast, approach to Halifax, War channel buoyed from Neverfail shoal to seaward for use of all shipping, warning to mariners.

283. Aug. 18. Nova Scotia, south coast, Halifax harbor, Lighthouse bank, conical buoy replaced by gas buoy.

284. Aug. 18. Nova Scotia, south coast, Halifax harbor, Mauger Beach, fog alarm temporarily discontinued.

285. Aug. 19. Nova Scotia, Bay of Fundy, Minas Basin, Burntcoat, new lighthouse.

286. Aug. 19. Nova Scotia, south coast, Beaver harbor, Beaver Point, light pole replaced by lighthouse, change in color of light.

287. Aug. 19. Quebec, Gulf of St. Lawrence, Natashkwan Point, lighthouse established.

288. Aug. 20. Nova Scotia, Bay of Fundy, Grand Passage, Bald Rock, spindle erected.

289. Aug. 20. Quebec, River St. Lawrence, Point des Monts, change in character of light.

290. Aug. 20. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, above Ile St. Ours, Petite Traverse, spar buoys replaced by conical buoys.

291. Aug. 20. Quebec, River St. Lawrence, below Montreal, Lanoraie to Varennes, Repentigny Channel to be used by light draught vessels.

292. Aug. 20. Quebec, River St. Lawrence, Repentigny Channel, Ile Lebel, front range lighthouse decreased in height.

The Demand for Lakes Tonnage.—In his introduction to the recent issue of Beeson's Marine Directory, the publisher says,—“Navigation for the season of 1914 opened very slowly, in fact as far as any urgent demand for any class of tonnage, there was practically none. The boats of a few of the largest companies were finally got into commission by about June 15, but as we go to press, June 25, there are fully 30% of the lake tonnage entirely idle, most of which has not been fitted out this spring. There is little prospect of any great increase of tonnage unless the enormous grain crops about to be harvested are moved very freely before Dec. 1, which would help the situation some, and it is possible with the adjustment of eastern rail freight rates, which is expected early in July, that an increase in movement in iron ore may take place.” The statement that fully 30% of the lake tonnage was entirely idle at the date named, must be taken as applying to U. S. tonnage only, as, although it may be admitted that cargoes have not, generally, been up to the level of last season, it cannot be said that any such proportion of Canadian tonnage has been idle even at so early a point in the season as that indicated. The statement of Jas. Carruthers, President, Canada Steamship Lines, Ltd., the company controlling the largest number of Canadian vessels engaged in the Great Lakes service, and published in Canadian Railway and Marine World for July, announced that well before the end of June, all of the vessels in the company's service were in operation.

A reflector, somewhat similar to the type used on automobiles, has been applied to the observation end of a private car recently built in the U.S. It is made so as to fold in flat with the side of the car, and is useful in enabling the people in the car to see ahead of the train by looking out of the car window.

A New York report states that the Interstate Commerce Commission has promised to act as soon as possible on the request that the G.T.R. be allowed to run boats between Providence and New York or Philadelphia. The petition from Providence is supported by one from the Central Vermont Ry., a G.T.R. subsidiary.

Among the Express Companies.

S. O. Martin has been appointed agent, Canadian Northern Ex. Co., Ottawa, Ont.

C. Potter has been appointed agent, Dominion Ex. Co., Revelstoke, B. C., vice J. D. Dickie.

A. F. Schussler has been appointed agent, Canadian Northern Ex. Co. at Brockville, Ont.

J. J. Gardiner has been appointed agent, Canadian Northern Ex. Co. at Smiths Falls, Ont.

J. C. Bennett has been appointed cashier, Dominion Ex. Co., Nelson, B. C., vice J. H. Whitehouse.

J. Donaldson has been appointed acting agent, Dominion Ex. Co., Port Arthur, Ont., during the absence on leave of T. Gray.

J. J. Stinn has been appointed chief clerk, Dominion Ex. Co., Regina, Sask. He was formerly in the company's Winnipeg office.

The Canadian Northern Ex. Co. has opened an office at Ashern, Man., and has closed its offices at Deerfield and Grays, Man.

J. S. Mooney, heretofore agent, Canadian Ex. Co., Sherbrooke, Que., has been appointed joint agent there, of the Canadian Ex. Co., and American Ex. Co.

The Board of Railway Commissioners has extended the express collection and delivery limits in Winnipeg beyond those defined in the Board's order 18413, Dec. 31, 1912.

W. S. Martin, formerly agent, Dominion Ex. Co., Portage la Prairie, Man., has been appointed cashier, Dominion Ex. Co., Regina, Sask., vice T. E. Thackerey, who was recently drowned while on a canoe trip.

