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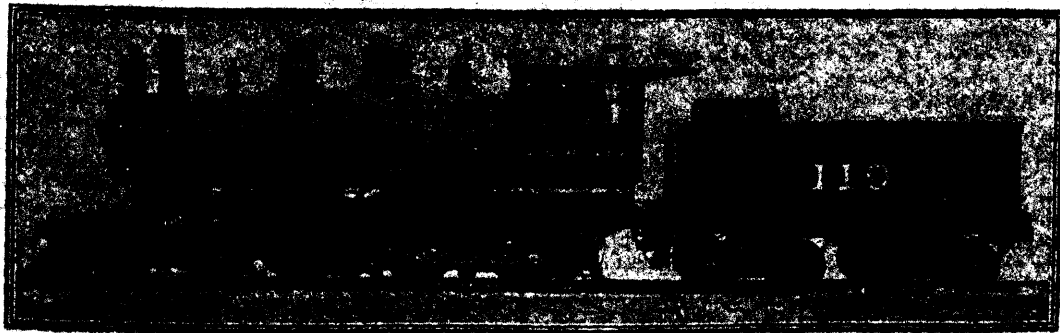
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TORONTO, CANADA, AUGUST, 1902.

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The Electrical Equipment of an Ordinary Street Car.

By A. B. Lambe, Toronto.

Electric railways, as we are all aware, are fast becoming more numerous throughout the world. Perhaps England is making the greatest strides to-day, though still far behind this continent in the number and value of the roads in operation; this progress being such that from the double reduction rheostatically controlled 5 to 6 ton car which was the very latest and best product of but a few years back, we have come to now consider a 125 ton train, the units weighing 25 to 35 tons each, with some one of the various forms of master control now on the market, or a single locomotive, such as those of the Baltimore and Ohio Railroad—not an uncommon sight. Equally to be admired are the many forms of smaller equipments which are used to-day in large numbers, such as the various industrial railways in service the country over, for mining, telpherage, factory transportation, private shunting, in fact there to-day remains practically no form of travelling or conveying mechanism or apparatus which does not find its most advanced exponents using electricity to a very great extent, in some cases almost exclusively. By this we do not mean to say that electrical machinery is going to supersede all other forms of power transforming apparatus, or that it is the panacea for every difficulty, for we are all ready to acknowledge that compressed air, rope, belt and chain driving, and the steam engine have each their field which cannot be commercially invaded by the electric motor, but, on the other hand, electrical machinery has made fields for itself, and in doing so has been a factor in the world's increase of wealth to an extent which a few years ago was not dreamed of. Chief among these is the work of traction in its many and varied forms, and presumably it is to heavy electric railroading that we must look for the greatest field of the large output of the future, which we all trust will be a feature of the years to come.

A text such as this would occupy us for a long time, if discussed only in its generalities, and therefore we must confine ourselves to the subject matter proper, and as all that is to be laid before you will be of a strictly elementary character, it has been decided to illustrate it with samples of the various apparatus which go to make up the motive and controlling power of the ordinary car with which we are all so familiar, even if only through the fare-box; presumably the logical way of

handling the matter will be to divide the equipment into its main features, and discuss them one by one, the trolley, controller, rheostats, motors, etc.

The first roads put into service used two trolley wires and two trolleys on the car, or, as it is now called, were of the double trolley type; we can all picture the difficulties encountered in such a form of construction as this where there were turnouts, crossovers and crossings to insulate; it has to-day been almost universally abandoned, the rail being

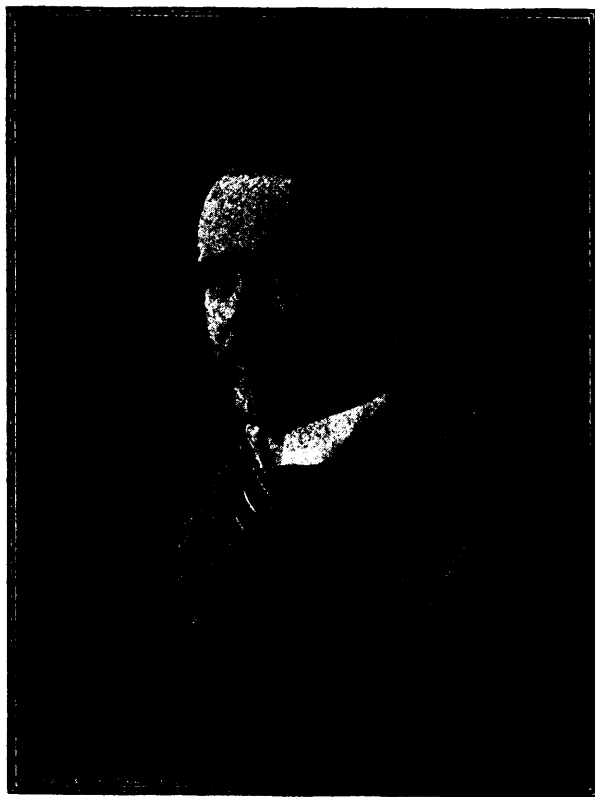
leading finally to the evolution of the grooved wire, which is to-day considered the best trolley wire equipment to be found in the market. In passing we should note that a wire of any given size has the same resistance, weight, etc., length for length, irrespective of whether it is round, figure 8, or grooved.

The soldered ear in connection with a round wire is also used extensively, but its grip is not as good as that of the mechanical clips which are used with the grooved type, and it is much more expensive to put on or take off.

The almost universal trolley wheel of this country for city work at moderate speeds, four to five inches in diameter, has reached a point where it might be considered standard. It is usually made of brass, though occasionally iron with a brass centre, to avoid undue wearing of the wire. It has a separate piece bushing, which can be renewed cheaply, a steel spindle automatically lubricated by oil or graphite, and is carried by a malleable iron harp, designed to as much as possible prevent catching in the overhead work. There are of course numerous styles and sizes of what might be termed freak wheels running up to as much as 10 inches in diameter, for high speed duty 6 inches is a common size. There is also the sleet cutter, used in localities troubled with storms in cold weather to clear the trolley wire of the accumulated ice and snow.

Under the heading of trolleys, we should mention—we have not time to go into them in detail—such other current collecting devices as the third rail, the conduit systems, and, as a curiosity, the roller trolley. This latter is used quite extensively to-day on the continent, though it has never made any great progress in this country; it was exploited to a certain extent by the old Walker Company. The pressure of the wheel against the trolley wire is somewhere about 20 to 40 pounds, which, after the addition of the pressure or strain necessary to balance the weight of the wheel harp and pole, means a tremendous strain on the trolley stand and the superstructure of

the car; few realize how large it is. When horse cars were first changed over to electric propulsion, this great roof strain was not recognized, and the cars soon presented badly distorted roofs; modern practice provides a long and heavy wooden trolley stand on which is mounted the metal base, thus distributing the stresses uniformly over the roof. The trolley poles to-day are all steel, usually seamless and graduated in thickness and diameter from top to bottom, sometimes reinforced near the stand; the first equipment was wood, with a wire run down the side to



H. V. HARRIS,

General Manager, Midland Railway, Nova Scotia.

used as a conductor instead of one of the wires, though occasional survivors are found. The trolley wire was round, and though soft at first was soon made somewhat harder than that used for ordinary purposes, being suspended in nearly all cases by mechanical clips, which had the great disadvantage of being in the way of the trolley wheel; the result was a heavy blow every time the wheel went under the clip. Efforts to overcome this difficulty led to the various designs of the soldered ear, the wrought sheet hanger, the Walker clip, and the figure 8 wire, an ever-improving chain

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The Electrical Equipment of an Ordinary Street Car.

(Continued from page 257.)

carry the current. The latest types of stand
being brought out to-day are low, provided
with ball bearings, and arranged so that the
pressure on the trolley wire is approximately
uniform, no matter what the height of the
pole; it will be readily recognized that this
latter feature is a valuable improvement.
The latest addition to the standard car equip-
ment is the trolley catcher, of which there are
two broad types, those which prevent the
wheel, when it comes off the wire, going more
than 6 or 8 inches above it, and the style
which not only does this but in addition im-
mediately pulls it some 15 or 18 inches below,
rendering its catching in the overhead struc-
ture a remote possibility.

The next device through which the current
passes is the protector or fuse, provided for
two purposes, first, to protect the system
against any fault in the car equipment, which
would otherwise amount to a short circuit,
shutting down the complete road, or at any
rate part of it, and secondly, to protect the
motors from too much current, whether caused
by too many passengers or too many trailers,
or, as is much more frequent, by improper
handling of the controller. The original

equipment was a plain ordinary fuse box usually placed under the platform, but since the replacing of a fuse was a dirty and tedious proceeding, there was introduced the double throw fuse box mounted in the hood. If one fuse blew there was another already in place to which to turn; all that was necessary was to throw the handle over. Contemporaneous with this was the magnetic blowout fuse box, with which we are all familiar. All the foregoing were first-class in their day, but have been gradually superseded by the circuit breaker, which stands to-day as the standard car fusing or safety device of modern practice.

If the car is provided with an ammeter it is usual to insert it next in the circuit. Such an instrument is a somewhat unusual equipment except on the heavier cars used for high speed work.

The current goes now to the controller, the case placed on the car platform, and which, actuated by the motorman, makes the car go fast, or slow, or stop, according to the position in which the handle is placed. Just as the ordinary constant speed stationary motor is started to-day by the insertion of resistance in series with its armature, so the first railway motors were controlled in a similar manner, the Thomson-Houston type with the operating handles on the platform controlling through wire cables a semi-circular rheostat, placed under the car; the equipment being sometimes known as the "stemwinder" is perhaps the most widely known of this type. Recognizing the wastefulness of this method, especially where a motor, as is the case in railway work, has to be run so much of its time at less than full speed, there was brought out the Edison drum controller, which was more economical in that it altered the speed partly by the use of a rheostat, and partly by varying the field strength by connecting the coils composing the field, of which there were several, into various combinations of series and multiple. This was a great improvement in another direction also, as it brought the working parts up on the platform where they could be easily inspected, the Westinghouse Company bringing out a somewhat similar type, in which the growing duty imposed upon street railway apparatus was recognized by making the working parts heavier and more substantial. After these came the type which, in combination with a rheostat, put the motors in series or in multiple, as desired, whence the name series-parallel, this idea being the principle underlying all the various types of present day apparatus, the economy in power consumption over a pure rheostatic control being so marked that nobody to-day would entertain the latter for a minute; the main principles governing its operation can be outlined as follows:

The variable speeds necessary during the day's operation of a car can be obtained, assuming that the load is kept constant, only by varying the voltage impressed upon the motors. This variable voltage can be produced either by inserting resistance in series with the two motors connected in parallel, or by connecting the two motors themselves in series, in the latter case one can be said to act as a resistance for the other, each running at approximately half speed and producing a counter E.M.F. of 250 volts, the two added together balancing the impressed or line voltage of 500. When connected in this way the current goes through one motor and then, instead of through a wasteful resistance (in which case you would need another current of equal amount to operate the other motor), the same current goes on through the second motor and in so doing produces useful motion. The result of this is that with the motors in series the current and consequently the power consumption is just half what it would be if the same reduced speed were obtained by means of resistance. Further, if the voltage delivered to each motor be changed abruptly

from 0 to 250, and from there to 500, without any intermediate graduations, the speed of the car would be correspondingly jerky, and so it is found necessary to insert rheostats, but for a short time only, in circuit with the machines, both when first put into series and also when first thrown into parallel; these, however, are almost immediately cut out in 3 or 4 steps, and thus a gradual acceleration is obtained. We thus see that the series-parallel controller, of whatever type, is a piece of apparatus, a combination of switches, which are arranged so that the rotation of the drum first connects the two motors in series with each other and a rheostat, by further rotation of the cylinder, this latter being gradually cut out until the motors only are left; next they are connected in parallel with each other, the rheostats being again inserted to prevent the sudden rush of current and the corresponding increase of speed which would otherwise result; again the rheostats are cut out, leaving the motors alone but now in parallel. The first step of the controller gives the slowest car speed available, the current consumption of the car being the same as that in each of the motors, seeing that the same current goes first through one and then through the other; the last step of the controller gives the highest speed, the car now consuming twice the current in each motor, seeing that two entirely separate and approximately equal currents are passing through each machine.

This type of apparatus, irrespective of the manufacturer whose name it bears, presents the same general features. The reversing switches, one for each motor, are contained in the same case as the main cylinder (in the first equipments they were separate, being mounted under the platform), and are mechanically interlocked with the main cylinder, so that they cannot be operated unless the latter is in the off position, nor in turn can this be moved if the reverse cylinder be in its centre or off position. The first interlock is provided for two reasons, namely, that it is highly undesirable, both on account of its effects on the motors and on the line, that a man should have the power to suddenly reverse a car without having to first throw off the current, and again, the reversing switch being built with but small clearances between the various parts and practically no arc disrupting power, if opened with current on, would probably be destroyed by the resultant arc. The second interlock provides a quick means of noting the position of the main cylinder, and also of insuring that, in the absence of the reversing handle, the car cannot be moved either accidentally or by interference. Switches are provided for cutting out each motor, obviously a great improvement over the original method of disconnecting the car wiring, at the point where it entered the motor, by means of a screwdriver. When the controller is built so that these switches replace the machine which has been cut out, by closing the circuit, they also interlock with the main cylinder, so as to prevent the latter going beyond the series steps, when they simply cut off the offending machine and leave open the circuit in which it was formerly connected, no interlock exists and the car takes no current, and consequently does not move until the main cylinder is turned to the parallel steps. The remaining feature worthy of note is the arc disrupting device which is provided on the main cylinder of practically all series-parallel equipments, the magnetic blowout. It will readily be recognized that the work of a controller, especially on a city road where it is in almost constant use, is something tremendous, and that the effect of the arcs, if not broken as quickly as they are by this device, would lessen the life of the wearing parts in a very marked degree, or, conversely, to get the same life you would have to build a much larger and therefore much more costly piece of apparatus. In

fact, the present spacing of the fingers, without the blowout feature, would not break the arc at all, and almost every time you turned the cylinder off, in carrying a current approaching the full load of the motors, you would get a short circuit.

Controllers are built to handle both two and four motor equipments; the two types do not differ to any great extent, it being usual, in four motor cars, to connect two machines permanently together, usually in parallel, and consider them as one machine; the other being treated similarly, the controller taking these two groups as if they were two motors only, instead of two units each consisting of two motors, and putting them in series or in parallel as desired. The main difference between a two and a four motor controller, apart from the fact that the latter is larger and heavier in its conducting parts, is in the reversing switch, which has two sets of fingers for two motors, and four for four motors. It is essential that there be a complete reversing switch for each and every motor on the car; if not, the result will be extremely unequal field strengths, or, in other words, the work of driving the car, instead of being performed by each motor doing its own share, is left nearly all to one.

Tests have shown motor currents of 60—30, 80—20, 90—10, 125—15 amperes respectively on the machines of a two motor equipment, and on four motors 90—40—20—5. The same car when equipped with a proper four motor controller, the motors, rheostats, loads, etc., being unchanged, gave readings of identically the same value on all motors, namely, 20 amperes.

The weakened field system of speed control, obtained either by cutting out some turns of the field wire, or by shunting part of the field current through a resistance, used originally with the Thomson-Houston rheostatic system, was continued when the series-parallel equipment was first introduced, but has been discarded by later practice. It was found to be more or less of a complication, especially when used in connection with multipolar machines, whose use was not warranted by the results obtained.

Roads operating high speed four motor equipments frequently find it necessary, or at any rate desirable, to be able to reduce the maximum possible speed of their equipments without being compelled to keep the rheostats constantly in circuit, examples being cases where municipal ordinances require slow speeds within their limits, or where exigencies of the service demand that equipments normally arranged for high speeds be available for shunting. This condition is conveniently met by the addition to the standard controller equipment of what is called a commutating switch, a piece of apparatus which, distinct from the controller which it accompanies, performs the function of connecting the two motors composing each group in series for slow speeds, shunting, or heavy haulage, in parallel for normal operation at high speeds. With this switch set in the series position, all four machines will be in series on the series steps of the main cylinder (A), when the latter is turned to the parallel position two motors in series are put in parallel with two in series (B), with the commutating switch set for parallel connection the combinations become respectively two in parallel in series with two in parallel (C), and all four in parallel (D). Assuming the line voltage and car weight to be unchanged, A gives the least power consumption and the slowest speed, D requires most current and produces the highest speed, B and C are identical in their results. An exception to the foregoing might be noted in those cases where locomotives, normally designed for large tractive power at slow speeds, are sometimes required to develop higher speeds when running light, in which event the series connection is the

normal position of the commutating switch, it being turned to parallel only when the more or less infrequent call comes for high speed. This switch not being intended for operation when the car is in operation, is not provided with any provision for extinguishing the arc; if opened with current on the motors it would probably be destroyed.

There are several interesting peculiarities in connection with the series-parallel method of control, the reasons for which are not always apparent. One is that of wheel slipping, which is especially troublesome with single truck cars. If one of a pair of wheels start to slip, the motor in series, it will be seen that it is almost impossible to get reasonable traction from the car as long as the motors remain connected in this manner, because that motor which is running comparatively fast, due to its consequent high counter E.M.F., takes but little current. This in turn means that the other machine, being actuated by the same current, has but a small torque due to the little current flowing, and the grip of the slipping wheels being practically nil, the total tractive power of the car is but small. On the other hand, if the motors were in parallel, the one not slipping, due to its slow speed and consequent low counter E.M.F., would take a large current and therefore have that

much more tractive power. Wheel slippage is much more common on single than on double truck cars, because in the former it is comparatively easy to unbalance the distribution of weight, in the latter the relative length of the car past the trucks, or the overhang, as it is called, is much less, and consequently the position of the passengers has less influence. On the other hand, a single truck car, with the modern long rear platform, is frequently loaded down so as to take quite a large amount of weight off the front wheels; again, at starting, which is the time slipping is felt, the truck tends to go forward and the body to stay behind, the result is a tilting action also tending to decrease the weight on the front wheels. For this reason, and also because dirt or snow is encountered first by the front wheels and the rail more or less cleaned by them before the rear pair pass, single truck cars, when on straight track, usually slip most in the front wheels. On the other hand, when on curves the front flanges grip on the sides of the rail head, and also on the lip if a grooved section be used, the trailing pair riding comparatively free, so that the condition is reversed, the rear wheels being more likely to slip.

Another peculiar point is that, under a certain condition of trouble with the wiring or

controller, a car which normally gathers speed with each successive step of the controller, runs faster on some of the series or lower speed steps than on the first one or two of the parallel positions, this condition being that of a ground on the wiring of no. 1 motor between the point of its leaving the machine and entering the controller, and which, until the motors are not in series, virtually short circuits machine no. 2; consequently the latter is not in circuit until the controller is turned to the parallel position.

The foregoing applies to individual controllers, one or two per car, manually operated, the multiple unit or master control system involves various special features; it is not possible in the scope of this paper to do more than enumerate the broad principle, which is as follows:

Each car equipped for master control has mounted upon it its own motors, two or four in number, a main controller to handle them, a set of bus wires, extending from end to end of the car and connectable to those of the next car, for moving this controller, and one or two master controllers for energizing these bus wires. From the foregoing it follows that when the bus wires of two or more coupled cars are connected they can be energized throughout the whole length of the train, from

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any one master controller desired. When this is done, current having been turned on to these bus wires from some one of the master controllers, all the various main controllers move, and obviously simultaneously, assuming different positions according to which of these bus wires be energized, and in doing so they in turn connect the motors into series or parallel, similarly to the hand-operated apparatus. It will thus be seen that any number of motors, mounted on various cars, can be simultaneously varied in speed by the operation of any one small master controller.

There are three systems now on the market, the Sprague, Westinghouse, and General Electric. The Sprague Company use a main controller, modelled somewhat after those built for hand operation, replacing the motor-man's handle by a small motor. The Westinghouse Company use an air cylinder, with a pinion and rack, in place of this small motor, controlling the admission of air to the cylinder, and thus the movement of the piston, by electrically operated valves. The General Electric Company divide the main controller into a number of separate switches, consisting of a movable arm, on the end of which is mounted a contact, this arm being actuated by a solenoid supplied with current from the bus wires.

(To be continued in next issue.)

The Cuba Company's Railway.

By Weldon Fawcett.

The project now being carried out by Sir Wm. Van Horne and his associates for the construction of a complete railway system throughout the length of the island of Cuba constitutes one of the most interesting and most daring railway ventures which have been presented in many years. The new system will embrace, all told, some 400 miles of track between Santiago and the port of Nipe, in the province of Santa Clara, and it is claimed that in influence upon industrial, agricultural and commercial development the new transportation system will be entitled to rank with the transcontinental railways of America, the Trans-Siberian Ry. of Asia, and the Cape to Cairo Ry. of Africa.

The present railway system of Cuba is entirely inadequate in bringing the extreme ends of the island together, Santiago and Havana being as far apart, in length of time, as New York and San Francisco, though separated by a gap of little more than 300 miles. To remedy this defect is the object of the new Cuban railway, and it is doubtful if any other one enterprise will prove of such vast benefit to the island. Indeed, it is declared that no revolution could have existed in Cuba had such a railway been completed by the Spanish government. Not only will the possibility of future political turbulence be in a great measure eliminated and the entire island opened to commerce, but land now unproductive and of practically no value will be worked. Moreover, the seaport towns will experience a wonderful impetus in their trade relations, for it is proposed to construct numerous branches extending from the trunk line to the seaboard.

From the standpoint of railway interests generally, however, perhaps the most interesting phase of the Cuban railway project is found in the peculiar obstacles which it has been necessary to overcome in its construction. Sir Wm. Van Horne had already organized a company with a capital in the neighborhood of \$10,000,000 when owing to the scandals growing out of attempted "franchise grabbing" on the island the U.S. Congress passed what is known as the "Foraker Resolution" prohibiting the temporary government of Cuba from granting any rights, concessions or franchises. So

strictly was this resolution enforced that even the right to extend existing railways was refused, and it appeared at the outset as though any new enterprise which would find it necessary to use the public highways or even to cross them would be effectually blocked. However, Sir William did not propose to let his enterprise be balked, and therefore inaugurated a new method of railway building, namely, construction work without governmental sanction.

As a first step heavy purchases were made of land in the districts through which it was sought to carry the line. After the private right of way had thus been secured the line of the road was surveyed and graded and stations were erected at convenient points on the property owned by the Co. All this was in strict accordance with the rights of the corporation as a land owner, for there are over a hundred private railways on the large plantations of Cuba. Under this plan of construction no attempt was made to cross the public highways, and thus there were breaks in the railway line at every point of intersection with a public road.

Finally when the enterprise had progressed sufficiently far to afford a clear indication of its character Sir William and his associates presented the case to the Military Governor of Cuba, and he, after giving careful consideration to the matter, granted what are known as "revocable licenses" for crossing public roads which give promise that the military government will not interfere with the undertaking. Without this daring procedure the completion of the Cuban railway would assuredly have been delayed for several years. As it is the Co. has had about 3,000 men at work from the time of the commencement of active operations, employing them in grading, building bridges and track-laying, and after the harvest of the sugar crop the force was increased to upwards of 6,000 men.

The construction of the line has, because of the peculiar mountainous character of the country, presented many difficulties. Moreover, it has been necessary to devote exceptional care to the construction of bridges and tracks in order to provide against the rainy seasons of this tropical climate when water in torrents descends upon the roadbeds. The main line is between 355 and 400 miles in length, extending from Santa Clara to Santiago, and is in every respect a first-class line, equal in all respects to the average line in America. The bridges, of which there are a great number owing to the volume of water which falls in the rainy season, are of steel construction, and the rolling stock and equipment are thoroughly up to date.

It is planned to construct as feeders to the main line feeders to the north and south coasts which will reach the ports of Nipe, Gibara, Baracoa, Sancti Spiritus, Santa Cruz del Sur and Manzanillo. These branches will bring the aggregate length of the entire system to the neighborhood of 1,000 miles. The connection at the city of Santa Clara, with the western system of railways of the island, is most important, enabling a passenger to go by rail the entire length of the island, from Pinar del Rio, the capital of the westernmost province, to Santiago, the capital of the easternmost province. In this connection it may be noted that the officers of the Western Havana and Cuban Central railways, two of the most important of the existing lines on the island, have looked with such favor on the Van Horne project that they are understood to have given financial support to the new project.

As having a direct bearing upon the field in which this new railway enterprise is to operate, it may not be amiss to give a momentary glance to the public railways already in operation in Cuba. There are on the island 17 separate systems of an aggregate length of 1,225 miles, although nearly all of these lines

have their ownership vested in five companies which between them practically control the transportation situation on the island. The longest single system has a length of 417 miles. The cost of these 17 systems has been somewhat in excess of \$57,000,000, and the earnings amount to \$6,212,000. Three of the systems each show earnings in excess of \$1,000,000, and in the case of one system, the United Railways of Havana, the earnings exceed \$1,500,000.

The new Cuba Ry. is but one step in the enterprise which Sir Wm. Van Horne and his associates have evolved for the development of the natural resources of Cuba. Vast tracts of land have been purchased in the central and eastern provinces, including forests, pastures and first-class agricultural land. Upon these tracts it is proposed to establish colonies, giving the preference in every case to the best men in the construction gangs. During the construction of the roads the Van Horne syndicate has erected a number of saw mills in the timber areas for the purpose of getting out logs and lumber and ties for the use of the road, and as soon as the work of construction is completed it is proposed to turn these saw mills into private hands and organize companies to cut the timber for commercial purposes. The Van Horne Company is also encouraging immigration from Spain, the Canary Islands, Central and South American countries, and if the effect of the climate is not found to be injurious to Americans, colonies from the U.S. will be taken to Cuba. —Railway and Locomotive Engineering.

Per Diem Charges for Freight Cars.

The Secretary of the American Railway Association has issued a revised list of the railway companies on whose behalf per diem rule agreements had been signed and filed in his office up to June 30. The companies operating or controlled in Canada which have filed agreements are: Canada Atlantic, Vermont and Province Line; Canadian Pacific, Ottawa Northern and Western, Pontiac Pacific Jct.; Central Nova Scotia; Central Vermont; Dominion Atlantic; Duluth, South Shore and Atlantic; Esquimalt and Nanaimo; Grand Trunk; Cincinnati, Saginaw and Mackinaw, Detroit, Grand Haven and Milwaukee, Grand Trunk Western, Toledo, Saginaw and Muskegon; Halifax and Yarmouth; Intercolonial, Prince Edward Island; Michigan Central; Minneapolis, St. Paul and Sault Ste. Marie; New York and Ottawa, Ottawa and New York; Quebec Central; Rutland; Spokane Falls and Northern; Toronto, Hamilton and Buffalo; Wabash.

The Lake Erie and Detroit River Ry. in filing its agreement reserved the right to withdraw on giving three months' notice.

Recent British Columbia Legislation.

At the recent session of the B.C. Legislature the following acts were passed affecting transportation interests:

Amending the Vancouver and Westminster Ry. Co. Act of 1900.

Amending the Pacific, Northern and Omineca Ry. Act of 1900.

Incorporating the Victoria and Seymour Narrows Ry. Co.

To aid the construction of a railway from Victoria to the Yellowhead pass.

To aid the construction of a railway from Vancouver to Midway.

To aid the construction of a railway from Midway to Vernon.

To amend certain acts incorporating railway companies passed during 1901.

To aid the construction of a railway from Kitamaat to Hazelton.

To encourage the manufacture of steel rails in Canada.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta Ry. and Coal Co.—Rapid progress is being made with the widening of the line between Lethbridge, Alta., and the International boundary at Coutts. It is expected that the work will be completed by Oct. 31. (June, pg. 188.)

Algoma Central and Hudson Bay Ry.—Proceedings have been taken in the courts under the Railway Act for the expropriation of certain land in Sault Ste. Marie required for the right of way into the new station at Bruce and Bay streets. The spur line to make the connection with the main line has been laid.

About 3,000 men are reported to be at work on different points of the grade between Ogidaki, 48 miles from Sault Ste. Marie, and the end of track of the Michipicoten branch, between which two points it is intended to complete the line this year, so as to be able to haul ore from the mines by rail into Sault Ste. Marie. (June, pg. 188.)

Atlantic and Lake Superior Ry.—We are officially advised that it is expected to have the line finished to the 100th mile by Nov. 1. The proposed extension from this point, 2 miles beyond New Carlisle, to Port Daniel, 25 miles, has been under consideration, and it will probably be built next year. (April, pg. 121.)

Bay of Quinte Ry.—Plans are understood to be in course of preparation for the extension from Deseronto through Prince Edward county to Lake Ontario, as well as the other extensions projected. On the first of these it is proposed to carry the line over the Bay of Quinte by a truss bridge 2,100 ft. in length. (June, pg. 189.)

Belleville Traction Co.—Lewis and Alford report that they have sold their interest in this Co. The car equipment has been removed to Kingston, Ont., and the line will probably be dismantled. (April, pg. 121.)

Bracebridge and Trading Lake Ry.—A. R. Shepper, P. Morse, of New York, and E. A. C. Pew, of Welland, Ont., went over the route of the proposed railway from Bracebridge to Baysville and Lake of Bays, Ont., recently. We are officially informed that it is expected construction will be commenced shortly. (Jan., pg. 1.)

Brantford Electric Ry.—The Von Echa Construction Co. has taken over this line and proposes to expend a considerable amount in improving the tracks, power house, etc. The line will be operated in connection with the lines the Von Echa Co. propose constructing under the charter of the Grand Valley Ry. Co. (April, pg. 121.)

British Columbia Electric Ry.—Very extensive works are in progress in connection with the power development at Coquitlam and Beautiful lakes by the Vancouver Power Co., a subsidiary of the B.C.E.Ry. Co. A tunnel, 2 miles long, is being constructed to connect the two lakes, a dam has to be erected, and 2½ miles of new road built in addition to repairs to the old road. The works are expected to be completed in about two years and will cost about \$1,000,000. (June, pg. 189.)

Bruce Mines and Algoma Ry.—The ballasting of the line was expected to be completed by July, as also was the fencing. The building of stations and freight sheds was expected to be commenced shortly. We are advised that it is probable that the 4-mile extension from Bruce mines station to the shore of Lake Huron will be constructed this year, but that it is not likely that any line will be built from Rock lake north this season. (June, pg. 189.)

The **Canada Atlantic Ry.** is taking out a wooden trestle at Marsh Creek, mileage 248 west of Ottawa, and is replacing it with steel lattice girders, 80 ft. 10 ins. long, on concrete abutments, the balance being earth filling.

The Co. is putting about 140,000 cedar ties in its track this season.

At a recent sitting of the Railway Committee of the Privy Council an arrangement was

made with the Ottawa city council by which the subway should be the full width of Elgin st., 66 ft., and that if the latter street were closed over the seven tracks of the C.A. Ry. the city should be relieved of the cost of any portion of the subway or its approaches.

Press reports say that the Co. will commence the erection of a new central station at Ottawa this summer, at an estimated cost of

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about \$250,000. We are officially informed that there is nothing new in connection with this matter. (June, pg. 189.)

Cape Breton Ry.—The grading of the 30 miles from Port Hawkesbury to St. Peters, N.S., is practically completed, and we were advised, July 8, that it was expected to be finished by the end of July. The culverts and all masonry work were completed with the exception of one pier of the substructure for the bridge over the river Inhabitants, which was expected to be finished by the end of July. Track has been laid on 10 miles of the main line, and on 2 miles of sidings, and it is intended to complete the 30 miles this season. (June, pg. 189.)

Central Ontario Ry.—We were advised, July 17, that no decision had been reached in reference to the projected extension of the line northerly from Bancroft station, this year.

Central Ry. of New Brunswick.—Owing to a recent breakdown of a bridge at Washdemaok, the whole of the 22 bridges on the line, totalling 6,000 ft. in all, are being thoroughly repaired. The work was expected to be completed and the line reopened for traffic by the end of July.

Chateauguay and Northern Ry.—The line from Bout de l'Isle to Joliette, Que., will be constructed by the C. and N. Ry. Co., subject to the approval of the Great Northern Ry. and not by the latter Co. No decision had been arrived at up to July 17 as to when work would be started. (June, pg. 189.)

The Colonial Copper Co. is developing some extensive copper deposits at Cape D'Or, N.S., and is constructing a railway in connection therewith.

Crow's Nest Southern Ry.—Tracklaying on the line from Gateway, on the International boundary, to Morrissey creek, B.C., was commenced towards the end of June, and is in a forward state. Press reports state that the bridge across the Kootenay river at Elko has been completed and the track laid over it, but the President of the Co. in Toronto has not received any report confirming this statement. The line is expected to be completed through to Fernie, 52 miles from the boundary, by the end of the summer. There is nothing in the press reports, we are informed, that the Co. will extend its lines into the St. Mary's river and the Windermere districts. (June, pg. 189.)

The Cuba Co.'s railway between Santiago and Santa Clara, with the branch to Nipe bay, was expected to be opened by the end of July.

The Secretary of War, replying to a resolution of the U.S. Senate, states that the Minister of Public Works is of opinion that it is entirely a private road, built on the Co.'s own right of way, and for the purpose of affording transportation to the lands, mines and other properties belonging to the Cuba Co. This, he said, had been done strictly within the prescriptions of the railway laws. (June, pg. 190.)

A full description of this line is given under the head of the Cuba Co.'s Ry. on another page of this issue.

Edmonton, Yukon and Pacific Ry.—The track has been completed from near Strathcona, the northern terminus of the Calgary and Edmonton Ry., to Edmonton, Alta., about 4 miles, for some time, but nothing has been done in the way of operating it. No arrangements have been made for further construction, and it is not expected that anything will be done this year. It has been stated that Mackenzie, Mann & Co. are desirous of purchasing the Calgary and Edmonton Ry., and have been negotiating with this object in view. (June, pg. 190.) See also Canadian Northern Ry.

Fredericton and Western Ry.—G. Moore, M. L. Muselman and A. L. Meyer, were in-

corporated under this title at the last session of the New Brunswick Legislature, to construct a railway from Fredericton, or from a point on the railway authorized to be constructed by the St. John Valley and Riviere du Loup Ry. Co., to a point on the western boundary of the province near Schoodic lake, the line to be commenced within three and completed in six years. The capital of the Co. was fixed at \$20,000 a mile of line constructed, and power was given to issue bonds to the extent of \$20,000 a mile. It was provided that the act should not go into effect until after proclamation by the Lieut.-Governor. A. L. Meyer was associated with the Dominion Securities Co. of New York in the various railway projects of Dr. W. Seward Webb in Canada. See also Moncton and Eastern Ry.

The Galt, Preston and Hespeler Street Ry. Co. (Ltd.), has been given power by supplementary letters patent, under the Ontario Companies Act, to extend its line from its present terminus in Hespeler through the townships of Waterloo and Puslinch to Puslinch lake.

Grand Valley Ry.—We were informed on July 9 that work had been commenced and that several miles had been graded. The road is being built by The Von Echa Co., which built and owns the Woodstock, Thames Valley and Ingersoll Electric Ry. The G.V. Ry. will, it is said, be finished from Brantford to Paris at the earliest possible date, and it is hoped to get cars in operation this season. Later the line is expected to be built from Paris through St. George to Galt, where it will connect with the Galt, Preston and Hespeler Ry. The section from Galt to Berlin will, it is said, also be built as quickly as the work can be pushed through. The Von Echa Co. has just obtained control of the Brantford Street Ry., and will operate it in connection with the G.V. Ry. (June, pg. 196.)

Great Northern Ry. (U.S.)—The work of standardizing the gauge of the Great Falls and Canada Ry., from Great Falls, Mont., to the International boundary at Sweet Grass, has been in progress for some time, and we are officially informed that it is expected to be completed by Oct. 1. The distance between the two points is 134 miles, and with the exception of about 30 miles of revisions the old roadbed of the line will be widened to admit of laying standard gauge track. There will be a good deal of bridging to be done, the structures over the Teton, Marias and Muddy rivers being each about 1,000 ft. Contracts for the bridges are not reported let, but Siems and Shields have the contract for the grading.

The line of the Montana and Great Northern Ry. from Jennings to the International boundary at Tobacco Plains, where a junction is effected with the Crow's Nest Southern Ry., is completed.

We were advised that the line from Marcus to Republic, Wash., which includes a section from Cascade to Carson, B.C., via Grand Forks, was expected to be completed by July 1. (June, pg. 191.)

See also Alberta Ry. and Coal Co., Crow's Nest Southern Ry., and Vancouver, Victoria and Eastern Ry.

The Halifax Electric Tramway Co. has completed the erection of a large pier on the sea front below its car stables, at which its cargoes of coal will be discharged.

Halifax and South Western Ry.—W. Mackenzie and D. D. Mann reached Halifax, July 1 to arrange for the immediate starting of construction on this line, for which purpose large gangs of men had previously been sent forward from Ottawa. The base of operations is at Mahone, 7 miles from Lunenburg, on the Central Ry., recently acquired by Mackenzie, Mann & Co., and work is being proceeded with both towards Halifax and

Yarmouth. It is reported that grading will also be started a few miles out of Halifax towards Mahone. The question of an entrance into Halifax has not been settled, the Halifax county council not having granted a right of way. It is expected that a junction will be effected with the I.C.R. about three miles out of the city, and that running powers will be secured over the I.C.R. for the distance required. D. D. Mann is reported to have stated that the location surveys for the line were about completed; that a good part of the line between Mahone Bay and Halifax would be ready for the rails by the end of the present year; but that track would not be laid until next year, the rails not having been secured. T. G. Holt is in charge of construction. L. H. Wheaton, C.E., is in charge of the location survey between Bridgewater and Liverpool, H. K. Wicksteed, C.E., being chief engineer. (June, pg. 191.)

Halifax and Yarmouth Ry.—Recent press reports stated that the portion of this line between Pubinco and Barrington Passage, which has been closed for some time, would be operated again shortly, and that Mackenzie, Mann & Co. had entered into an agreement with the Messrs. Brill, of Philadelphia, for acquiring the whole line. An official writes that he does not believe there is any truth in these reports.

Hamilton, Grimsby and Beamsville Electric Ry.—The power house at Grimsby is being enlarged. A temporary plant giving 100 extra h.p. has been installed pending the completion of the permanent machinery in the enlarged power house by the end of the year.

Howe Sound Logging Railway.—R. McNair is reported to be constructing a logging railway from Howe Sound, near Gibson's Landing, B.C., to a point several miles inland.

Hull Electric Co.—Consequent on the transfer of the railway line of this Co. to the Ottawa, Northern and Western Ry. Co., a subsidiary of the C.P.R., it is said that a number of improvements will be carried out, notably the double-tracking of the line from Eddy's corner into Ottawa.

Huntsville and Lake of Bays Ry. Co.—The charter of this Co. has been acquired by the Huntsville, Lake of Bays and Lake Simcoe Navigation Co. (Ltd.) We are informed that it is intended to construct the line authorized from the north end of Lake of Bays to the south end of Peninsula lake this season if possible. The grading is comparatively easy and no bridges will be necessary on the 1½ miles. The line will be operated by steam. The Co. does not at present propose to take any action in reference to the line authorized to be constructed to connect Lake of Bays and Hollow lake. (June, pg. 191.)

Intercolonial Ry.—The surveys for the proposed branch line from River Ouelle station to the wharf on the St. Lawrence at Riviere village, have been made by J. S. O. Dwyer, C.E. It is 6 miles in length, and passes through a level country. There are no bridges of any size to be constructed, and the grading will be ordinary earthwork. Traffic Manager Tiffin is reported to have stated that construction work will be gone on with at once and that, if possible, the branch will be completed this season. It is the intention of the management to put a steamer on the river to run between the wharf at Riviere village and Murray Harbor, on the north shore. The steamer, Mr. Tiffin says, will be sufficiently strong to enable a daily service to be maintained summer and winter. (June, pg. 191.)

The Minister of Railways has been making an inspection of the line and states that the relaying with heavy steel rails is being rapidly pushed forward. The bridges between Montreal and Levis, he said, have been strengthened so as to carry the heaviest

trains, and the road generally is being prepared for a 20-hour service between Montreal and Halifax, and a 25-hour service between Montreal and Sydney which will probably be put in effect next season.

Work on an extension of the terminal wharf at North Sydney, N.S., was ordered to be commenced on July 1.

An extension of the line from North Sydney to Sydney Mines is said to be under consideration.

International Transit Co.—An agreement has been arrived at between the I.T. Co. and the Sault Ste. Marie, Ont., town council, under which the street railway is to be completed by Oct. 1. (June, pg. 192.) See also Trans-St. Mary's Traction Co.