The Dominion Ex. Co.'s service has been placed in operation over the Campbellford, Lake Ontario and Western Ry. between Glen Tay and Agincourt, Ont., which is being operated by the C. P. R., with offices at Bowmanville, Brighton, Cobourg, Crow Lake, Grafton, Newcastle, Port Hope, Shannonville, Trenton and Wilkinson.

J. A. D. Vickers, who has been acting as Vice President and General Manager, American Ex. Co., Chicago, Ill., since the appointment of G. C. Taylor as President, entered express service in Canada, under his father, who founded the Vickers Ex. Co., and he was appointed Superintendent of that company in 1882. On the absorption of the Vickers Ex. Co. by the American Ex. Co., he was appointed Superintendent of the Canadian Division, American Ex. Co., and in 1891 was appointed Superintendent of the National Ex. Co.'s lines in the west, with offices at Chicago, Ill. He was appointed General Superintendent, July 1, 1905, and subsequently General Manager, which position he held until his recent appointment.

The British Columbia Express Co., with head office at Ashcroft, is reported to have gone into liquidation. It was founded by F. J. Barnard in 1862, and was popularly known as B.X., which has continued ever since. The company had a Government mail contract, conveying mails from Ashcroft on the C.P.R., to all points in the northern interior of the Province, with Fort George as the present northern terminus. During the summer months the service was performed by automobiles, horse stages and steamboats, and during the winter months by automobiles, horse stages and sleighs. The company operated over 900 miles of stage lines, with over 200 stage horses on the main lines, the horses being distributed in relays throughout the country, and changed at distances of about 16 miles. Four and six horse teams were driven and a regular schedule of 6 miles

an hour maintained by the stage coaches. The company's rolling stock consisted of all kinds of conveyances from a two horse thoroughbrace jerky to six horse Concord stages, passenger sleighs and automobiles, all of these, with the exception of the automobiles, being manufactured in the company's own shops at Ashcroft and 150 Mile House. A regular express business was conducted in northern British Columbia, connecting with the Dominion Ex. Co. at Ashcroft. The s.s. B.X. was placed in service in 1911 to run between Soda Creek and Fort George on the Upper Fraser River. This vessel was specially designed and built for the service, and specially engined with large power to enable her to run the Cottonwood and Fort George Canyons. It is announced that the business is being taken over by the Inland Express Co.

Telegraph, Telephone and Cable Matters.

James Clark, heretofore agent, C.P.R. Telegraphs, Saskatoon, Sask., has been appointed agent at Regina, Sask.

The Great North Western Telegraph Co., on Aug. 19, opened a telegraph service to Calgary, Alta., in conjunction with the Canadian Northern Telegraph Co.

D. W. Hyndman, heretofore agent, C.P.R. Telegraphs, Edmonton, Alta., has been appointed agent at Saskatoon, Sask., vice James Clark, transferred to Regina.

The C.P.R. has decided that the title of the official in charge of a telegraph office, will be that of agent. The title of manager, or local manager, hitherto applied to such officials is to be discontinued.

Sir William Marconi, G.C.V.O., was recently honored by King George with the Grand Cross of the Royal Victorian Order (honorary), thus signalizing his achievements with wireless telegraphy.

J. B. Sheldon, Superintendent of Telegraph, Union Pacific Rd., Omaha, Neb., who died there recently, aged 54, was a native of Canada, and was President of the Association of Railway Telegraph Superintendents for the year 1912-13.

The Dominion Government is arranging for the commencement of the work of erecting the telegraph line from Athabasca, Alta., to Lac la Biche. Work is also proceeding on the McMurray line, which has been completed to about 70 miles from Athabasca.

The Pacific Cable Board is reported to have arranged for the laying of a second cable from Bamfield to Port Alberni, an underground cable from Port Alberni to Parksville and a submarine cable from Parksville to Nanaimo, making connection with the cable from Nanaimo to Vancouver.

The Great North Western Telegraph Co. has extended the use of the Morkrum tape automatic printers, and is now operating circuits between Toronto and Montreal, Toronto and Buffalo, Toronto and New York, Montreal and New York and Montreal and Quebec.

The C.P.R. telegraph system, which was opened for public business in September, 1886, had, at the end of that year, 4,525 miles of poles, 14,506 miles of wire and 435 offices, and transmitted 567,840 messages. At the end of 1913, there were 13,800 miles of poles, 102,600 miles of wire, 1,400 offices, and about 5,000,000 messages were transmitted.