Inverness Ry. and Coal Co.—Angus Sinclair, C.E., who spent the greater part of the winter in Toronto, has returned to Port Hastings, N.S., and taken charge of the construction of the I. Ry. and Coal Co.'s docks and other works. (June, pg. 192.)

Iroindale, Bancroft and Ottawa Ry.—We are advised that definite plans for the extension of the line from Bancroft station easterly towards Renfrew have not been adopted, and nothing has been decided as to what work, if any, will be done this season. (April, pg. 125.)

James Bay Ry.—Grading has been commenced at Parry Sound, Ont., in extension of the 4½ miles constructed last year from the Canada Atlantic Ry. into Parry Sound. The line has been located for a few miles, but what route will be adopted through to French river has not been definitely settled. It is expected that the grade will be completed this year to the Magnetawan river. (June, pg. 192.)

Kaslo and Sloean Ry.—It is reported that a new station will be built at the north end of Front st., Kaslo, and that the line will be extended from its present terminus up the Duncan river valley. O. S. Bowman, assistant engineer of the Great Northern Ry., U.S., has been making surveys of the projected route.

Kettle Valley Lines.—Referring to the litigation between the K.V.L. and the Vancouver, Victoria and Eastern Ry. in connection with their respective lines between Grand Forks, B.C., and Republic, Wash., T. W. Holland, General Manager, recently stated that one company had a record of 22 injunctions against its opponent, which itself was the authority for 19 counter injunctions.

Owing to heavy rains early in May, two spans of the bridge over the Kettle river, near Curlew, Wash., were blown up with dynamite in order to save the rest from being washed away by the floods. Four spans of the temporary bridge crossing the Kettle river at Nelson, Wash., were washed away, and other damage done to the line. As a result traffic was suspended, and steps taken for the repair of the damage and the strengthening of the line.

T. P. Coffee, of Toronto, Vice-President, states that as soon as the line from Grand Forks to Republic is thoroughly completed and the spurs to the mines constructed, the Co. will consider the extension to Spokane, Wash. The distance from Republic to Spokane, via the San Poil river, is about 120 miles, and the cost of a railway between the two points would be about \$4,000,000. (June, pg. 193.)

Kingston and Pembroke Ry.—A survey party under the charge of Mr. Mitchell is going over the line between Kingston and Renfrew with a view of improving gradients, alignment, etc.

We were recently advised that nothing had been decided as to the projected line from Sharbot Lake to Carleton Jct., and it will

probably be some time before anything is settled. (April, pg. 126.)

Klondike Mines Ry.—A. Williams, Chief Engineer, before leaving Seattle, Wash., for Dawson, Yukon, early in June, stated that men and material were on the ground ready for the commencement of work at the end of June. The first section of 12 miles to Grand Forks, is expected to be in operation in Sept. (June, pg. 192.)

Lake Bennett Ry.—The B.C. Government has published the minute of the Privy Council of Canada disallowing the B.C. act incorporating the L.B. Ry. Co. The reasons for the disallowance are that the territory between the ocean and the country proposed to be traversed by the proposed railway is in dispute between the U.S. and Canada, and it is considered inexpedient, pending the settlement of that dispute, to permit the construction of railways which may complicate and increase the difficulty already existing; further, that it is doubtful whether it is competent for the B.C. Legislature to authorize the construction of such a railway, and further, it is not in the public interest or consistent with the policy of the Government that the act should remain in force. (June, pg. 193.)

Lake Temlacamingue Colonization Ry.—See under C.P.R. Betterments, etc.

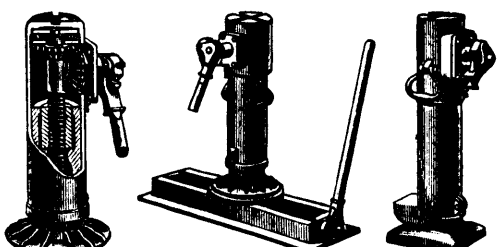
Levis County Ry.—The main line will be

along the lower river road of the St. Lawrence valley, connecting the towns of St. Joseph and St. Romuald on either side of Levis, the population along this valley being about 40,000 people, who are very generally engaged in business operations or work in mills, taking them up and down the line daily, and who have now practically no transportation to Quebec. There will also be a line of about two miles connecting the river line with the upper town of Levis and the market. This will also travel through the thickly populated part of the town of Levis. Between the lower and upper towns, near the Quebec-Levis ferry, will be an incline elevator connecting with a car line to join the railway route by a shorter way. The Levis County Ry. will be built in a first class manner, with 60 lb. A.S.C.E. standard T rails, stone ballasted roadbed throughout, the special work for curves and turnouts being of an approved standard pattern; 30 ft. cedar poles with 7 in. top will be used to support the overhead electrical construction, which will be of the flexible bracket type, with double grooved trolley, doing away with frogs at all turnouts overhead. Power will be furnished by the Canadian Electric Light Co. from its plant at Chaudiere Falls, being measured at the bus bars of the substation of the railway company. Alternating current will enter the substation at 10,000 volts, being transformed

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London Street Ry.—At a special meeting of the city council recently a by-law was passed fixing the Beaconsfield avenue route, and authorizing the construction of the South st. belt line and the Hamilton road extension; and authorizing the abandonment of the Rectory st. line. The Co. has taken up the rails on the Rectory st. line. (June, pg. 193.)

Mabou and Gulf Ry.—Surveys have been completed and the first 30 miles of the line located. The grading for the section from the Mabou coal mines to the wharf was, on July 3, reported to be practically completed. Another section of the line, making eight miles in all, is under construction. The grading is ordinary, the bridges principally wood, the gradients run from 1 to 1 1/4%; and the maximum curve is 6 degrees. J. Boardman Cann, Mabou, N.S., is President and General Manager, F. R. Page, Mabou, is engineer, and J. C. Cote, Mabou, is contractor. The Inverness municipal council at a recent session voted the Co. a free right of way and a bonus of \$1,000 a mile for its railway. (June, pg. 193.)

Manitoba and Keewatin Ry.—Officers have been elected as follows: President, D. W. Bole, Winnipeg; Vice-President, C. T. Harvey, C.E., Ottawa; Treasurer, F. W. Stobart, Winnipeg; Secretary, H. M. Howell, Winnipeg. The Vice-President has been over the projected lines, and it is reported that at a recent meeting it was decided to begin work on one of the proposed branch lines this year. This branch will extend from Martin's Falls,

on the Albany river, to Black river, on the C.P.R. transcontinental line, 857 miles west of Montreal. This line would be about 200 miles in length, of which 25 miles would be from Black river to Long Lake, 50 miles of navigation on the lake, and 125 miles of direct line to Martin's Falls. The main line from Winnipeg to Fort Albany at the mouth of the Albany river, would be the second section of the work to be taken in hand. (June, pg. 194.)

The Lake Superior, Long Lake and Albany River Ry. Co. has an Ontario charter to construct a line from Peninsula, on the C.P.R. transcontinental line, 47 miles east of Black river, to Long Lake and thence to Martin's Falls. (April, pg. 141.)

Manitoulin and North Shore Ry.—It is reported that the line will be completed from Sudbury to Cloche island, opposite Little Current, Manitoulin island, this year. Construction is reported to have reached the Spanish river, and it is said that the building of the bridge there will be commenced at once. The line crosses the C.P.R. Sault Ste. Marie branch at Stanley Jct., six miles east of Webbwood. The construction of the bridge to carry the line on to Manitoulin island will, it is said, be started next year. (June, pg. 194.)

Metropolitan Ry.—Surveys have been made for an extension of the line from its present terminus in Newmarket, Ont., to the northern boundary of the town. Three lines have been surveyed, and plans have been prepared for submission to the town council, with an application for the necessary right of way. If this is granted the extension will be constructed at once.

Michigan Central Ry.—We are officially informed that there is nothing in the press reports that the line is to be extended from Petrolia to Dresden, Ont., and that construction would be completed to Dawn Centre this year.

We are advised that during the season there will be considerable work done on the Canadian division of the main line in the way of laying second track, renewing and strengthening bridges, etc.

It is reported that new freight sheds will be erected at London, Ont.

Middleton and Victoria Beach Ry.—Active construction commenced on this projected line from Middleton to Victoria Beach, N.S., 45 miles, at Bridgetown, July 2. We are informed that it is intended to grade the 12 miles from Bridgetown easterly to Middleton, this year, and to commence tracklaying next spring. A train service will then be put on and construction pushed forward westerly to Victoria Beach. M. J. O'Brien, Renfrew, Ont., is the contractor. (April, pg. 141.)

The Minneapolis, Superior, St. Paul and Winnipeg Ry. Co. has been incorporated in the State of Minnesota, by S. M. Hanley, J. J. Elliott, H. P. Benton, E. H. Fuller, of Minneapolis, and J. L. Lovering, of St. Paul, for the purpose of constructing a railway from Minneapolis or St. Paul, northerly to the Rainy river, in Beltrami county, Minn., connecting there with the Canadian Northern Ry., from Port Arthur to Winnipeg; also a branch line northeasterly to Superior, Wis. The capital stock is \$100,000, but the articles provide for its increase to \$10,000,000, and the issue of \$10,000,000 of bonds. The Co. has filed a trust deed to the Standard Trust Co. of New York to secure \$10,000,000 of 5% 30-year bonds covering the roadbed, superstructures, right of way, franchise, etc. It is reported that the Co. intends to construct 100 miles of track this year. The projected lines are 440 miles in length, of which 320 miles are represented by the main line from St. Paul or Minneapolis to the junction with the Canadian Northern Ry., which, it is said, will be at

Beaudette, Minn., the point at which the C.N.Ry. enters Minnesota, over the international bridge across the Rainy river. The branch line will be 120 miles in length and will leave the main line at Anoka, Minn. The U.S. Congress has passed an act authorizing the M.S.St.P. and W.Ry. to construct a railway bridge across the Mississippi river to connect Champlin and Anoka, Minn. The bridge is to be available to all railway companies desiring to use it at rates subject to the order of the Secretary of War in case the companies cannot agree, and is to be commenced within one year and completed within four years. The surveys for the railway are said to have all been made, survey parties having been at work last year from both ends, and their operations southerly from Beaudette gave rise to the reports that the C.N.Ry. was to be extended southerly. C.N.R. officials state that the new railway is not being projected under its auspices, though it will make a connection with the C.N. system. The M.S.St.P. and W.Ry. is the third line projected or under construction in Minnesota to a connection with the C.N.Ry. along the Rainy river, the others being the Duluth, Virginia and Rainy River Ry. from Virginia to Koochiching, opposite Fort Frances, Ont., and the Minnesota and International Ry. from Bemidji to the same point.

Moncton and Eastern Ry.—G. Moore, M. L. Musleman and A. L. Meyer were incorporated at the last session of the New Brunswick Legislature under this title to construct a railway from Moncton to the Provincial boundary, near Sackville, to connect with the projected line of the Shediac and Coast Ry. The capital was fixed at \$20,000 a mile of line constructed, and power was given to issue bonds to the extent of \$20,000 a mile. In case the Co. acquired the Shediac and Coast Ry. Co.'s charter it was authorized to construct the line to the boundary between N.B. and N.S., instead of to Cape Tormentine. The act does not come into force until proclaimed by the Governor in Council.

See also Fredericton and Western Ry.

Montford and Gathean Colonization Ry.—The repairs to the trestles washed out by the floods between Morin and Arundel have been completed and traffic on the entire line has been resumed. (June, pg. 194.)

Montreal Street Ry.—The new double track on Commissioners st. is completed; a new double track has been laid on Van Horne avenue from Park avenue to St. Lawrence st.; and new lines are in course of construction from the terminus of the Seigneurs-Guy line to the top of the mountain, Westmount, and in St. Louis du Mile End. (June, pg. 194.)

Montreal Subway Co.—H. A. Hodge, President of the Quebec Southern Ry., has been elected President, and A. H. Harris, Traffic Manager of the Q.S.R., has been elected Secretary of the M.S. Co. C. W. Emerson, of Boston, Mass., the Co.'s Chief Engineer, is superintending borings, etc., prior to plans for construction of the tunnels being completed. The plans will be submitted to H. C. Carson, Chief Engineer in charge of construction of the Boston subway, before being finally adopted. (June, pg. 194.)

Montreal Terminal Ry.—The contract with the city for a 10-year franchise has been signed, and the Railway Committee of the Privy Council has granted the necessary permission to cross the tracks of the Montreal Street Ry. Co. on a number of streets. The roads committee of the city council has reported in favor of the Co.'s application to construct a subway under the C.P.R. tracks at Forsyth st., and a joint application will be made to the Railway Committee of the Privy Council for the necessary permission. (June, pg. 195.)

The Mount Sicker Ry. has been completed from the Lenora Mount Sicker Copper Co.'s

mines to Crofton, at Osborne bay, B.C. The line is carried across the Esquimalt and Nanaimo Ry. by a trestle 900 ft. in length. The total length of the line is about 12 miles. At Osborne a smelter with a capacity of 1,200 tons a day is practically completed, and shipping wharves have been erected. (Feb., pg. 59.)

Muskoka Electric Ry.—The proposal to construct an electric railway from Maple lake station to Port Cockburn and Rosseau, Ont., about 12 miles, has been discussed only in an informal way at Ottawa. No decision has been reached as to whether anything will be done in the way of organizing a company, or constructing a line. (June, pg. 195.)

New Brunswick Coal and Ry. Co.—The section of 15 miles from Chipman to Newcastle was expected to be completed by the end of July. The contract for the construction of the remaining 30 miles of the line from Newcastle to Gibson has been let to the Barnes Construction Co., which has the contract for the first section. The Co.'s option on the Central Ry. of N.B. is still in force, but the latter line has not yet been taken over. (June, pg. 195.)

New York & Ottawa Ry.—The car shops, which are now located at Santa Clara, N.Y., are to be removed to Ottawa. General Manager Gays states that all the arrangements are completed for the removal. The Co. has up to the present had a small car repair shop located at Ottawa.

Niagara, St. Catharines and Toronto Ry.—Some of the directors and officials recently drove over the proposed route for the extension of the line from St. Catharines to Hamilton. It is reported that the line, as finally determined upon, will skirt the southern shore of Lake Ontario for about six miles, on a bluff about 200 ft. high, then cross to the highway between the second and third concessions, over which it will run between three and four miles to a point north of Beamsville, where it will cross the G.T.R. overhead, and thence parallel to the G.T.R. and the Hamilton, Grimsby and Beamsville Ry. to Hamilton. Application will shortly be made to the different townships for the necessary franchises. (June, pg. 195.)

Nipissing and James Bay Ry.—No arrangements have been made for continuing the work done near North Bay last year, and

it is not likely that anything will be done this year. (June, pg. 195.)

Northern Colonization Ry.—See C.P.R. Betterments, etc.

North Shore Power, Ry. and Navigation Co.—For the purpose of developing about 1,000 square miles of timber limits comprising the township of Arnaud, and the valleys of the rivers Rapide, Seal, Pigou, Boileau, Tortue and Manitou, this Co. is constructing 7 miles of standard gauge railway from Seven Islands Bay, Que., to the falls of Ste. Marguerite river. The terminal point on the bay has been named Clarke City in compliment to the New Yorkers who are largely interested with T. Meaney of Toronto, the President of the Co., in the project. The line passes through a level country to within a couple of miles of the falls, which are reached by a comparatively easy gradient. There is but little curvature on the line. Construction is being carried on by the Co. and a report from T. Meaney, dated July 12, stated that over 300 men were then engaged on the work, and that an additional 200 would be secured from Quebec within a week or two. About 3½ miles of the grade had been completed and

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track laying had commenced. The line is being laid with 56 lb. steel and the whole of the rails are on hand. Construction will be pushed and the line is expected to be completed by the end of the season. H. Holgate, C.E., Toronto, is the engineer in charge of construction.

A large wharf is being constructed at Clarke city at which the lumber from the different rivers will be brought by lighters, and the manufactured products, consisting of pulp, etc., exported. The bay is 4 miles across at the entrance, and 11 miles deep, and is protected from all quarters by seven islands at the mouth. The depth of water between the islands varies from 30 to 100 fathoms, and there is deep water right in shore all over the bay. At Clarke city, saw, pulp, and other mills will be erected and will be driven by power generated at the falls of the Ste. Marguerite. This river is over 300 miles in length, and discharges a large volume of water, and the power to be developed is practically unlimited. As soon as the railway is completed the erection of the power plant will be commenced, and it is expected that the whole of the work will be completed in about two years. (June, pg. 195.)

Ottawa, Northern and Western Ry.—C. W. Spencer, Vice-President and General Manager, after a recent inspection of the old Ottawa and Gatineau and Pontiac Pacific Jct. Rys., stated that it was intended to improve the lines and place them in the best possible condition. The exact route to be followed in making a connection between the P.P.J. Ry. and the transcontinental line of the C.P.R. at or near Pembroke, Ont., had not been decided, but would be on an early date. Surveys were in progress on three lines. (June, pg. 195.)

Ottawa to Lachine.—Press reports state that a company is about to be formed to construct and operate an electric railway from Ottawa to Lachine, Que., where connection would be made with the Montreal lines.

The Peterboro Radial Ry. Co. has taken over the Peterboro and Ashburnham St. Ry., which it proposes to operate in connection with the lines it was authorized to construct at the last session of the Ontario Legislature. (June, pg. 196, and April, pg. 144.)

Preston and Berlin Ry.—We are informed that about three-fourths of the work on the eight miles of line for the electric railway to connect Preston and Berlin, Ont., has been done, and it is expected to have the line completed by Sept. 1. T. E. Hillman, Hamilton, is engineer in charge of construction, and A. A. McDonald & Co., Hamilton, have the contract.

Prince Edward Island Ry.—Tenders are under consideration for the erection of a freight shed and waiting room at Mount Stewart; a freight shed at Morell, and a new station at Georgetown.

Nearly all the grading has been done on the branch line from Southport to Murray river, but we were advised on June 5 that there was a large portion of masonry on culverts and bridges to be completed. Track-laying was expected to be commenced at Murray river July 1. The total length of the branch, including the bridge over the Hillsborough river, to connect Charlottetown and Southport, is 42½ miles, and the grade has been constructed for a standard gauge line. The average curvature is 3½ degrees, the maximum being six degrees, as compared with 12 degrees on the main line. The heaviest grade is 1¼%, and extends for about 3½ miles, descending towards Murray river. At Murray river a station and freight shed will be built, and a siding run down to a wharf 200 by 20 ft., with a 75 ft. L. to be constructed. W. Kitchen has the contract, and

H. J. McKenzie, C.E., is engineer in charge of construction.

The work on the construction of the bridge over the Hillsborough river is being pushed forward by the contractor, M. J. Haney, Toronto. The steam dredge and steam pile driver have been busy for some time, and a large quantity of material, consisting of stone, sand, cement and pitch pine timber has been delivered. (June, pg. 196.)

Quebec and Lake Huron Ry.—We are advised that a contract has been let to R. J. Campbell, of New York city, for the construction and equipment of the line, and that it is his intention to construct 66½ miles of the main line, during the present summer, to connect Quebec and Shawinigan Jct., and a branch of 14½ miles from Shawinigan Jct. via Grand Mere to Shawinigan Falls. It is reported that work on the 115 miles of the Ontario section, connecting French river harbor and Mattawa will be commenced this year. (June, pg. 197.)

Quebec and Lake St. John Ry.—H. J. Beemer, one of the directors, who has recently been over the line, says it has been much improved, sections of the line have been straightened, a considerable length laid with 70 lb. steel rails, and many other improvements effected.

The principal improvement has been the cut-off between Valcartier and St. Catharines. The new line diverges from the old line on a 1 degree curve at a point 15 miles from Quebec, passes through 2 miles of farming country, crosses the Jacques Cartier river ¼ of a mile below the old bridge, and then through some swampy land, and rejoins the line on a 1 degree curve. The length of the new line is 3.77 miles, and of the old line 4.93 miles. The bridge over the Jacques Cartier river is carried on four piers and two abutments of first class rock-faced ashlar masonry, and consists of 3 spans of 110 ft., trusses class 1, Dominion specifications, and the approaches are 44 ft. and 39 ft. plate girder spans respectively. The new line has been laid with 70 lb. rails. J. Pacquet was the contractor. (April, pg. 145.)

Quebec and New Brunswick Ry.—The following officers have been elected: President, Hon. J. Costigan; Vice-President, Hon. A. Turgeon; other directors: T. J. Cochrane, J. N. Gregory and Hon. H. G. Carroll.