The Marconi International Marine Communication Co. reports that it has 873 vessels fitted with wireless telegraphy, as compared with 580 at the end of 1912, and 788 at the end of 1913. The receipts from ships' telegrams, news service, subsidies, rentals, etc. during the past year, were \$731,580, as

compared with \$501,610 for the preceding year.

The Great North Western Telegraph Co. has opened offices at Inch Arran House, Dalhousie, N. B., Burnt River, Clifton House, Niagara Falls, and Manotick, Ont., Little Metis, Manoir Richelieu Pointe au Pic, and St. Agnes, Que., and has closed its offices at Petawawa Camp, Ont., and Ste. Adelaide de Pabos, Que.

C. E. Davies, who was recently appointed Traffic Superintendent, Great North Western Telegraph Co., Toronto, was born at Hot Springs, Ark., Oct. 4, 1881, and entered Western Union Telegraph Co.'s service at Helena, Mont., as a messenger, in 1896. He became an operator in 1899, and on Jan. 1, 1906, was appointed chief operator, G.N.W. Telegraph Co., at Ottawa, Ont. On Sept. 20, 1909, he was appointed local manager there, and in Nov., 1911, was also appointed supervisor of equipment.

It was announced at Ottawa recently that the Dominion Government is erecting a new wireless telegraph station at Cape Race, which will practically double the radius of the present station, and make Cape Race the first point of land communication for all vessels using the North Atlantic route. The new equipment will have a radius of at least 500 miles instead of about 250 at present. It was expected that the towers would be ready for operation before the end of August.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Canadian Westinghouse Co., Ltd., has opened a branch office at 203 Hardisty St., Fort William, Ont.

Canadian General Electric Co., Ltd., Toronto, has issued bulletin A 4199 on railway motor gears and pinions.

Canadian General Electric Co., Ltd., Toronto, has issued bulletins 54,562 and 54,563 relating to parts of air brake equipment.

Canadian Allis-Chalmers, Ltd., Toronto, is distributing a catalogue of Tate flexible staybolts, for which it is agent in Canada.

Flannery Bolt Co., Pittsburg, Pa., has issued its 1914 catalogue of the Tate flexible staybolt and tools for installation, 30 pages, 8½ by 11½ ins., illustrated.

National Steel Car Co., Ltd., Hamilton, Ont., is building an extensive addition to its passenger car department which should be completed during September.

The Eastern Steel Co., Ltd., contracting engineers, New Glasgow, N.S., has issued bulletin one, 16 pages, 6 by 9 inches, describing and illustrating its coal handling plants.

The Ohio Brass Co. of Mansfield, Ohio, has been granted a license to manufacture brass goods, etc., at Toronto, the capital to be employed being stated as \$40,000. P Atwood Hinds, Toronto, is named as the attorney for the company.

The Trolley Supply Co., Canton, Ohio, has issued a folder describing and illustrating its simplex trolley base, for which it is claimed that the construction is radically different from that of any other base, as the tension increases as the pole goes up, and decreases as the pole comes down.

Canada Machinery Corporation, Ltd.—R. M. Hamilton, who was for many years General Superintendent of the McGregor Gourlay Co.'s Works at Galt, has been appointed Works Manager of the Canada Machinery Corporation, Ltd., with supervision of the manufacturing departments of its various plants. His headquarters are at Galt, Ont.

The John Bertram & Sons Co., Ltd., Dundas, Ont., and its associate company, Pratt & Whitney Co. of Canada, Ltd., discontinued on July 31 the arrangements with the Canadian Fairbanks-Morse Co., which has acted as sales agents for the past few years. The John Bertram & Sons Co. has organized a sales staff and will handle its business and that of the Pratt & Whitney Co. direct. The head office remains in Dundas, from which the Ontario section will be handled. The eastern sales office will be at 723 Drummond Building, Montreal, in charge of Alex. Bertram, General Sales Manager. The Winnipeg office will be in charge of Alfred Martin.

Canadian Fairbanks-Morse Co., Ltd.—Announcement is made that the arrangement whereby the Canadian Fairbanks-Morse Co. have been exclusive agents for Canada, for the Niles-Bement Pond Co., and selling agents for the Pratt & Whitney Co. of Canada, and the John Bertram & Sons Co. were discontinued August 1. The C. F. M. Co. will continue to handle the products of the R. McDougall Co., Ltd., Galt, Ont., including lathes, drill presses and shapers, radial drills and planers. They will also continue to handle exclusively for Canada the Brown and Sharpe milling machines, grinders, and screw machines and the Norton grinders. They have also arranged to handle railway machinery made by Wm. Sellers and Co., Philadelphia, Cleveland twist drills and

reamers, and Wells Bros. of Canada, Ltd., taps and dies.

The Detroit Lubricator Co. will exhibit the new Detroit flange lubricator at the Traveling Engineers Convention at Chicago, Ill., in September. The exhibit will consist of two wooden models of 45 degree sections of locomotive drivers with the lubricator installed in the same manner as in actual service. The whole apparatus will be rocked back and forth by an electrical contrivance to approximate working conditions on the road. The lubricator will feed on the flanges every time the lateral motion becomes pronounced and easy observation of its construction and operation will be made possible by removing sections to display the internal mechanism. In addition to this a no. 22 bullseye locomotive lubricator, air cylinder lubricator and transfer filler will be shown in operation. A complete line of locomotive lubricators, with from one to eight feeds, automatic steam chest plugs, air cylinder lubricators, transfer fillers, with sectional models and cross sections of parts will also be displayed.

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.

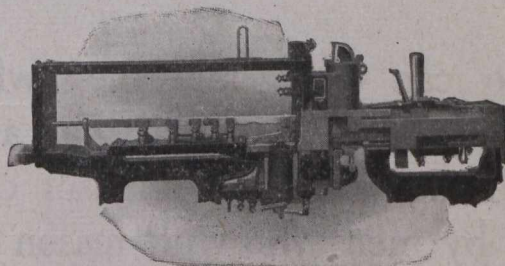
Quebec Transportation Club, A. F. Dion, Quebec.

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.

Marine Wreck Statistics.—According to Lloyds Register of Shipping, the total reduction in the effective mercantile marine of the world, during 1913, was 665 vessels, of 717,030 tons, excluding all vessels of less than 100 tons. Of this total, 371 vessels of 533,002 tons were steamers, and 294 of 184,028 tons were sailing vessels. The figures representing steamers are lower than those for 1912, by 39,743 tons, while as regards the sailing vessels they are higher by 7,808 tons. The amount of tonnage dealt with by breaking up, dismantling, etc., not in consequence of casualty, was 108,795 tons, or 48,846 tons less than in 1912. Of the total tonnage of such cases, 42% was represented by tonnage of the United Kingdom.



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Because that apparatus offers safety features that are found in no other. Alternating current control of return indications is safer than using the same kind of current for operating functions. Double protection is secured by using a higher voltage for the return than is used for the operating.

It is of unit construction. Levers may be removed or added without interference with the others.

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STAND FIRM!

A grave responsibility rests on the big men of every community. They are the leaders of public opinion. And public opinion makes or breaks a business, a city or a country.

Just now with the air filled with rumors, the nervous grow more nervous—and the responsibility of leadership grows heavier on those who are capable of bearing it.

STAND FIRM!

Canada's soundness needs no argument with you. Canada's ability to weather this storm is not a matter of guesses or hopes—but one of facts and figures.

No one can exaggerate the awfulness of the present war, but the harm that admittedly can come through undue pessimism can be fended off only by men who with reason and faith, and good seamanship hold the tiller of common sense and courage firm against the present storm.

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Northern Electric Company
LIMITED

MONTREAL
HALIFAX
TORONTO

WINNIPEG
REGINA
CALGARY

EDMONTON
VANCOUVER
VICTORIA

Transportation Conventions in 1914.

- Sept. 1-4.—American Boiler Manufacturers' Association, New York.
- Sept. 8-10.—Roadmasters and Maintenance of Way Association, Chicago, Ill.
- Sept. 8-11.—Master Car and Locomotive Painters' Association of the United States and Canada, Nashville, Tenn.
- Sept. 15, 16.—American Association of General Passenger and Ticket Agents, Boston, Mass.
- Sept. 22-24.—Railway Signal Association, Bluff Point, N.Y.
- 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.

CANADIAN PACIFIC RAILWAY COMPANY

NOTICE TO SHAREHOLDERS.

The Thirty-third Annual General Meeting of the Shareholders of this Company, for the election of Directors to take the places of the retiring Directors and for the transaction of business generally, will be held on Wednesday, the seventh day of October next, at the principal office of the Company, at Montreal, at Twelve o'clock noon.

Special Meeting.

The meeting will be made special for the purpose of considering and, if approved, of authorizing an increase of the present authorized Ordinary Capital Stock of the Company by the amount of \$75,000,000, that is, from \$260,000,000 to \$335,000,000, in order to make it accord with the amount for which the Company has the sanction of Government, no portion of such additional stock to be issued, however, until the authority of the shareholders has been obtained at a Special General Meeting called for the purpose.

The common Stock Transfer Books will be closed in Montreal, New York and London at 3 p.m. on Friday, the twenty-first day of August. The Preference Stock Books will be closed in London at the same time.