Press reports say a contract has been let to Dini and Cozzolino for grading and tracklaying on 18 miles of line from Connors station, N.B., to the Quebec boundary, and that work has been commenced at Connors. (Aug., 1901, pg. 233.)

Quebec Southern Ry.—We were informed, July 14, that but little in mileage had been constructed of the extension of the South Shore Ry. Co.'s line from St. Francois du Lac to Levis. The material for the work of construction was being assembled on the ground, and work was expected to be actively prosecuted at an early date. (June, pgs. 196, 197.)

Sandwich, Windsor and Amherstburg Ry.—The town of Amherstburg, Ont., has voted a subsidy of \$10,000 to secure the extension of this line from Windsor to Amherstburg. (June, pg. 197.)

Sault Ste. Marie, Ont., Terminals.—An officer of the C.P.R. advises us that he has no knowledge of any arrangement having been completed between that Co. and the Algoma Central and Hudson Bay Ry. Co. for the erection of a union station at Sault Ste. Marie. (June, pg. 197.)

Schomberg and Aurora Ry.—Owing to a number of delays the construction of this electric railway from a junction with the Metropolitan Ry., at Bond Lake, 17 miles from Toronto, to Schomberg, 15 miles, was not completed by July 1 as was anticipated. The

work, however, is being proceeded with, and on July 17 we were informed that the line would be completed and ready for traffic within 30 days. The greater portion of the track has been laid, but the delay has been occasioned by having to wait for the crossings and other special work. The line will be operated by the Metropolitan Ry. Co. (June, pg. 197.)

Shallow Lake to McNab Lake.—The Railway Committee of the Privy Council has granted permission to the Sun Portland Cement Co., to construct a switch 1¾ miles in length from near Shallow Lake, Ont., station on the G.T.R., northwesterly to McNab lake, subject to the filing of a satisfactory agreement between the parties interested.

The St. John, N.B., Ry. Co. is extending its lines on Douglas avenue, and is constructing a branch to the bridges at the falls. The lines were expected to be completed early in July. (June, pg. 187.)

The St. Lawrence Terminal and Steamship Co. has a Dominion charter granted in 1900, enabling it, among its other powers, subject to the approval of the Railway Committee of the Privy Council, to construct railway sidings, switches or spur lines, not exceeding six miles in length, as are necessary to connect its property with the lines of any railway. H. A. Hodge, President of the Quebec Southern Ry., is President; F. D. White, Rutland, Vt., Vice-President, and R. T. Henneker, Montreal, is Secretary of the Co. At a recent meeting it was announced that one-half of the capital stock of \$1,000,000 had been subscribed.

Strait of Canso Bridge.—J. A. L. Waddell, of Kansas City, Mo., who designed the projected bridge over the Fraser river at New Westminster, B.C., has been consulted in reference to the plans for this bridge. He has just visited the locality, and has made a proposition to the Co. regarding the preparation of the plans. It is said the bridge will be a cantilever one, 1,800 ft. between piers and 150 feet above the water. It is not likely that any further steps will be taken till Government subsidies are assured. (June, pg. 197.)

Suburban Rapid Transit Co.—It is reported that tenders will shortly be asked for the construction of an electric railway from Winnipeg to Sturgeon creek, via Deer lodge. The Co. has power to construct a line to Headingly. E. S. Harrison, Winnipeg, is Secretary. (June, pg. 197.)

Temiskaming and Northern Ontario Ry.—The Ontario Government has decided to appoint A. E. Ames, President of the Toronto Board of Trade; M. J. O'Brien, railway contractor, Renfrew; B. W. Folger, late General Manager, Kingston and Pembroke Ry., Kingston; and T. Bain, late Speaker of the House of Commons, E. Gurney, Toronto, as the commission to have charge of construction of the T. and N.O. Ry. from North Bay to the head of Lake Temiskaming, Ont. A. E. Ames will be President of the commission, which will be formally organized and hold its first meeting at an early date. The commissioners are to receive \$1,000 a year each.

The right of way for the first 20 miles from North Bay, Ont., is being cleared, and on July 10 it was reported that about one-fourth of the work had been done. The timber cut is being made into poles, posts, ties, etc., and W. B. Russell, C.E., engineer in charge of construction, says that the value of these will exceed the cost of clearing the right of way. (June, pg. 197.)

Thunder Bay, Nipigon and St. Joe Ry.—D. F. Burk, President, recently stated that there was no probability that any construction work would be undertaken this year. (Jan., pg. 5.)

Tilsonburg, Lake Erie and Pacific Ry.—At a recent meeting of the Railway Committee of the Privy Council it was directed that an order be issued approving of the place and mode of junction with the C.P.R. at Ingersoll, Ont., as soon as the agreement between the companies had been filed.

Tracklaying has been completed to Ingersoll, and ballasting is expected to be finished by the end of October. (June, pg. 197.)

Trans-St. Mary's Traction Co.—Tenders were recently invited to be sent in by July 24 for the grading, tracklaying, bridge work, etc., of about 8 miles of electric street railway at Sault Ste. Marie, Mich. See also International Transit Co.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—At a recent sitting of the Railway Committee of the Privy Council permission was given to cross the tracks of the Kettle Valley Lines, subject to the approval of the plans by the Deputy Minister of Railways, but judgment was reserved on the application for permission to construct branch lines to Columbia and Grand Forks, B.C., and to the Granby smelter.

The line between Cascade and Carson, B.C., forming the link in the line from Marcus to Republic, Wash., was inspected early in June by H. F. Forrest, of the Dominion Department of Railways, and it was expected that a train service would be put in operation early in July.

Grading on the branch between Carson and Grand Forks, B.C., and the bridge across the Kettle river were expected to be completed early in July.

Pending the decision of the Railway Committee of the Privy Council, nothing has been done in the way of construction on the branch to the Granby smelter. (June, pg. 198.)

See also Great Northern Ry., U.S.

Vancouver, Westminster, Northern and Yukon Ry.—J. Hendry, President, is reported to have stated that arrangements have been completed for the construction of a line from Vancouver by way of New Westminster connecting with the Great Northern Ry., U.S., to Sumas, B.C., where connection will be made with the Northern Pacific Ry.; that a line would be constructed from Vancouver to Midway, B.C.; and that arrangements would shortly be concluded for the construction of a line from Vancouver to Quesnel. (Jan., pg. 5.)

Victoria Terminal Ry. and Ferry Co.—The ferry established in connection with this railway is carrying G.T.R., Great Northern Ry., U.S., and Northern Pacific cars from Vancouver to Sydney and thence over the old Victoria and Sidney Ry. and its extension to the new terminal station in Victoria, B.C. The cars are taken into Vancouver by ferry from Liverpool pending the completion of the mainland line authorized from Ladner's Landing via New Westminster into Vancouver. (June, pg. 198.)

Whitney to Big Opeongo Lake.—The line being constructed from Whitney, on the Canada Atlantic Ry., northerly to Big Opeongo Lake, about 14 miles, is of standard gauge, and is to be completed this season. It is for the St. Anthony Lumber Co., and not the Whitney Lumber Co., as previously stated. The contractor for grading and track laying is J. R. McQuigge, of Arnprior. The line will be a private one to be used entirely for the Co.'s lumber business. (June, pg. 198.)

Windsor, Essex and Lake Shore Rapid Ry. Co.—The by-law granting a franchise in Windsor, Ont., is still before the council. (June, pg. 198.)

Windsor to St. Thomas.—U.S. press reports state that an engineer is inspecting the country between Windsor and St. Thomas, Ont., on behalf of a U.S. syndicate which desires to construct an electric railway connect-

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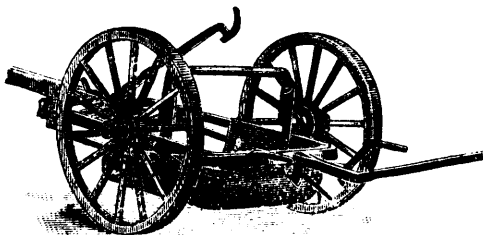
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ing the two cities. No information can be gathered as to who is behind the project.

Winnipeg Electric Street Ry.—The city council has given permission for the improvement of the tracks on a number of streets, including additional tracks and siding on Portage avenue, with connections north and south with Main st.; double track on Notre Dame st., and the reconstruction of the track on Main st.; between Graham st. and the Assiniboine river.

Wolfe, Megantic and Lotbiniere Ry.—A meeting of the promoters of a line through the counties of Wolfe, Megantic and Lotbiniere, was held at Inverness, Que., July 7, at which W. H. Lambly and L. J. Frechette were appointed to interview the officials of the Portland and Rumford Falls Ry. with a view of getting that Co. to construct an extension of its line to the International boundary. The promoters are reported to have secured the surveys of a line projected some years ago to the boundary through South Ham and Scottstown. A further meeting of the promoters will be held in Aug. The object of the projected line is said to be to secure a shorter and more direct route between Quebec and Portland, Me.

Woodstock and Centerville Ry.—An act was passed at the last session of the New Brunswick Legislature reviving the act incorporating this Co. and giving 3 years from Nov. 1, 1902, to commence, and until Nov. 1, 1905, to complete the line. (April, pg. 148.)

The Cape Breton Electric Co. (Ltd.), in Jan., 1901, purchased the Sydney Gas and Electric Co., the Sydneys Ferry Co., and recently acquired the North Sydney Electric Light Co. In 1901 franchises were secured for the construction of electric railways in Glace Bay, and through the municipality of Cape Breton, and in 1902 from Sydney Mines and North Sydney, the intention of the Co. being to construct and have in operation a continuous system—car and ferry—between Sydney Mines and Glace Bay, with connections to the surrounding settlements. In connection with its street railway franchises the Co. also has lighting franchises in the different towns served. So far as the line between Sydney and Glace Bay is concerned, it is being constructed by the C.B.E. Co., under the charter of the Sydney and Glace Bay Ry. Co., in which the Dominion Coal Co. is jointly interested.

We were advised July 21 that seven miles of track, with complete trolley equipment, had been constructed in the town of Sydney, and the line completed between Sydney and Glace Bay, 15 miles. Eight miles of this latter line is over the old Reserve right of way, formerly used as a steam railway. The grades on this eight miles at no point exceed $1\frac{1}{2}\%$; the bed is practically of coal culm, and the ballasting of hard quality limestone. A power plant has been completed on Muggah's Creek, Sydney, with a capacity of 1,200 k.w., which will furnish the local lighting load for Sydney as well as supply power for the railway. The subgrade on the line to connect with the main line at Reserve, and to serve Dominion no. 1, Dominion no. 2, and terminate in Glace Bay, has been completed, and the track is being laid. There will be an auxiliary power house at Dominion no. 1. Bracket construction is employed along the Reserve right of way, and the line throughout has been thoroughly constructed, and it is claimed that it will be second to none for cleanliness, permanency of ballast and ease of travel. These lines are expected to be in operation by the end of August. It is intended to make the run from Sydney to Glace Bay in 40 minutes. At Reserve passengers for Dominion no. 1, or Bridgeport will transfer from the interurban line to the branch. The interurban cars will have 30 ft. bodies on double trucks, and during the rush hours 35 ft. trailers will be added.

The connection between Sydney and North Sydney, 6 miles, is made by ferry, and, as soon as the Sydney-Glace Bay lines are completed, construction will be commenced on an electric line, about four miles in length, from North Sydney to Sydney Mines. Bracket construction will be employed on this line, which will run along a cliff, and will give a picturesque ride during the summer.

The Co.'s lines will serve a population of about 60,000. Stone and Webster, of Boston, Mass., are the promoters and financiers of the undertaking, and are also doing the construction and engineering. (June, pg. 189.)

Canadian Northern Ry. Construction.

Port Arthur Elevators.—Construction has been started on the new steel and tile elevator which it is expected to have completed in time for the storage of the present season's crops. The new elevator, which will have a capacity of 1,700,000 bush., will be entirely for storage purposes, and will bring the C.N.R. elevator capacity at Port Arthur up to 3,000,000 bush. It is being built on a pile and cement foundation, and will consist of 64 tanks each 70 ft. in height, and 21 ft. in diameter, and will, it is claimed, be absolutely fireproof. The elevator will be operated from the machine house of the present elevator, the machinery there being sufficiently powerful to operate both storage houses. There will be four conveying belts, with a capacity of 50,000 bush. an hour, which will operate between the two storage houses. (June, pg. 199.)

Port Arthur Docks.—The new docks and other wharf facilities are nearly completed, and the track has been laid up to the docks. The terminal facilities are reported to be thoroughly well constructed and sufficient for the handling of a very large business. (April, pg. 127.)

Port Arthur Union Station.—H. Sutherland, Executive Agent, states that there is a prospect of a union station being built this year. The plans are practically completed.

Port Arthur Hotel.—H. Sutherland says there is no foundation for the report that the C.N.R. is going to build an hotel at Port Arthur.

Ontario Division.—The ballasting of the line between Port Arthur and Rainy River is practically completed, and the line is reported to be in a first-class condition. (June, pg. 199.)

Duluth Extension.—The continuation of the Duluth extension from Gunflint Narrows, on the International boundary, to Ely, Minn., will be constructed by the Duluth and North Minnesota Ry. Co. R. G. Anchatz, Chief Engineer, recently went over the projected route in company with a number of contractors. (April, pg. 127.)

Port Arthur to Winnipeg.—An order has been placed with the Acton Burrows Co., Toronto, to supply enamelled iron plates to be used as names on the stations between Port Arthur and Winnipeg, and on the Carman branch.

Winnipeg Shops.—Steps had been taken for the construction of large shops at Winnipeg during the course of the present year, and plans were prepared. There is, however, so much other work to be attended to that it is not probable that anything further will be done in the matter before next year.

Winnipeg Terminals, Etc.—At the last sitting of the Railway Committee of the Privy Council the matter of the crossing of the C.P.R. tracks on Point Douglas avenue, by the C.N.R. was under consideration. The C.P.R. objected to the place asked for and suggested a crossing between Ogilvie's mill and the Red River as a more favorable point. The matter was adjourned pending an engineer's report. E. V. Johnson has since made

an inspection of both routes, and will report to the committee at its next sitting.

The C.N.R. has submitted to the Winnipeg city council a plan for its projected line to connect with the old Hudson's Bay railway. The line will branch from the present transfer track between George and May streets, following the river and crossing Gomez, Curtis, Annabella and Higgins avenues through the centre of lot 14, Dominion government survey, crossing the main line of the C.P.R. at that point. From there it is continued through block B, of the Dominion survey, lot 25, to River avenue, and along River avenue and the river bank, across lots 54 and 39 of the Dominion survey, to Main street, which it crosses diagonally on a long angle, from Alfred to Aberdeen streets. From there it strikes the north line of lot 40 of the Dominion survey, which is followed to the city limits.

Emerson Branch.—Surveys have been made by the Great Northern Ry. (U.S.) engineering staff for the construction of 2 miles of line to connect this branch with the G.N. Ry. branch at St. Vincent, Minn. The line will connect with the C.N.R. tracks at the bridge over the Red river recently acquired.

Surveys are reported as being made for an extension from Emerson easterly for about 20 miles.

Branch to Oak Point.—The work of reconstructing the old Winnipeg Great Northern line from Winnipeg to St. Laurent, 40 miles, has been commenced. It is said the line will be extended to Oak Point on Lake Manitoba, where wharf accommodation will be constructed. (June, pg. 199.)

Portage la Prairie Station.—We were recently advised that nothing definite had been decided in connection with the proposed new station. Several sites were under consideration. (April, pg. 127.)

Gilbert Plains Branch.—A special article in the Toronto Globe recently dealt, among other things, with the C.N.R. construction in Saskatchewan. It said: "The main line has been definitely located. It will strike off from the present line of the C.N.R., at Gilbert plains, and, passing south of Duck mountains, angle across the northeastern corner of Assiniboia. Entering Saskatchewan, it will cross the southern branch of the river about 20 miles north of Saskatoon, and the north branch will in all probability be crossed and recrossed again near Battleford. The run from the Saskatchewan will be almost straight across country, except where the grades forbid, to Edmonton, and the whole southern valley of the river will be tributary to the railway." We have been unable to get any official confirmation of these statements. The C.N.R. has a line in operation from Gilbert plains to Grand View, Man., 26.6 miles, and construction is in progress for 50 miles westerly from Grand View. (April, pg. 127.)

Erwood Westerly.—Press reports say that the extension from Erwood westerly will be constructed to Melfort, on the Carrot river, about 100 miles, this year. Grading is being pushed by the contractors who were reported at the end of June to have about 1,000 men at work. It is also said that this line will be extended into Prince Albert, about 80 miles beyond Melfort, next year. A survey party has just completed locating a line into Prince Albert. The line enters the town site from the southeast, and on reaching Saskatchewan avenue, follows that street to the west end of the townsite. (June, pg. 199.)

British Columbia Lines.—The act providing for the construction of a line from Bute Inlet, on the Pacific coast, to the eastern boundary of the province, near Yellowhead pass, was passed by the B.C. Legislature at its recent session. Amendments were adopted in committee varying the manner of paying the subsidy on the last 150 miles of the

line, in the event of the railway between Victoria and Seymour narrows not having been completed; providing that the Victoria and Seymour Narrows Ry. should form part of the C.N.R. transcontinental line, and that neither the main line, nor any of its branches, or leased lines, are to be amalgamated with the C.P.R. or any of its leased lines or branches, or any line controlled by it. (June, pg. 199.)

C.P.R. Betterments, Construction, Etc.

Standard Station Plans.—The C.P.R. engineering department has prepared a set of three standard plans for stations. The first is for the larger towns, while the two smaller have dwellings attached, and will be for the small towns and way stations. The designs are artistic, and it is intended to adopt the standard plans in replacing old stations and erecting new ones, so that in time there will be a uniform design of stations all over the system.

St. John, N.B., Terminals.—J. Osborne, General Superintendent, Atlantic Division, has made a number of suggestions to the St. John city council in reference to the wharf accommodation, and a committee has been appointed to arrange for the carrying out of some of the improvements. Mr. Osborne said the C.P.R. would put in all the portable tools necessary for handling heavy cargoes, and would raise the grain conveyers 14 ft., at a cost of \$10,000.

Work has been commenced on the second section of the new yards at Bay shore. The material being taken out is being used for filling north of Rodney wharf. A large coal handling plant will be erected at the Bay shore yard this year. (April, pg. 139.)

Fredericton Freight Shed.—Plans have been completed for a 60 ft. addition to the freight shed at Fredericton, N.B., making it in all 200 ft. long.

McAdam Jet. Station.—We are advised that there is not the slightest ground for the press reports that the station building is to be removed to the original site half a mile distant, in order to make room for the enlargement of the yards.

A contract has been let for the erection of 10 houses adjoining the station, for employees. (April, pg. 139.)

Windsor St., Montreal.—Arrangements have been made for the remodelling of the underground quarters at this station, and the addition of new plant, including steel coal hoppers and a compressed air plant.

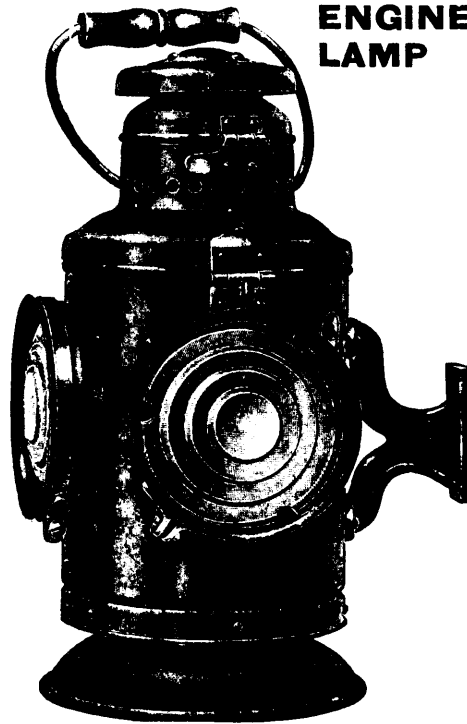
Montreal Shops.—It is said contracts will be let and work started in a short time on the new shops at Hochelaga, the plans having been finally approved. (June, pg. 201.)

The Northern Colonization Ry. Co. has been reorganized, the C.P.R. having obtained control. A new board of directors has been elected with the following officers: President, Hon. J. D. Rolland; Vice-President, D. McNicoll; Secretary, H. C. Oswald; Treasurer, H. E. Suckling; other directors, C. B. Major, G. Langlois, C. W. Spencer, I. G. Ogden and T. Tait. The Co. has power to construct a line from Labelle, Que., the terminus of a C.P.R. branch from Ste. Therese Jct., 81 miles in length, to Rapide de l'Original, about 56 miles. Surveys have been completed for the first 26 miles of this line to Nominiguet, and the Quebec Legislature has granted a subsidy of \$8,000 a year for 12 years for this section. A contract is expected to be let shortly. (June, pg. 201.)

Montreal-Toronto Line.—E. H. McHenry, Chief Engineer, recently inspected the Ontario division, and looked into the matter of the reduction of the gradients between Smith's Falls and Toronto. Contracts had not been let for the work up to July 21. (June, pg. 201.)

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The Lake Temiskaming Colonization Ry., now owned and operated by the C.P.R., which extends from Mattawa to Temiskaming with a branch to Kipawa, 47 miles in all, was constructed by a company incorporated by Dominion letters patent issued under the authority of the act of 1886 voting subsidies in aid of railways. In 1891 power was given the Co. to extend its line to the head of Lake Temiskaming, the time for the completion of the work being limited to five years. No construction has been done under this act, but it is reported that the Dominion Government has promised that Parliament will be asked next session to vote a subsidy for the extension of the line from Temiskaming or Kipawa to the head of the lake.

Sault Ste. Marie Branch.—The Railway Committee of the Privy Council has ordered the C.P.R. to construct a highway crossing over its tracks between mile-posts 45 and 46, near Bruce station.

Sault Ste. Marie Union Station.—In reference to the press reports that arrangements had been completed between the C.P.R. and the Algoma Central and Hudson Bay Ry. for the erection of a union station at Sault Ste. Marie, a C.P.R. official, who should be in a position to know, advises that no such arrangement is known of by him.

Fort William Elevators.—The Macdonald Engineering Co., of Chicago, Ill., has under construction a steel annex to elevator B, having a capacity of 2,000,000 bush. One-half of this capacity is to be completed by Jan. 1, 1903, and the remainder as soon thereafter as possible. There is also under construction a steel annex to elevator D, of a capacity of 1,750,000 bush. to be completed by Jan. 1, 1903.

Fort William Power and Lighting Plant.—A press report states that it is contemplated to install a complete electrical plant for power and lighting purposes. The Co. at present obtains its light from the municipal plant, which has reached the limits of its supply.

Dinorwic to Lake Minnetakie.—We were recently advised that nothing had been decided on as to the construction of this branch, and that no decision would be reached until the reports of a further examination of the country tributary to Lake Minnetakie, then being made, had been considered. (June, pg. 201.)

Hotel at Rat Portage.—Sir Thos. Shaughnessy, on the occasion of his recent visit, was shown a number of sites suitable for the erection of a large tourists' hotel, and promised that the Co. would take into consideration the desirability of erecting an hotel in Rat Portage. (June, pg. 201.)

Winnipeg Bridge.—The new bridge over the Red River has been completed, and was ready for traffic early in July. (June, pg. 202.)

Winnipeg Station.—In connection with the proposed new station the Co. has purchased the north-west corner of Main st. and Point Douglas avenue. Press reports state that the station will not be built this year, as the tenants of certain properties acquired by the C.P.R. have been notified that they will not be required to move this summer. (June, pg. 201.)

Winnipeg Shops and Yards.—During his recent visit to Winnipeg Sir Thos. Shaughnessy went over the shops, which had previously been reported on by E. A. Williams, Superintendent of Rolling Stock. The round house, shops, engine houses and yards, as well as the yards, are inadequate to meet the present requirements or to provide for future extensions. Mr. Williams reported that the shops would have to be greatly changed, and the whole system of the yard altered. The President saw what was required, and recently Chief Engineer McHenry went over the

yards and shops with a view of preparing plans for their rearrangement and enlargement.

Bridges at St. James and Headingly.—Tenders are under consideration for the masonry abutments for bridges at St. James and Headingly, near Winnipeg, the work to be completed this year.

Osborne to Morden.—Some grading will probably be done this year on the proposed cut-off between Osborne and Morden on the Pembina Mountain branch. (June, pg. 202.)

Carman to Boissevain.—There is no prospect of any construction this year on the line proposed between these points. (June, pg. 202.)

Glenboro-Lauder Extension.—Some grading is expected to be done from Lauder eastwardly this year. (June, pg. 202.)

Manitoba and Northwestern Ry.—Authority was given by the shareholders, at a meeting held in Montreal, July 2, to extend the line from Yorkton, Assa., to Prince Albert, Sask., to issue bonds and to execute the necessary trust deed in connection therewith.

Work has been in progress for some weeks on the extension of the line, a contract having been let to J. D. McArthur for the grading of 33 miles. The Co. will do its own tracklaying and will build the bridges, buildings, etc. (June, pg. 202.)

McGregor Branch.—We were advised July 17 that track would be laid on the 10 miles graded last year from Wellwood to Brookdale, and that there was no likelihood of any further extension being made this year. (June, pg. 202.)

Brandon Improvements.—On the occasion of his recent inspection of the line the President informed a Brandon deputation that the Co. had decided to build an overhead bridge between Eighth and Ninth streets, at a cost of \$25,000, and it was also in contemplation to rearrange the yards so as to give increased accommodation and better facilities.

Hartney Station.—The station buildings recently destroyed by fire are being reconstructed.

Phasant Hills Branch.—Owing to the necessity of giving accommodation to a well settled district north-east of Moosomin, it was deemed advisable to change the location of the projected branch from Moosomin, mileage 1,643 from Montreal, to Kirkella, a point 16 miles east. It is expected to complete about 100 miles this year, carrying the line to Neudorf. Foley Bros. and Larson, of which firm J. W. Stewart is a member, are the contractors for the grading. (June, pg. 202.)

Portal Section.—Press reports state that two new stations are to be built this year on the Portal section, one between Milestone and Yellow Grass, and the other between Yellow Grass and Weyburn.

Perth Shops.—The blacksmith and machine shops, oil house and main offices, together with a large quantity of machinery and some box cars, under construction, were destroyed by fire July 5. The burned buildings will be rebuilt immediately.

Crow's Nest Pass Ry.—On June 11 we were advised that the tunnel at the Loop had been completed, and on June 29, that the roof had been lined with sheet steel, and all the timbering had been fireproofed. The structure thus being rendered immune from fire, traffic was turned through it on June 26. As previously stated, the tunnel is through a very loose gravel, which ran like grain in a bin. The lack of cohesiveness in the material caused a side pressure at the west portal, where the tunnel enters the ground skew to the hill face. During last winter a large amount of excavation was done to remove this pressure, and this was accomplished with suc-

cess. The material was taken out by means of a large scraper suspended from a standing wire cable running up and down the hill slope. The scraper was propelled by a steam hoist with fore and back lines. It filled on the down trip and discharged through a chute into the bottom of the canyon. A large earth buttress has thus been formed against the hill face. The tunnel is lined with sets of 12"x12" mountain fir set only 3 ins. apart, and owing to the looseness of the gravel it was necessary to drive close lagging around the entire interior. Over 1,000,000 ft. of timber were used in the tunnel, which is 900 ft. in length and on a 10 degree curve. The track consists of 80 lbs. steel rails laid on ribbed tiebeams with a patent rail joint. The tunnel, which cost about \$100,000, does away with three high trestles, one of which was on a 25° curve, turning through a full half circle, and a gumbo cut that cost thousands to keep free from slides. Work on the tunnel was commenced in March, 1901, by Olaf Olson, who built the Bulldog tunnel just previously, and who has a wide reputation for tunnel work. C. R. Coutlee was the engineer in charge. (Jan., pg. 7.)

Midway to Spence's Bridge.—We are officially advised that there is no foundation for the press reports stating that it is the intention to shortly begin construction of a line between these points. During his recent trip of inspection Sir Thos. Shaughnessy said that the matter of the extension from Spence's Bridge to the Similkameen had not been considered in a final way. (June, pg. 203.)

Field-Ottertail Deviation.—Grading on the 7 mile deviation between these points is reported to be completed, and tracklaying to be in progress. (June, pg. 203.)

Improvements at Nelson.—We were recently advised that while a large number of improvements were in contemplation nothing had been decided on except the removal of the repair shops from Trail, and the installation at Nelson of the repair shops for the Kootenay section. (June, pg. 203.)

Kootenay and Arrowhead Ry.—We were advised July 17 that tracklaying had been completed on this line, from Lardo, on Kootenay Lake, to Trout Lake, about 38 miles, and it was expected that the line would be handed over to the operating department by the end of the month. (June, pg. 203.)

Emerald Lake and Yoho Valley.—In connection with the hotel at Field, and the chalet at Emerald lake, the Co. has constructed a wagon road between the two points, and has completed a number of trails and shelters thereon, commenced last year. About five miles of road across the river at Field has been constructed along the north shore of the Kicking Horse valley to the mouth of Yoho valley, giving a magnificent view of Mount Stephen and other peaks.

The Vancouver and Lulu Island Ry., from Vancouver to Steveston, about 15 miles, has been completed and a train service was put in operation July 7. The last nine miles is reported to have been graded and the track laid in 22 days by 30 men. The ballasting on this section of the line is now being done. Station buildings have been erected at Inglewood and Eburne, and stations are to be erected at Magee road, and at three or four other points. Ferry connection is to be provided at Steveston with Ladner, and a steamer will, it is reported, be placed on a route from Steveston to Chilliwack. S. Wood is acting as Manager of the railway. (Jan. pg. 7.)

Minneapolis, St. Paul and Sault Ste Marie Ry.—A contract is reported to have been let for the construction of an extension from Braddock, N.D., to Bismarck, about 40 miles. The main portion of the work consists of repairing an old grade made 13 years ago. The maximum grade is .8 of 1%, and the maximum curvature .3°. (June, pg. 203.)

Grand Trunk Ry. Betterments, Etc.

Portland, Me., Station.—No decision has been announced respecting the erection of the proposed new station at Portland, but it is expected that the matter will be decided during the visit of the 2nd Vice-President and General Manager to London, Eng.

Gorham Shops.—The shops and locomotive terminals at Gorham, N. H., have been closed.

Island Pond, Vt.—A new building for the railway Y.M.C.A. is to be erected at Island Pond. The G.T. Ry. Co. has given a site and \$4,500 towards the building fund, and will contribute \$90 a month towards its maintenance. The town is asked to contribute \$2,500 towards the building fund.

Island Pond Station.—As a result of the recent visit of the 2nd Vice-President and General Manager, it is understood that it is contemplated to reconstruct the yards and to build a new passenger station and new freight sheds.

Montreal Elevators.—A contract has been signed with the Montreal Harbor Commissioners for the erection of a grain elevator to cost \$750,000, at Windmill point. The Har-

bor Commissioners will spend \$250,000 on raising the pier so that the Co. may connect its tracks. (June, pg. 205.)

Montreal Freight Sheds.—Work has been in progress for some weeks upon the erection of the new freight sheds on Chaboillez square. No contract has been let for the work, which is being done under the supervision of the Co.'s own staff. (June, pg. 205.)

Don Yards.—The work of reconstruction of the yards at the Don, Toronto, has been commenced. The tracks are to be reconstructed and the stock yard rearranged. The work is to cost about \$30,000.

New Stations.—New stations are in course of erection, or will be erected at early dates at Weston, Goderich, Glencoe and Petrolia, Ont. The new station at Grimsby, Ont., was burned June 15. Pending reconstruction the old building will be used.

Main Line Deviation to Brantford.—In connection with this deviation a deputation from St. George waited on the Government at Ottawa, and F. W. Morse, Third Vice-President, gave a written undertaking that St. George would be given the same service as at present, with the addition of an express train east and

west, connecting with the through expresses on the main line at Paris, Lynden or Brantford, at the option of the Co.

A contract has been let to J. A. Dart for the earthwork for the deviation from a point on the Harrisburg branch, running into Brantford, to Lynden, on the main line from Niagara to Sarnia. The distance is about four miles. (June, pg. 205.)

Southern Division Improvements.—The work of strengthening the bridges on the Southern division, comprising the lines from Windsor to Glencoe, from Glencoe to Fort Erie, and from Welland Jct. to Suspension bridge, via Allanburg Jct., over which the Wabash Rd. operates under an agreement, has been commenced. The steel for the new bridge work is in course of delivery by the Dominion Bridge Co., Montreal, and the work of erecting them is being carried out on the section between St. Thomas and Windsor. The work east of St. Thomas will be commenced on the completion of the section west. The line generally is being improved in order to bring it up to the same standard as the other main lines, by the laying of heavier rails, additional ballasting, etc., as circumstances and other works will permit. The cost of rebuild-

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Montreal, Stock Exchange Building.

ing the bridges is being provided for out of a special fund to be created as explained by the President at the meeting of shareholders, reported in our June issue, pg. 215. The cost of reconstructing the bridges will be approximately \$250,000.

Ontario Sault Ste. Marie Ry.—A notice is published, signed by John Bell, of Belleville, Solicitor to the G.T.R., stating that application will be made at the next session of the Ontario Legislature for an act for the purpose of re-incorporating the Ontario Sault Ste. Marie Ry. Co. The O.S.S.M Ry. Co. was incorporated by the Ontario Legislature in 1881 with power to construct a single or double track railway from Gravenhurst, or other convenient point, to the French river, and thence to Sault Ste. Marie, with a branch or branches to Lake Nipissing or Lake Temiskaming, with power to make extensions southerly to connect with the railway system of Ontario. An effort was made to obtain a subsidy the same year, but none was granted, and in 1887, an act extending the time within which the railway might be constructed was passed.

In 1881 the Dominion Parliament incorporated the Northern, North-Western and Sault Ste. Marie Ry. to build a line from Gravenhurst, the then terminus of the Northern Ry., to a junction with the C.P.R. at Callander, and giving running powers over that Co.'s line to Whanipiti river, from whence power was given to build a line to Sault Ste. Marie, to bridge the river and make connection with U.S. lines. In 1884 the name of this Co. was altered to the Northern and Pacific Junction Ry. Co., and its powers somewhat amended, but the general route of the lines authorized was not altered. Under these acts the line now operated by the G.T.R. from Gravenhurst to North Bay was constructed, and in 1894 the Ontario Legislature voted \$7,500 to the Northern and Pacific Junction Ry. to build 2 miles of line from Burks Falls to the Magnetawan river. By an arrangement the G.T.R., which had acquired the right of way from Whanipiti to Sault Ste. Marie, handed over its right of way from Whanipiti to Sault Ste. Marie to the C.P.R., which constructed the line from Sudbury to Sault Ste. Marie, and made the connections with U.S. lines.

ed to act as Chief Engineer, which he continued to do until Mr. McHenry's appointment. The two drafting offices have been combined in one. It is said that W. F. Tye will have charge of the construction of lines, that H. E. Vautelet will be given the bridge work and that H. Goldmark will have charge of the construction of the Hochelega shops. Mr. Tye has been given the title of Principal Assistant Engineer.

G. McL. Brown is appointed Superintendent of Sleeping, Dining and Parlor Cars, with office at Montreal, succeeding J. A. Sheffield, resigned. Mr. Sheffield was also Superintendent of Hotels, but these are not mentioned in the circular appointing Mr. Brown.

E. H. Crean, heretofore City Passenger Agent at Quebec, has been appointed City Passenger and Freight Agent there. C. J. Lepage has been appointed Contracting Freight Agent at Quebec.

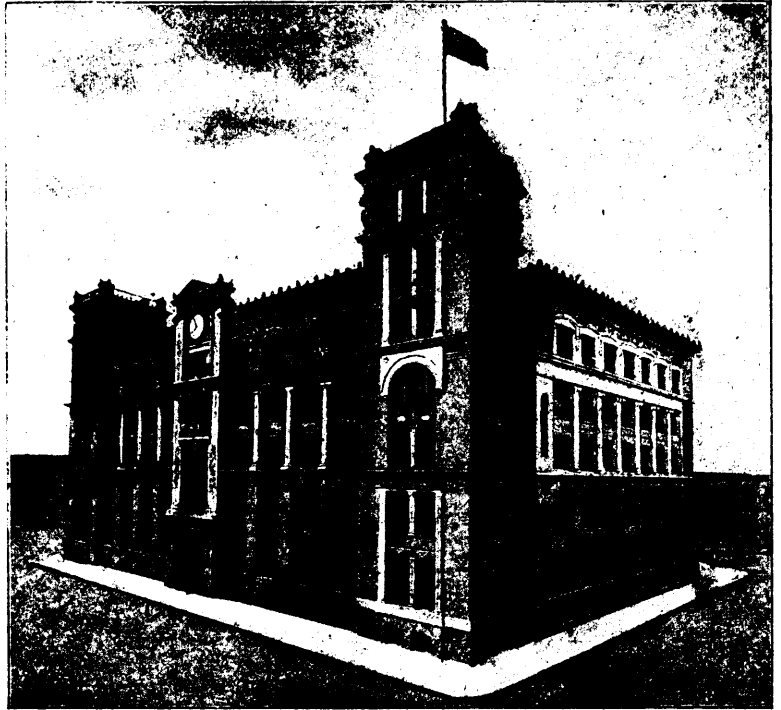
Some changes are being made in the Superintendents on the Ontario and the Western divisions, but up to July 25 no circulars had been received announcing them. F. J. Brady, Superintendent at Toronto, with jurisdiction over the line from Toronto Jct. to London, and the Owen Sound, Orangeville, Teeswater, Wingham, Guelph, Ingersoll and Elora branches, left Toronto about the middle of July for Fort William, Ont., where it is understood he will become Superintendent of the main line from Port Arthur to Winnipeg Jct., and the Lac du Bonnet and Dymont branches, succeeding D. G. Ross. G. Spencer, chief dispatcher at Toronto, is in charge of Mr. Brady's old district. It is said that A. Price, Superintendent at Toronto, with jurisdiction over the line from Smith's Falls to Toronto, the Toronto terminals and Toronto to Hamilton, will be transferred to Mr. Brady's old district and that G. Spencer will be appointed Superintendent of Mr. Price's present district.

It is said that D. R. Bell, trainmaster at Toronto Jct., will be given charge of the Winnipeg terminals. C. S. Maharg, heretofore conductor, is acting trainmaster at Toronto Jct. while Mr. Bell is on holiday leave and it is expected he will be appointed to succeed Mr. Bell.

J. McCreery has been appointed local freight agent at Vancouver, succeeding J. Phelan, appointed local agent of the C.P. Navigation Co. at Victoria.

F. W. Salisbury, heretofore Commercial Agent at Pittsburg, Pa., has been appointed District Freight and Passenger Agent for the C.P.R. and its subsidiary companies with office at 510 Frick building, Pittsburg, Pa.

Grand Trunk Ry.—Arthur White, Division Freight Agent at Toronto, was early in July



GRAND TRUNK RAILWAY GENERAL OFFICES, MONTREAL.

granted leave of absence on account of ill health. While he is recuperating on the Gaspé coast, where he is accompanied by Mrs. White, his duties are being performed by C. E. Dewey, Division Freight Agent at Stratford, who is being relieved by J. P. Gay, Chief Clerk to the Division Freight Agent at Detroit, Mich., and Manager of the Milwaukee and Michigan fast freight line.

M. C. Dickson, formerly District Passenger Agent at Toronto, was appointed station agent at Wingham, Ont., about the middle of June. On July 21 he was transferred to Woodstock, Ont., as station agent.

Hallifax and South Western Ry.—T. G. Holt has been appointed Manager of Construction, with headquarters at Bridgewater, N.S. H. K. Wicksteed is Chief Engineer.

Kingston and Pembroke Ry.—N. Parent, Paymaster, having resigned, his duties are being performed by J. Whitebread, Secretary-Treasurer.

Michigan Central Rd.—A. B. Atwater, Assistant General Superintendent, having resigned, has been succeeded by W. S. Kinneer, who has been Assistant Division Superintendent at St. Thomas, Ont., for some time past. His office will be at Detroit, Mich.

New York Central & Hudson River Rd.—P. W. Resseman, heretofore General Superintendent of the Ottawa, Northern and Western Ry., has been appointed Trainmaster of the N.Y.C. & H.R.R., with office at Exchange street station, Buffalo, vice H. F. Shattuck, assigned to other duties.

Pontiac Pacific Junction Railway, Ottawa, Northern & Western Ry.—P. W. Resseman having resigned, H. B. Spencer has been appointed General Superintendent, with office at Ottawa. Mr. Spencer continues as Superintendent of the C.P.R. at Ottawa.