All books will be re-opened on Thursday, the fifteenth day of October.
Montreal, August 10th, 1914. By order of the Board, W. R. BAKER, Secretary.

Ontario Jockey Club
Toronto

Autumn Meeting
September 19th to 26th

Racing
Steeplechasing

General Admission, \$1.50

JOS. E. SEAGRAM, President. W. P. FRASER, Sec'y-Treas.



Your Requirements

of bare copper wires and cables of all kinds and sizes for trolley and line wire, transmission strands, etc., can be supplied by us on short notice.

STANDARD Bare Copper Wire

is rolled and carefully drawn to gauge in our own rod and wire mills from the highest grade copper wire bars.

Our nearest office will quote prices promptly.

Standard Underground Cable Co., of Canada, Limited

Hamilton, Ont.

Montreal, Que. Winnipeg, Man. Seattle, Wash.

Manufacturers of Electric Wires and Cables of all kinds, all sizes, for all services, also Cable Accessories.

CANADIAN PACIFIC RAILWAY COMPANY
Dividend Notice.

At a meeting of the Board of Directors held to-day, the following dividends were declared:—

On the Preference Stock, two per cent. for the half year ended 30th June last.

On the Common Stock, two and one half per cent. for the quarter ended 30th June last, being at the rate of seven per cent. per annum from revenue, and three per cent. per annum from Special Income Account.

Both dividends will be paid on 1st October next to shareholders of record at the closing of the books in Montreal, New York and London, at 3 p.m. on Friday, 21st August next.

All books will be re-opened on Thursday, 15th October next.

By order of the Board.

W. R. BAKER.
Secretary.

Montreal, 10th August, 1914.

Coal and ash handling conveyors, belt conveyors, structural steel, heavy machine and foundry work, coal mine bankheads and screening plants, mine fans, etc.

Engineers and Contractors
THE EASTERN STEEL CO., LTD.
Formerly the Brown Machine Co., Ltd.
and Bailey-Underwood Co., Ltd.

New Glasgow : : : : : Nova Scotia

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CARBORUNDUM AND ALOXITE GRINDING WHEELS

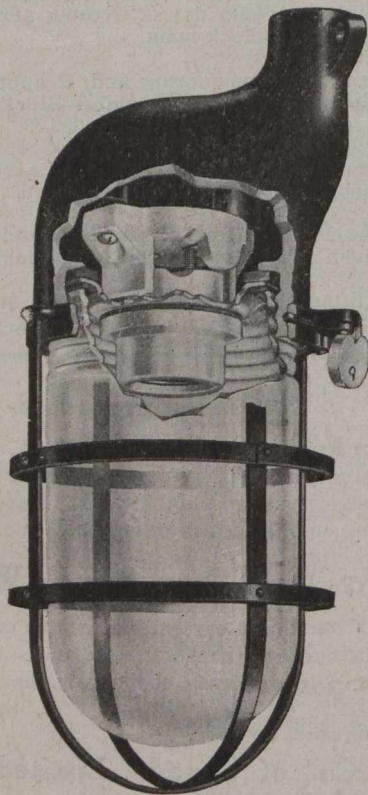
are mighty important factors in economical production. Look into your grinding possibilities. Tell us about them and our Service Department will give you *The Right Wheel in the Right Place.*



GRINDING SHEAR KNIVES ON A PLANER

THE CARBORUNDUM COMPANY
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NEW YORK CHICAGO BOSTON PHILADELPHIA
PITTSBURGH CLEVELAND CINCINNATI MILWAUKEE
GRAND RAPIDS MANCHESTER, ENG.



Broken-away View Showing Interior

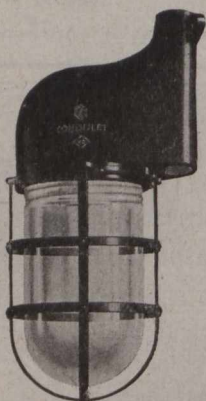
Condulets of V & VH Series

Vapor, Gas and Dust Proof

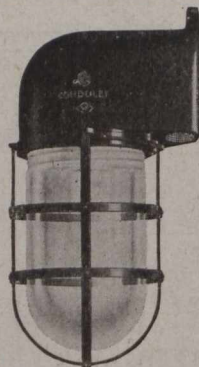
For marine work and in breweries, refineries, flour mills or wherever there is dampness, gas or fine dust.

These Condulets remain vapor, gas and dust proof even though globes be broken or removed for lamp renewals.

Illustrations below show a few of the many forms in which these series of Condulets are made.



Type V D



Type V F



Type V J



Type V K



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Order from your jobber. If he does not stock them, write us.
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