Quebec Southern Ry.—N. J. Ferguson has been appointed Travelling Freight and Passenger Agent with headquarters at Montreal.

Temiskaming and Northern Ontario Ry.—The Ontario Government has appointed the following as members of the Commission which will have charge of construction: A. E. Ames, F. E. Leonard, E. C. Gurney, B. J. Folger and M. J. O'Brien.

TRANSPORTATION APPOINTMENTS.

Brantford St. Ry.—Superintendent Steeves having resigned to go to St. Paul, Minn., has been succeeded by F. Wilson.

British Columbia Electric Ry.—T. Driscoll, of Minneapolis, Minn., has been appointed chief car builder. Office at Vancouver, B.C.

Dominion Coal Co.—Sydney and Louisburg Ry.—J. K. L. Ross, son of Jas. Ross, Montreal, has been appointed assistant to the 2nd Vice-President and General Manager, C. Shields.

Canada Atlantic Ry.—J. W. Smith has been appointed Purchasing Agent and General Storekeeper with headquarters at Ottawa, Ont. He will also act as Chief Clerk to the General Manager.

Canadian Pacific Navigation Co.—J. Phelan, heretofore local freight agent of the C.P.R. at Vancouver, has been appointed local agent of the C.P.N. Co. at Victoria, B.C.

Canadian Pacific Ry.—The engineering department is being reorganized under E. H. McHenry, the newly appointed Chief Engineer. Formerly there was one department under P. A. Peterson, as Chief Engineer, then another department was established with W. F. Tye as Chief Engineer of Construction. On Mr. Peterson retiring and becoming Consulting Engineer a few months ago the Assistant Chief Engineer, H. E. Vautelet, was appoint-

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits and increases or decreases over 1900-01, from July 1, 1901:—

Earnings.	Expenses.	Net Profits.	Increase or Decrease.
July \$2,851,455.31	\$1,755,588.37	\$1,095,866.94	\$211,493.04+
Aug. 3,118,551.32	1,812,919.23	1,305,632.09	251,156.49+
Sept. 3,264,024.16	1,911,292.44	1,352,731.72	292,021.71+
Oct. 3,582,403.05	2,115,363.83	1,467,039.22	388,864.81+
Nov. 3,583,381.47	2,142,505.33	1,440,876.14	375,329.82+
Dec. 3,497,733.70	1,929,042.19	1,568,691.51	139,325.90+
Jan. 2,621,791.71	1,801,330.01	820,461.80	172,264.35+
Feb. 2,349,039.34	1,674,678.66	674,360.68	53,680.84+
Mar. 2,953,769.50	1,898,854.54	1,054,914.96	106,579.23+
Apr. 3,263,818.79	1,972,142.16	1,291,706.33	110,897.82+
May 3,237,082.33	2,070,189.95	1,166,892.38	136,607.96+
June 3,179,971.10	2,333,223.76	846,737.34	294,694.91—

\$37,593,953.78 \$23,417,141.37 \$14,085,912.41 \$1,976,537.06+

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Gross earnings for May, 1902, \$226,553.41; net earnings, \$79,381.96; against \$224,938.16 gross and \$70,714.32 net for May, 1901. Net earnings for 11 months ended May 31, \$895,293.35, against \$763,600.55 for same period, 1901. Approximate earnings for June, \$253,425, against \$216,946 for June, 1901.

MINERAL RANGE RY.—Approximate earnings for June, \$43,556, against \$52,547, for June, 1901.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Gross earnings for May, \$527,984.32; net earnings, \$245,003.84, against \$415,231.29 gross, and \$184,402.87 net for May, 1901. Net earnings for 11 months ended May 31, \$3,023,555.01, against \$1,754,304.74 for same period 1901. Approximate earnings for June, \$527,557, against \$427,024, for June, 1901.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1900-01	1901-02	1900-01	1901-02
July	40,718.46	49,089.96	\$129,483.42	\$154,646.84
Aug.	32,178.50	59,747.82	103,480.78	165,871.16
Sept.	21,807.57	60,060.46	69,012.54	197,057.61
Oct.	18,858.89	150,572.96	62,769.54	465,953.62
Nov.	22,408.68	151,922.89	69,677.27	512,862.04
Dec.	27,388.15	132,151.16	83,528.59	493,261.78
Jan.	27,928.80	109,846.99	86,752.54	347,761.91
Feb.	29,370.22	78,039.43	91,189.58	256,156.70
Mar.	39,346.14	101,029.22	122,392.47	333,852.22
April	48,874.13	231,127.11	152,445.70	695,071.68
May	49,489.99	297,153.05	129,614.69	736,021.45
June	59,168.93	297,644.58	161,352.28	945,786.39

399,643.37 1,590,197.63 \$1,338,263.52 \$5,314,066.40

Grand Trunk Ry. Earnings, Expenses, &c

The following statement of earnings, supplied from the Montreal office, includes the G. T. of Canada, the G. T. Western, & the Detroit, Grand Haven & Milwaukee Rys.

	1902.	1901.	Increase.	Decrease.
Jan.	\$2,278,978	\$2,242,117	\$36,861	.....
Feb.	2,018,926	2,005,341	13,585	.....
Mar.	2,537,873	2,386,090	151,783	.....
April	2,436,759	2,395,491	41,268	.....
May	2,574,198	2,343,535	230,663	.....
June	2,503,824	2,333,204	170,620	.....

\$14,350,555 \$13,675,778 \$674,777

The following figures are issued from the London, Eng., office:

GRAND TRUNK RY.

Revenue statement for May:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£422,000	£399,700	£22,300	.....
Working expenses	266,000	251,000	15,000	.....
Net profit	£156,000	£148,700	£7,300	.....

Aggregate Jan. 1 to May 31, 1902:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£1,946,700	£1,887,600	£59,100	.....
Working expenses	1,285,500	1,286,000	.....	£500
Net profit	£661,200	£601,600	£59,600	.....

GRAND TRUNK WESTERN RY.

Revenue statement for May:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£87,000	£67,000	£20,000	.....
Working expenses	66,000	63,400	2,600	.....
Net profit	£21,000	£4,200	£16,800	.....

Aggregate Jan. 1 to May 31, 1902:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£396,100	£364,300	£31,800	.....
Working expenses	327,300	315,600	11,700	.....
Net profit	£68,800	£48,700	£20,100	.....

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue statement for May:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£20,000	£14,000	£6,000	.....
Working expenses	17,000	13,700	3,300	.....
Net profit	£3,000	£300	£2,700	.....

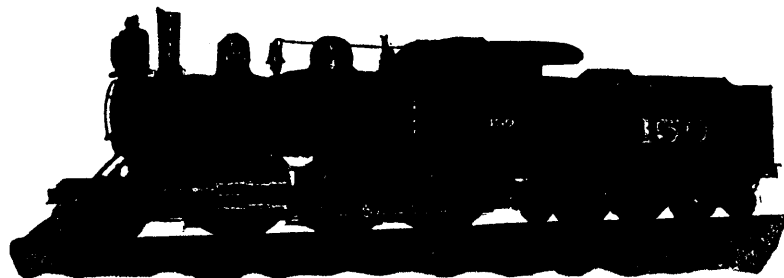
Aggregate Jan. 1 to May 31, 1902:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£91,100	£78,300	£12,800	.....
Working expenses	69,100	64,100	5,000	.....
Net profit	£22,000	£14,200	£7,800	.....

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from Jan. 1 to June 30, 1902:

	1902.	1901.	Increase.	Decrease.
Grand Trunk	£2,373,604	£2,281,430	£92,165	.....
G. T. Western	466,202	434,028	32,174
D., G. H. & M.	108,935	94,539	14,396
Total	£2,948,741	£2,810,006	£138,735



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- DICKSON LOCOMOTIVE WORKS, SCRANTON, PA.
- MANCHESTER LOCOMOTIVE WORKS, MANCHESTER, N. H.

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BALLAST ROPES

BEST SPECIAL ENGLISH PLOUGH STEEL BALLAST ROPES—ALL DIAMETERS

W. H. C. MUSSEN & CO., MONTREAL.

Mainly About People.

Sir C. Rivers Wilson has recently been a guest on board J. Pierpont Morgan's yacht Corsair.

Scott Griffin, son-in-law of W. Mackenzie, President of the Canadian Northern Ry., is leaving Toronto to take a position in Winnipeg.

Hon. A. G. Blair, Minister of Railways, will go to Europe shortly, to bring back his youngest daughter, who has been attending school there.

Capt. Wm. Augustus, of Kingston, Ont., has been appointed to succeed Capt. T. Donnelly as Chief Inspector of Lloyd's inland marine insurance.

D. G. Ross, Superintendent of the C.P.R. at Fort William, Ont., has been for some weeks in the Winnipeg General Hospital, where he underwent an operation.

Capt. Thos. Crawford, of Wolfe Island, Ont., a well-known mariner on the Great Lakes, died recently at Chicago, whence he went to take charge of a steamer.

R. Atkinson, formerly Superintendent of C.P.R. rolling stock, is reported to have been appointed Master Mechanic of the Philadelphia and Reading Ry., at Reading, Pa.

Douglas Sutherland, General Freight Agent of the Newfoundland Ry. at St. John's, Nfld., is announced to be engaged to Miss Harris, of "Benares," near Springfield-on-the-Credit, Ont.

Mrs. W. S. Stout, wife of the Vice-President and General Manager of the Dominion Express Co., and her family, are spending the summer at the Hotel Brant, Burlington Beach, Ont.

Arthur White, G.T.R. Division Freight Agent, Toronto, and Mrs. White, are visiting the Gaspé coast, accompanied by Mrs. Noel Marshall, of Toronto. Mr. White is rapidly recuperating.

D. McNichol, 2nd Vice-President and General Manager of the C.P.R. took a short holiday at Old Orchard, Me., early in July and then left for an inspection trip of the lines to the Pacific Coast.

R. J. Mackenzie, of Mackenzie, Mann & Co., is reported by western papers to have bought and taken to Winnipeg Harold H., the trotter which holds the mile and half-mile records for Canada.

J. A. Sheffield, ex-Superintendent of C.P.R. sleeping, dining and parlor cars and hotels, will probably take a short rest, but it is expected that he will be in the active list again very soon, in some line or other.

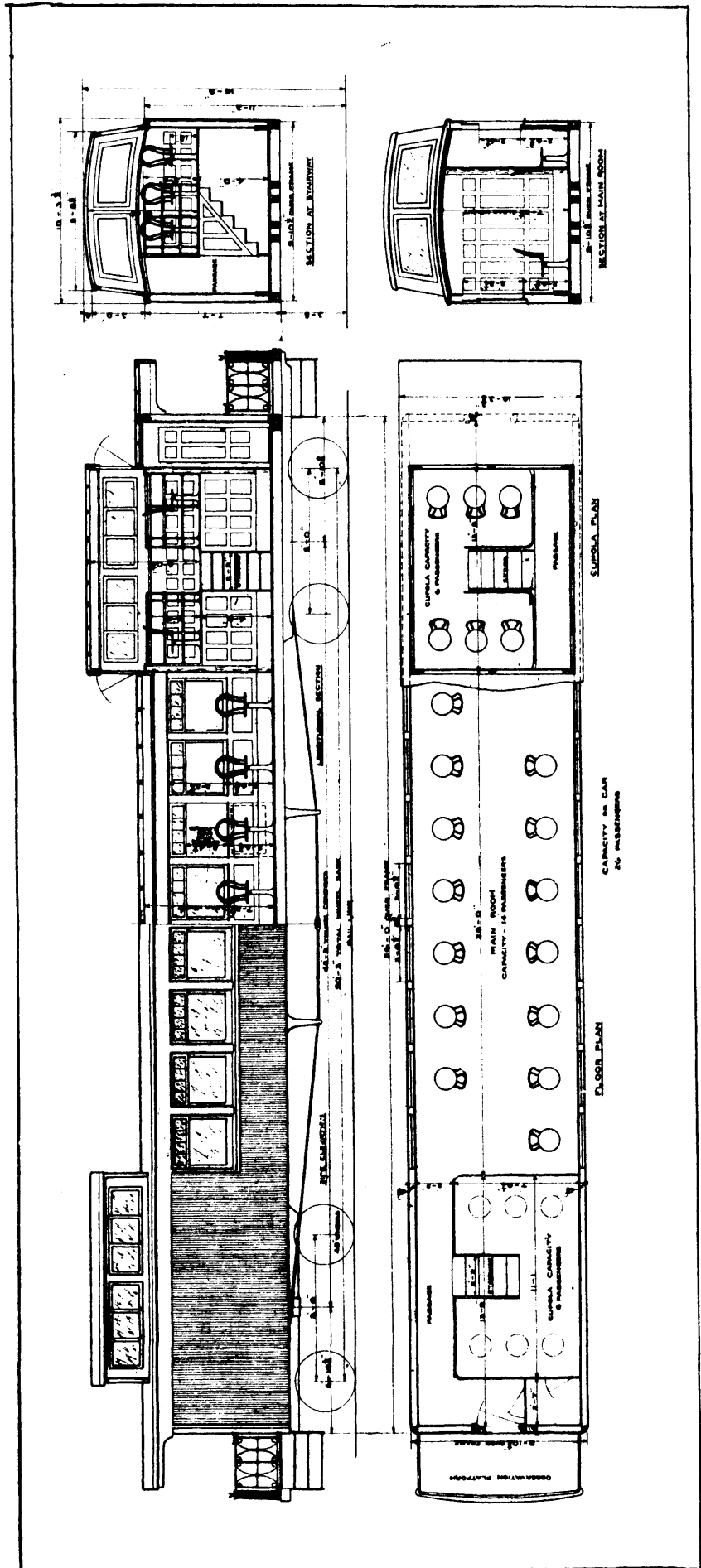
G. B. Reeve, ex-General Manager of the G.T.R., writes from La Pomela Ranch, La Mirada, Cal., that he and Mrs. Reeve are enjoying the best of health. The orange crop has been an exceedingly heavy one.

J. C. Earls was recently presented with an equipped travelling bag by his fellow employes in the G.T.R. freight offices at Toronto, on leaving that Co.'s service to enter the Pennsylvania Rd.'s freight office in Toronto.

O. Cameron, Freight Claim Agent, Intercolonial Ry., was a member of the reception committee for the Freight Claim Association's meeting at Montreal in June, but his name was accidentally omitted from our last issue.

It is stated that Gilmore Brown, C.E. of St. John, N.B., who was lately appointed by the Minister of Railways as a commissioner to investigate the cattle guard question, will not act, and that another appointment will have to be made.

Sir William, Lady, and the Misses Van Horne are at their beautiful place, Covenhaven, St. Andrews, N.B., which was in the hands of carpenters and decorators all winter,



CANADIAN PACIFIC RAILWAY OBSERVATION CAR FOR USE ON THE MOUNTAIN SECTION.

so that its opening this season did not take place as early as usual.

T. T. Tinning, formerly of Tinning's wharf, at the foot of York st., Toronto, and for over 70 years a resident of that city, died there, July 6. Mr. Tinning held a large number of awards for life saving on the lake, including the certificates of the Royal Humane Society.

H. R. Lordly, engineer in charge of the Lachine Canal, has been awarded the Fuerter gold medal by Cornell University, annually awarding the graduate of the University sending in the best paper on an engineering subject, for a paper on "Anti-friction bearings."

W. S. Stout, Vice-President and General Manager of the Dominion Express Co., returned to Toronto July 29 from an inspection trip to the Pacific Coast, on which he was accompanied by W. Walsh and V.G.R. Vickers, general agents at Toronto and Montreal respectively.

Hon. J. I. Tarte, Minister of Public Works, left Ottawa July 9, on a tour of the St. Lawrence and the Great Lakes, and on to Winnipeg, with a view of investigating transportation facilities. His trip on the Great Lakes on the Government steamer Stanley, included visits to Buffalo, Cleveland and other U.S. ports.

E. H. McHenry, Chief Engineer of the C.P.R., left Montreal July 8 for his first inspection trip over the lines to the Pacific coast, during part of which he is accompanying the General Manager. The questions of reduction of gradients, improvement of alignment, etc., are especially occupying Mr. McHenry's attention.

P. W. Resseman, late Superintendent of the Ottawa, Northern and Western Ry., and the Pontiac Pacific Jct. Ry., was presented with a gold watch and chain by the railway men of Ottawa and the employes of the two lines on the occasion of his leaving Ottawa recently to take up the duties of his new position as trainmaster of the New York Central Rd., at Buffalo, N.Y.

W. R. Baker, Assistant to the 2nd Vice-President of the C.P.R., who was operated on for appendicitis at the Royal Victoria Hospital, Montreal, June 14, was able to leave

the hospital early in July, and has since been staying at Gloucester, Mass., at the summer residence of W. Barwick, K.C., of Toronto, where, on July 28, he was reported to be rapidly recuperating.

A. Mackenzie, of the legal firm of Blake, Lash & Cassels, Toronto, who a few months ago returned from Brazil, where he for several years represented the interests of the Sao Paulo Tramway, Light & Power Co., has been appointed chief representative of the Co. in Brazil, and leaves shortly for Sao Paulo to take up his new duties. He was recently elected a director and Vice-President of the Co., and has retired from his firm.

C. R. Coutlee, A.M. Can. Soc. C.E., who has recently been in charge of the building of the tunnel on the C.P.R. Crow's Nest line, near Michel, B.C., has opened an office in Vancouver, B.C., where he will carry on a general engineering practice. He is prepared to deal with water power canals, irrigation, roads, tramways, etc., and to prepare evidence and report on industrial matters.

V. Z. Caracristi, who has been appointed chief draughtsman in the machinery and rolling stock department of the I.C.R., was born in Richmond, Va., 1876. He has been in railway work for about 6 years, the time being spent with the Richmond Locomotive Works at Richmond, Va., the Chicago and Alton Ry. at Bloomington, Ill., and a few months with a manufacturing company at Allegheny, Pa.

C. M. Hays, 2nd Vice-President and General Manager G.T.R., prior to his leaving for England to confer with the President and directors in London, made a trip of inspection over the whole line. Mr. Hays, who is accompanied in England by his two daughters, sailed from Montreal July 5, intending to remain abroad for two months. Owing to the visit of Mr. Hays in London, the President, Sir C. Rivers Wilson, is not expected to come to Canada this year.

G. McL. Brown, who has been appointed Superintendent of C.P.R. Dining, Sleeping, and Parlor Cars, was born in Hamilton, Ont., Jan. 29, 1865, and entered railway service in 1882, his record being:—1882



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to 1885 freight department Northern and Northwestern Ry.; 1885 to 1887, Superintendent's office and other departments G.T.R.; Sept., 1887 to 1902, C.P.R. service at Vancouver, acting successively as ticket agent, district passenger agent, and executive agent.

W. E. Mullens, who has been appointed Superintendent of Transportation on the Central Vermont Ry., was born in Stratford, Ont., Aug. 13, 1870, and entered railway service on the G.T.R. July, 1887, being employed in the freight and passenger departments until 1891, since which his record has been:—1891 to 1893, assistant Mechanical Superintendent's office, London, Ont.; 1893 to 1897, assistant, Superintendent's office, London, Ont.; 1897 to 1899, chief clerk to Superintendent, middle division, Toronto; 1899 to 1902, secretary to the Vice-President and General Manager Central Vermont Ry.

Jas. A. Sheffield, who recently resigned as Superintendent of C.P.R. Sleeping, Dining and Parlor Cars and Hotels, was born in Columbus, Ohio, Mar. 16, 1845, and entered the service of the Pullman Palace Car Co., 1878, in charge of sleeping and hotel cars on Pennsylvania Rd., between Chicago and New York, since which he has been consecutively 1880 to 1884 in charge of dining cars Chicago, Milwaukee and St. Paul Ry., 1885 to 1887 with same road on construction Kansas City extension from Ottumwa, Ia., to Kansas City, Mo.; 1888 to 1902, Superintendent Sleeping, Dining and Parlor Cars and Hotels, C.P.R.

The completion of Sir Thos. Shlaughnessy's handsome summer home at St. Andrews, N.B., is rapidly progressing. The house is to be called Fort Tipperary, and stands on historic ground, the fort having been established soon after the troubles of 1812. The blockhouse, which occupied a portion of the site, and which has been removed, was built of hewn pine logs, 12 ins. thick, piled one over the other, and secured together with wooden pins. Loopholes for guns were provided along the walls. In the debris of the fort were found many ancient coins and other articles of the olden time, all of which are to be put in a case and presented to Sir Thomas by the contractor.

J. W. Smith, who has been appointed Purchasing Agent and General Storekeeper of the Canada Atlantic Ry., also Chief Clerk to the General Manager, was born in St. Albans, Vt., some 36 years ago. For a number of years he was Chief Clerk to General Manager Chamberlin, of the Canada Atlantic, and also acted as Purchasing Agent. In April last, when it was expected that Dr. Seward Webb, President of the Rutland Rd., would obtain control of the Canada Atlantic, Mr. Smith was appointed Purchasing Agent of the Rutland, and Chief Clerk to the President, and subsequently the duties of General Storekeeper were added. It was generally understood that if the affairs of the Canada Atlantic passed under Dr. Webb's control Mr. Smith would also act as Purchasing Agent for that line also.

A. B. Atwater, who recently resigned the Assistant General Superintendency of the Michigan Central Rd., was born in Sheffield, Ohio, Nov. 1845, and entered railway service 1864 as telegraph operator Cleveland and Erie Ry., since which he has been consecutively Oct., 1865, to June, 1885, in engineering service Jamestown division, same road; resident engineer of construction, Canada Southern Ry.; assistant engineer, Port Dover and Lake Huron Ry.; Chief Engineer, Stratford and Huron Ry.; Superintendent, Port



CANADIAN PACIFIC RAILWAY MOTOR CAR FOR USE ON THE MOUNTAIN SECTION.

Dover and Lake Huron Ry.; General Superintendent, Georgian Bay and Lake Huron division, G.T.R.; Chief Engineer, Chicago and Grand Trunk Ry.; June, 1885, to July, 1898, Superintendent G.T.R. lines west of Detroit; July, 1898, to July, 1902, Assistant General Superintendent, Michigan Central Rd., at Detroit.

F. W. Salsbury, who has been appointed District Freight and Passenger Agent for the C.P.R. and subsidiary lines, was born in Ann Arbor, Mich., 1862 and entered the service of the Wabash Rd. in 1880 as freight clerk at Toledo, Ohio, Detroit, Mich., and Chicago, Ill., thence with Superintendent Transportation same road at St. Louis, Mo., his subsequent record being:—1885 to 1886, Traveling Freight Agent, New York, West Shore, and Buffalo Ry., in Michigan and Ohio; 1886 to 1887, General Agent Michigan and Ohio Rd. (now Big Four System); 1887 to 1888, with construction department, Duluth South Shore and Atlantic Rd.; 1888 to 1890 Travelling Freight Agent and chief clerk, General Freight Department same road; 1890 to 1891, General Freight and Passenger Agent, Cincinnati, Saginaw, and Mackinaw Rd. (now G.T.R.); 1891 to 1893, chief clerk, General Freight Department D.S.S. & A. Ry.; 1893, to July 1st, 1902, Commercial Agent, C.P.R. and affiliated Lines at Pittsburg.

T. W. Goulding, who has recently been promoted from the position of local manager of the Western Union Telegraph Co. and the Great Northwestern Telegraph Co. at Vancouver, B.C., to be superintendent of the second district of the Pacific division, lately created by the W.U.T. Co., with headquarters at Seattle, Wash., was born in England, April 2, 1863. He entered the telegraph service as a messenger for the G.N.W. Telegraph Co. at Winnipeg, in 1877. Becoming an operator he went to St. Paul, Minn., in 1880, but later returned to Winnipeg, rejoining his old interests, where, in quick succession, he was promoted to the positions of

chief operator, manager and acting superintendent. For a few years thereafter he was in the employ of the C.P.R. Telegraphs, still at Winnipeg, when he was sent to Vancouver in 1895. In 1897 he was made manager for a few months of the office at Nelson, B.C., afterwards returning to Vancouver. On the advent of the W.U.T. Co. to British Columbia he was appointed manager, in 1898, of the joint interests of the two companies as stated above, a position he has held until his recent promotion.—Telegraph Age.

H. V. Harris, whose portrait is given on page 257, was born in Devonport, Eng., Jan. 16, 1857. He went to Montreal with his parents in Oct., 1867, entered railway service with the G.T.R., on Feb. 7, 1870, and continued with that Co. in clerical capacities until Sept., 1878. For the following five years he was with the Louisville & Nashville as Chief Clerk to the General Manager, and then for three years Assistant to the General Manager of the Texas & St. Louis, now the St. Louis Southwestern. He served for one year as Purchasing Agent and Assistant Superintendent of the St. Louis, Kansas City & Colorado during its building. Then for three years as Purchasing Agent and Assistant to the General Manager of the Louisville Southern. For two years he was with the Louisville Terminal, first as Superintendent and later as Receiver. Two years additional were spent as Fuel Agent and Chief Clerk to the General Superintendent of the Chesapeake, Ohio & Southwestern, and then for five years he was General Manager of the Breckenridge Cannel Coal Co., and of the Breckenridge Short Line, both mines and railway being now abandoned. He was appointed General Manager of the Midland Ry. of Nova Scotia, Sept. 14, 1900.

J. W. Mackay, President of the Commercial Cable Co., of the Postal Telegraph Co., and of the company which purposes to lay a cable from San Francisco via Honolulu to the Philippines; Director of the C.P.R., of the

Southern Pacific Rd., and of the Cuba Co., died in London, Eng., July 20. He owned the Postal Telegraph building in New York, and was principal owner of the Commercial Cable building in the same city. C. R. Hosmer, of the C.P.R. directorate, and formerly manager of the C.P.R. telegraphs, who was closely associated with Mr. Mackay for a number of years, says he feels his death as a great personal bereavement. Mr. Mackay was a man of the highest integrity, with an unerring instinct for divining what was right, and with the courage for doing it regardless of consequences. His early career earned for him the title of Bonanza King, and his later life that of the Telegraph King. For many years he quietly and patiently, almost unaided, built up the Commercial Cable and Postal Telegraph, and died with the proud satisfaction of seeing these monuments of his patient care and business sagacity left in an impregnable position. There is not an employe among his great army of workers who does not deplore his loss and feel that he has lost a personal friend. Mr. Mackay conducted his various enterprises with his own capital, and his death should not therefore cause any disturbance. His son Clarence has been trained by his father in his business methods to succeed him.

August Birthdays.

Many happy returns of the day to R. Atkinson, ex-Superintendent of Rolling Stock, C.P.R., at Montreal, born at Crewe, Eng., Aug., 1851.

G. J. Chadd, Purchasing Agent, Central Ontario Ry., at Trenton, Ont., born in London, Eng., Aug. 21, 1837.

H. G. Elliott, Assistant General Passenger and Ticket Agent, G.T.R., at Montreal, born at Chambly, Que., Aug. 22, 1860.

Hon. W. Gibson, railway contractor, Beamsville, Ont., born at Peterhead, Scotland, Aug. 7, 1849.

G. H. Ham, Advertising Agent, C.P.R., at Montreal, born at Trenton, Ont., Aug. 23, 1847.

W. P. Hinton, General Freight Agent, Canada Atlantic Ry. and Canada Atlantic Transit Co. at Ottawa, Ont., born at Hintonburg, Ont., Aug. 30, 1871.

R. Kerr, Passenger Traffic Manager, C.P.R., at Montreal, born at Toronto, Aug., 1845.

G. M. Lang, Resident Engineer, C.P.R., at Moose Jaw, Assa., born at Ottawa, Ont., Aug. 16, 1859.

J. D. McDonald, District Passenger Agent, G.T.R., at Toronto, born there Aug. 27, 1855.

T. McHattie, Master Mechanic G.T.R. at Montreal, born at Dufftown, Banffshire, Scotland, Aug. 8, 1854.

W. S. Nevins, Travelling Freight Agent, C.P.R. and Minneapolis, St. Paul & Sault Ste. Marie Ry., at Buffalo, N.Y., born at Towanda, Pa., Aug. 13, 1850.

C. R. Scoles, General Manager, Atlantic and Lake Superior Ry., at New Carlisle, Que., born at Grantham, Lincoln, Eng., Aug. 27, 1856.

M. C. Sturtevant, Car Service Agent, G.T.R., at Montreal, born at St. Albans, Vt., Aug. 28, 1866.

W. N. Warburton, General Freight Agent, Niagara, St. Catharines and Toronto Ry., at St. Catharines, Ont., born at St. Thomas, Ont., Aug. 24, 1851.



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Railway Equipment Notes.

The C.P.R. is adding 17 express cars to its equipment.

The C.P.R.'s box car equipment will be increased to 37,000 by Oct.

The Intercolonial Ry. recently placed an order in Ontario for 150 platform cars.

The C.P.R. is completing an order at its Montreal shops for 10 sleeping cars. They have 14.

The Baldwin Locomotive Works Record of Recent Construction no. 35, deals with rear truck locomotives.

The Intercolonial Railway has received from Rhodes, Curry & Co., Amherst, N.S., the balance of the order for 500 box cars.

The G.T.R. has placed an order in the U.S. for 1,000 box cars, length inside 36 ft., height 8 ft., width 8½ ft., capacity 30 tons.

The Lake Erie and Detroit River Ry.'s car trust company, mentioned in our last issue, is called the Lake Erie International Equipment Co.

The C.P.R. is completing at its Montreal shops an order for 40 first class standard coaches, in half of which the smoking compartment is increased to double the usual size.

The C.P.R. is adding rapidly to its box car equipment, 500 are being built at the Co.'s Montreal shops, 800 at its Perth, Ont., shops, and 1,000 by Rhodes, Curry & Co., at Amherst, N.S.

The C.P.R. is building at its Montreal shops two parlor cars 70 ft. long. The outside finish is standard; the interior is finished in mahogany, inlaid with marquetry.

The C.P.R. has added two dining cars, the Westminster and the Warwick, to its Imperial Limited Service. They are 70 ft. long. The interior is finished in dark mahogany. Each car has 10 windows 6 by 10 feet.

The Von Echa Construction Co. propose putting new cars on the Brantford Street Ry. Co., which it has just acquired. The Co. has also under construction a line from Brantford to Paris, Ont., for which car equipment will be required.

The C.P.R.'s 500 thirty ton box cars, now being built at the Co.'s Hochelaga shops, Montreal, are 35 ft. long by 8 ft. 11 ins. wide over frame, and 34 ft. 5 ins. long by 8 ft. 4¼ ins. wide, by 7 ft. 1 in. high inside. They are equipped with M.C.B. couplers, Simplex truck and body bolsters, with Susemihl side bearings and Westinghouse air brakes. The cars will have 2,030 cubic feet capacity, and are designed to carry 1,000 bush. of wheat.

The C.P.R. has built for use on its mountain division in Alberta and British Columbia an observation car, of which plans are given on page 275. It is 56 ft. long, by 9 ft. 10 ins. wide over frame, and has a steel observation platform at each end enclosed by handrailings and gates. It is equipped with C.P.R. standard four-wheel trucks with 40 in. steel-tired wheels, inside hung brakes, Westinghouse high speed brake and hollow brake beams. The car is built without the usual monitor roof, or upper deck, and has an elevated platform with cupola above, at each end, each cupola being provided with revolving Vienna chairs for six passengers. The cupola, having two large windows on each side and end, allows of an unobstructed view in each direction. Access to the platform and cupola is gained by a stairway leading up from the passage connecting the end door and main room. The main room between the two cupolas is 28 ft. long, and has seating capacity for 14 passengers in similar revolving chairs to those in the cupola, placed in two rows opposite the side windows; the sashes in the latter are arranged to drop down inside the car frame so as to provide for a wide

range of observation. The car is finished both inside and out with polished mahogany, with panelled partitions round the cupola platforms in main room and passageways.

The C.P.R. has built a motor car for use on its mountain section in Alberta and British Columbia, an illustration of which is given on page 277. Its length is 13½ ft. over body of car, and 20 over all. Width, 20 feet. It has a four-wheeled truck, 25½ in. steel-tired wheels, and a 20 h.p. gasoline engine fitted up with an electric spark. The engine carries 20 gals. of gasoline, which will run the car 300 miles. On the level this engine is capable of 30 miles an hour. It is powerful enough to climb any of the mountains. The car carries three brakes, an emergency and two handbrakes, so that should one fail either of the remaining two are strong enough to hold it in check. The car carries lights at the corners and has an electric gong at each end. The car resembles the ordinary electric motor. It is open at the sides, cushioned seats running across as in the street cars, save in the centre, where there is an open space for the engineer. The ends are closed with large sheets of plate glass, and heavy curtains along either side serve as protection from the sun or shelter from rain. The machinery is of English manufacture, though of Canadian design, the car body being constructed at the Co.'s Montreal shops, where the motor parts were also assembled. The whole affair weighs four tons, and can be easily moved without the assistance of the machinery. The seating capacity is for 14, with lots of elbow room for all. We are informed that the car will at first operate between Banff and Hector, and ultimately between Banff and Field on a regular schedule.

RAILWAY FINANCE, MEETINGS, ETC.

Brantford Street Ry. Co.—The franchise granted to the Von Echa Construction Co. by the Brantford city council for the street railway, includes a clause providing for the payment by the Co. of \$1,000 a year for the second 25 years of the contract, no payment being required for the first 25 years. The old franchise, which had 14 years to run, has been cancelled.

The B.S. Ry. Co. has executed a chattel mortgage to the National Trust Co., Toronto, to secure a bond issue of \$125,000.

British Columbia Electric Ry.—Earnings and expenses for May:

	1901.	1902.	Increase.
GROSS EARNINGS.			
Railway—Vancouver division	\$10,045	\$11,514	\$1,469
Victoria "	9,224	9,854	630
Westminster "	7,199	8,795	1,596
Lighting—Vancouver division	9,144	10,431	1,287
Victoria "	4,255	5,080	825
Total gross earnings..	39,867	45,674	5,807
Working expenses.....	26,755	29,409	2,654
Net earnings.....	13,112	16,265	3,153

Aggregate gross earnings, 14 months to May 31.....\$572,783 \$646,875 \$74,092

Aggregate net earnings, 14 months to May 31.....\$223,232 \$247,791 \$24,559

Brockville, Westport and Sault Ste. Marie Ry.—Judgment was recently given in the action of the Knickerbocker Trust Co. of New York against the B., W. and S.S.M. Ry. Co. by Justice McMahon, in the Ontario Court. The Co. was given until the end of Aug. to redeem the property, when it was to be released; in default of payment the railway is to be sold and the proceeds applied first, in payment of plaintiffs' costs of action; second, in payment of the costs of the other parties, and the balance in payment of the claims as found by the Master.

Bruce Mines and Algoma Ry.—Shareholders, at a meeting held at Sault Ste. Marie, Ont., authorized the issue of \$250,000 of bonds.

Calgary and Edmonton Ry.—Net earnings for May, \$16,743.74, against \$6,801.53 for May, 1901. Net earnings for 5 months ended May 31, \$141,717 against \$87,916 for same period in 1901.

The Co. is suing the Crown in the Exchequer Court on a petition of right for a declaration that it is entitled to the minerals under the lands granted to it. The minerals under 1,000,000 acres are involved.

Central Vermont Ry.—C. M. Hays, 2nd Vice-President and General Manager, during his recent visit of inspection over the line, went over the route of the Montpelier and Wells River, and Barre Ry., about 45 miles, connecting with the Central Vermont Ry. at Montpelier, and extending to Wells River, Vt., connecting there with the Boston and Maine Ry. Press reports allege that the visit was one of inspection with a view to purchase.

Chicago and Western Indiana Rd.—C. M. Hays, 2nd Vice-President and General Manager, G. T. R., has been re-elected a director of the C. and W.I. Rd., of which the G. T. R. is part owner.

Consolidated Lake Superior Co.—The earnings of the railways owned by the Co.—Algoma Central and Hudson Bay, and Manitoulin and North Shore—for April were \$118,500 an increase of \$109,467 over April, 1901.

Dominion Atlantic Ry.—Gross earnings for May, \$68,600, against \$56,780, for May, 1901; making for 5 months ended May 31, \$303,000, an increase of \$55,274, over same period, 1901.

Grand Valley Ry.—Notice has been published that a mortgage on the whole undertaking of this Co., to secure an issue of \$800,000 of bonds, has been deposited with the Secretary of State.

Halifax Electric Tramway Co.—Gross receipts from railway:

	1902.	1901.	Increase or Decrease.
Jan.....	\$10,674.58	\$9,543.14	\$1,221.44+
Feb.....	8,408.39	8,042.11	456.28+
Mar.....	9,761.57	9,448.32	313.25+
Apr.....	10,025.66	9,370.08	654.68+
May.....	11,266.66	9,467.15	1,699.21+
June.....	11,528.19	11,339.52	188.67+
	\$61,705.05	\$57,211.52	\$4,493.53+

The Co. has entered into arrangements for acquiring the People's Heat and Light Co., the mortgage on which is being foreclosed by the Eastern Trust Co. The transfer was expected to take place at the end of July.

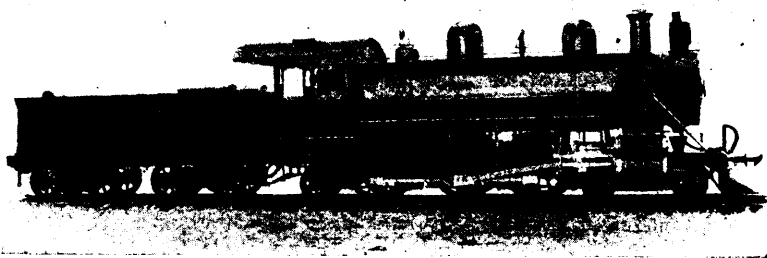
International Ry. Co.—The shareholders of the Niagara Falls Park and River Ry. Co., Queenston Heights Bridge Co., and Clifton Suspension Bridge Co., at their several meetings held June 23, passed the necessary resolutions for consolidation with the I. Ry. Co., which now controls and operates the principal street railway systems of Buffalo and the Niagara frontier, both Canadian and U.S.

Lake Erie and Detroit River Ry.—We were officially informed July 22 that no running rights, such as press reports stated, had been granted to the Pere Marquette Rd., on the L.E. and D.R.Ry. between Sarnia and Rondeau. The report probably originated in the fact that the L.E. and D.R.Ry. Co.'s ferry International is now ready for operation between Sarnia and Port Huron, and that in connection with its operation a traffic arrangement with the Pere Marquette Rd. has been made. The effect of this arrangement will, it is said, mean a large increase of traffic for both lines. It is an arrangement that has been necessitated by the demands of traffic, and will permit the transfer of loaded cars between Northern Michigan, via Port Huron, Sarnia and Rondeau or Port Stanley to Ohio.

At a meeting of shareholders held June 23 the directors were authorized to issue bonds for an amount equal to \$15,000 a mile constructed or in course of construction, not exceeding 334 miles, \$5,010,000 in all. Of these

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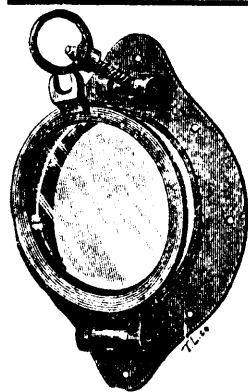


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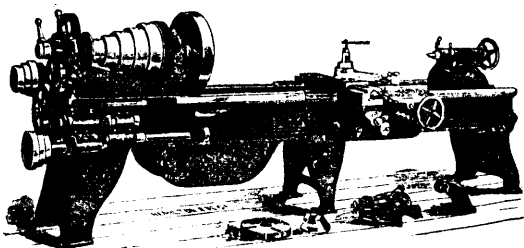
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C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in Manitoba and Assiniboia average \$3 to \$6 an acre.

Lands in Alberta and Saskatchewan with the exception of some special locations where prices range from \$3.50 to \$5.00 per acre, generally \$3.00 per acre.

TERMS OF PAYMENT.

In the case of an actual settler who goes into residence upon and cultivates the land, the aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from date of purchase, and the remainder annually thereafter.

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

Purchasers who do not undertake to go into residence on the land within one year from date of purchase are required to pay one-sixth of the purchase money down and the balance in five equal annual instalments with interest at the rate of six per cent. per annum.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Interest at six per cent. will be charged on overdue instalments.

Write for maps and full particulars.

F. T. GRIFFIN, - Land Commissioner.

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bonds \$3,000,000 have been sold at par, all former issues amounting together to \$1,640,000 being surrendered and cancelled. No further bonds will be issued at present.

London Street Ry.—Traffic receipts from Jan. 1:

	1902.	1901.	Increase or Decrease.
Jan.	\$ 9,980.93	\$ 9,255.74	\$ 725.19+
Feb.	8,740.45	8,145.76	594.69+
Mar.	10,108.54	9,294.54	814.00+
Apr.	6,646.42	9,495.68	1,807.72+
May	11,970.88	10,003.16	1,867.72+
June	12,819.56	13,917.23	1,097.67-
	\$63,266.78	\$60,112.11	\$3,154.67+

At a meeting of the shareholders held July 15, the directors were authorized to issue \$50,000 of additional capital stock, and \$50,000 of additional debentures, bringing up the total authorized issue of stock and bonds to \$450,000.

Montreal Street Ry. Co.—Comparative statement of earnings and expenses for June:

	1902.	1901.	Increase or Decrease.
Passenger earnings	\$182,875.27	\$180,370.55	\$2,504.72+
Miscellaneous	4,787.06	555.56	4,231.50+
Total	187,662.33	180,926.11	6,736.22+
Operating expenses	80,655.00	97,781.93	17,126.93-
Net earnings	107,007.33	83,144.18	23,863.15+
Fixed charges	19,391.91	14,272.46	5,119.45+
Surplus	87,615.42	68,871.72	18,743.70+
Expenses % of car earnings	44.10	54.21	10.11 -

Oct. 1 to June 31:—

	1902.	1901.	Increase or Decrease.
Passenger earnings	\$1,424,182.66	\$1,349,213.92	\$74,968.74
Miscellaneous	20,997.57	5,811.84	15,185.73
Total	1,445,180.23	1,355,025.76	90,154.47
Operating expenses	846,892.91	841,469.23	5,423.68
Net earnings	598,287.32	513,556.53	84,730.79
Fixed charges	144,298.70	90,267.95	54,030.75
Surplus	453,988.62	423,288.58	30,700.04
Expenses % of car earnings	59.47	62.37	

Interest on M.P. & I. Ry. Co.'s bonds owned by this Co. not included.

Nelson and Fort Sheppard Ry.—At the annual meeting of the N. and F.S. Ry., and of the Red Mountain Ry., held at Rossland, B.C., July 9, the following officers were elected: President, W. H. Thompson, Seattle, Wash.; Vice-President, H. A. Kennedy, Spokane, Wash.; Treasurer, E. Sawyer, St. Paul, Minn.; Secretary, A. M. Thomas, Spokane, Wash.; other directors, A. H. MacNeill and F. S. Forest.

Ottawa Electric Ry. Co.—The city council has under consideration a motion in favor of applying at the next session of the Ontario Legislature for power to purchase the O.E. Ry. and to operate it as a municipal line.

Qu'Appelle, Long Lake and Saskatchewan Ry.—Net loss for May, \$9.12 compared with net loss of \$9,940.61 for May, 1901. Net earnings for five months ended May 31, \$47,079.92, against \$7,724.55 for corresponding period, 1901.

Quebec Central Ry.—Gross earnings for June, \$61,310.04; working expenses, \$42,043.23; net earnings, \$19,266.81, against net earnings \$16,434.51 for June, 1901. Gross earnings for six months ended June 30, \$290,369.61, net earnings \$82,863.61 against \$286,060.90 gross and \$87,823.37 net for same period 1901.

Toronto Ry. Co.—Gross earnings:

	1902.	Increase or Decrease
January	\$137,135.21	\$15,478.01+
February	127,981.01	18,468.50+
March	141,681.24	17,182.23+
April	132,946.56	9,940.56+
May	145,595.54	17,614.60+
June	132,265.85	5,888.74-

Toronto, Hamilton and Buffalo Ry.—Financial operations for year ended May 31, 1902 (May being partly estimated).

Gross earnings	\$512,368.85	Increase \$83,725.43
Operating expenses	299,905.65	Increase 25,812.30
Net earnings	212,463.20	
Interest charges	131,200.00	
Surplus	81,263.20	
Paid sinking fund for floating debt	43,955.43	
Balance	\$ 37,307.77	

Included in operating expenses are \$28,687.89 expended for betterments.

Gross earnings for June, \$35,380.91, against \$35,223.55 for June 1901.

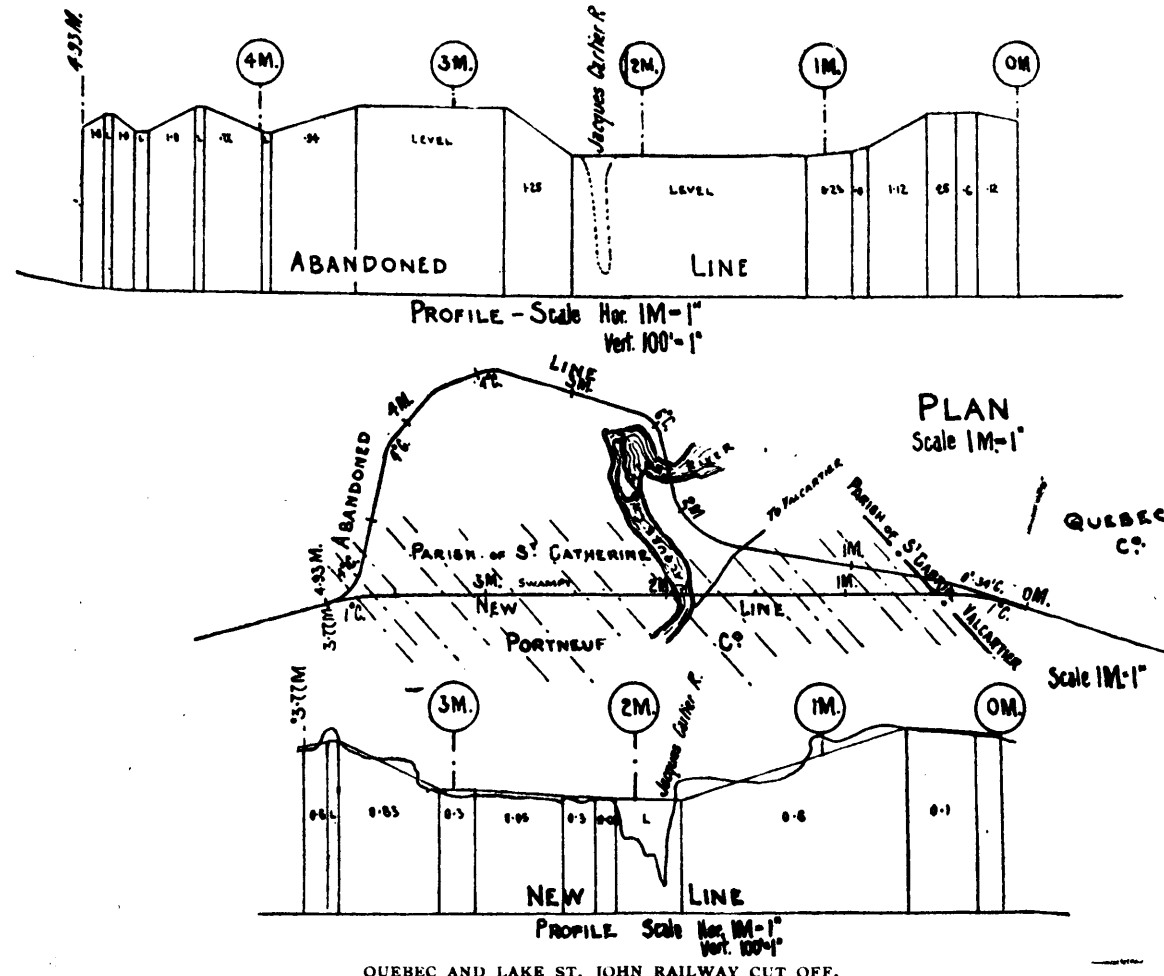
White Pass and Yukon Ry.—Gross earnings from Jan. 1 to June 30, \$353,172.

R. Atkinson, formerly Superintendent of Rolling Stock, C.P.R., has been appointed Master Mechanic in charge of the Philadelphia and Reading Ry.'s locomotive shops and roundhouses at Reading, Pa.

The New York Central Rd. and the Toronto, Hamilton & Buffalo Ry. have inaugurated a dining car service on the train leaving Toronto for New York via C.P.R. daily at 5.20 p.m. and on the train leaving New York for Toronto at 8 p.m. On the train from Toronto the dining car is attached at Hamilton at 6.25 p.m. running through to Buffalo and serving dinner, and on the train from New York the dining car is attached at Buffalo at 7.45 a.m., running through to Hamilton and serving breakfast. This is a great improvement on the buffet car service, which proved inadequate.

Quebec & Lake St. John Railway Cut Off.

The illustrations on page 283 show the general details of one of the many improvements made on the Quebec and Lake St. John Ry. last year. As to why the change should be made requires no explanation, for a glance at plans and profiles shows the advantages both in alignment and grades of the new over the old line, and a shortening of 1.16 miles, suffice it to say that the immediate cause of the change was due to the enormous increase of traffic, and hence the necessity of employing heavier engines which could not be used with safety on the old bridge over the Jacques Cartier river. The cost of the construction of a new bridge on the old site amply justified the splendid opportunity of making so desirable a change. The new bridge is the third one to span the waters of the Jacques Cartier for the purposes of a railway, the old bridge having, in its turn, taken the place of a wooden Howe truss. The new line diverges from the old line on



QUEBEC AND LAKE ST. JOHN RAILWAY CUT OFF.

a 1° curve, at a point 15 miles from the city of Quebec. After passing westwards through two miles of farming country, the Jacques Cartier river is crossed at a point three quarters of a mile below the old bridge. The main channel of the river at this point is about 300 ft. wide, being separated by an island 30 ft. from its eastern shore and extending about 90 ft. towards midstream. To the west of the river is a low swamp about 1,300 ft. long, requiring a bank 30 ft. high at its eastern end. Westwards to the end the land is covered with bush, principally spruce, and is more or less swampy, except for about 700 ft. of sandy soil and 900 ft. of rock at the western end. The total length is 3.77 miles.

The grading was for the most part carried on simultaneously with the clearing and grubbing, as also temporary trestle and masonry. To the east of the river the heaviest work was in the cuts at the second and fourth half miles, where 34,800 and 30,500 cubic yards respectively of material, principally gravel, was excavated. This work was done by making a gullet 13 ft. wide excavated to grade the full lengths of the cuts, and widened at the ends to admit a steam shovel. The track was then laid in readiness for a train of flat cars, to be hauled to the swamp with material and deposited by plow, as soon as the temporary trestle, extending 1,700 ft. across the river, was built. On the western side of the river the grading was principally in fill taken from the sides, except for a cut 700 ft. long which was taken to make the bank immediately adjoining its eastern end. At the western extremity of the line a rock cut completes the grading.

A temporary trestle 1,708 ft. long across the river and swamp was necessary to make the bank. The figure shows the river bents, while those in the swamps were built on sills in the ordinary way. Most of the timber for sills and caps was hewn from trees taken from the right of way, while the bracing and wallings were principally round stuff. The bents in the river were necessarily of more substantial construction, and more troublesome of erection, particularly where the current was strong and none the less easy on account of the inequality in the river bottom, necessitating the removal of heavy boulders. The bents in the river were built in pieces. The posts, being feeted with two horizontal pieces 6 ft. long, and braced to the post, were placed and loaded with the heaviest boulders, then braced across as well as to the preceding bent, and finally cut off and capped. In order that there would be no interference with the building of the piers, the bents at these points were omitted and three sets of two inclined struts, 12 x 16 in., meeting at the centre and springing from the lower deck at the bents on either side of the pier location, and capped across these apices, sufficed to convey the stringers, making a span of 26 ft.

The substructure for the bridge consisted of four piers and two abutments of first class, rock-faced ashler masonry. The figure shows the details of piers 1, 2 and 3, while 4 was on the side hill, and required no cut water. The stone was of a mixed granite formation, and was brought from a quarry opened at about a mile from the work. The courses were 18 in. in thickness, and the cut water stones on top were cut in five pieces to form part of the upper part of the pier and make a perfect bond. Portland cement mortar was used throughout. The west abutment and first three piers were grounded on cemented gravel composed of pebbles and argillaceous or silicious materials, while the fourth pier and east abutment were founded on piles. The foundations of the piers 1 and 2 were built inside coffer dams made of two rows of sheet piling 4 ft. apart, and filled in with clay. The first gave considerable trouble owing to the sudden rise of the river, which rose 6 ft. in a few hours. Pier 2 was perhaps the least trouble-

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Cleveland Elevator Company's Elevator, Cleveland, O.	"	500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.	"	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	"	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	"	500,000 "
Northern Grain Co., Manitowoc, Wis.	"	1,350,000 "
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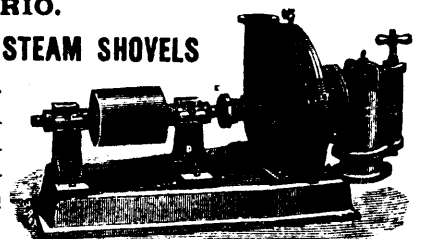
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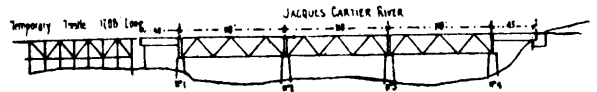
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some, though it had the full force of the current, which was, however, previously headed off by an outside sheeting, part of which afterwards formed the outside wall of the coffer dam to contain the puddle. Pier 3 was perhaps the most interesting of all, being in 10 ft. of water in the upstream side and decreasing down stream towards the island. A bottomless caisson was built of 12 in. by 12 in. timber, of a section to suit the river bottom, and rolled into position with a shelf inside on which boulders were loaded to sink it. It was then sheet piled with 9 in. tongued and grooved 1 1/2 in. stuff, and on being pumped proved leaky, necessitating another row of sheet piling placed 5 ft. outside and filled with puddle. It may be interesting to note that a successful method of stopping leaks under the puddle was found by removing the clay at the leaky spot to within 18 in. of the bottom, ramming it well, then loading with heavy boulders and sand, then filling with 18 in. of clay, ramming and loading till the wall was complete. The dimensions of piers and abutments are shown on the plans, the western abutment being a wing one, the north wing being at right angles to track, while the south one follows the river. The wings are turreted on top, being rock faced on three sides. The eastern one was an ordinary "U" abutment. Pier 4 was built the same as the others on top, being 7 ft. by 15 ft., with a batter on each side of 1/2 in. to the foot. The metal of the superstructure is of rolled steel throughout, consisting of three 110 ft. spans, composing the main bridge, built exactly alike, being 107 ft. centre to centre of end pins, there being 6 panels in each 17 ft.-10 ft. from panel point to panel point, and 10 ft. centre to centre of trusses. The trusses are calculated for class 1, typical consolidation engine and tender, as specified by the Department of Railways, 1899. The eastern and western approaches are plate girder spans 44 and 39 ft. respectively, over all, the girders being 8 ft. c-c of girders. The webs are 84 in. by 3/8 in.

The culverts, three in number, are of the usual masonry box type. The fencing is of the anchor type, 9 strands, 4 ft. high and 12 ft. between posts, with two cross wires fastened at

the junction of the horizontal ones by clamps. The farm gates consist of a frame made of 2 in. by 4 in. timber. They are 13 ft. long and 4 ft. 6 in. high, filled in with six strands wire and two vertical wires, forming a light gate and easily handled. The rails are of English manufacture and weigh 70 lbs to the yard. The web is 9-16 in., the head 2 3/8 in., the base 4 3/4 in., and height of rail 4 3/4 in. The fastenings are double angle bars with a base which rests on the tie, making a total base of 7 1/2 in. at the joint. The station, 34 ft. by 19 ft. 6 in., is a two story building, with balconied gabled windows, front and rear, and bay windows on ground floor. The entire building is surrounded by a weather shelter, the whole being of neat appearance and suited to the locality. The ground floor is partitioned to form waiting-room, operator's office and baggage-room, while at the rear are kitchen and parlor. The upper story is divided into five rooms, the whole forming a building convenient in the double purpose of station and agent's house. The whole work was carried out by J. Paquet, contractor, Levis, Que.—Canadian Engineer.



QUEBEC AND LAKE ST. JOHN RY. BRIDGE.

being insufficient siding room, lack of engine power, later arrivals placed first, cars bunched, etc. The chief cause of delay, however, is said to be on account of later arrivals being placed in preference to older arrivals. This is, no doubt, done to save a little extra shunting, but the result is that it practically paralyzes car service regulations. Rule No. 17 provides as follows:

The placing of cars shall be considered to have been effected when such cars have been placed on the designated delivery tracks or sidings, or if such tracks or sidings contain cars belonging to the same consignee, and which have been detained over the limit of free time, at the time the railway company could have placed the cars had the condition of such tracks or sidings permitted, consignees requiring cars placed on a designated track or siding and having more cars on hand or arriving than their facilities allow them to handle on said track or siding, must pay car service charges for all cars detained beyond the time limit on that account, one shunt per day being considered reasonable service.

"It will be seen that if a consignee has a number of cars waiting to be placed, and other cars are placed as they arrive, nothing can be collected for the delay to the older cars. The attention of superintendents should be called to this important matter so as to arrange better shunting regulations, especially in view of the serious results which will now be manifest after the adoption of the new per diem arrangement. Agents should also be held to a more strict account for delays to cars, as many of them still appear to act as if car service rules were not meant seriously, and that consignees should not be annoyed by being asked for car service, if by any means whatever that can be avoided. The committee also recommends that the present rules be amended so that two days will be the limit of free time for all traffic."

In pursuance of the above report it was unanimously recommended that the attention of the operating department of each of the railway companies, members of the Association, be specially called to the advisability of arranging that all cars be invariably placed for delivery to consignees in the order of their arrival, unless consignee orders to the contrary, instead of such cars as may be most available or may have arrived at a later date, which appears to be the practice in many cases at the present time. The change suggested would undoubtedly overcome difficulties which now exist, necessitating the presentation of claims, and would tend to a more satisfactory enforcement of car service rules. While it is recognized that this may at times involve additional switching or handling of cars at terminal points, it is considered to be in the best interests of all concerned.

It was also resolved that whereas it has been drawn to the attention of the Car Service Committee that car service rules are not enforced at all points; resolved, that in view of the per diem arrangement now in force the attention of superintendents or others now concerned in the handling of cars be drawn to the necessity of the strict enforcement of car service rules, whether competitive or non-competitive, reporting or non-reporting points.

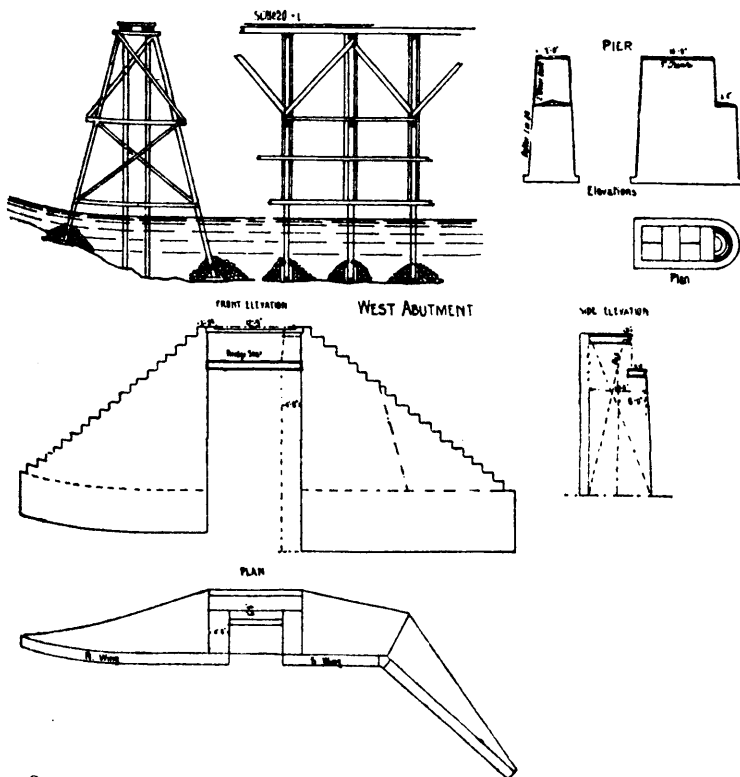
The Classification Committee reported that it had agreed upon several additions and amendments to the classification, which would be embodied in a ruling circular, proofs of which would be sent to the members previous to being issued. If approved, said circular to be issued soon as possible. The Chairman also indicated that, according to previous understanding, he was engaged on a revision of the classification with a view to an index for the same, and that as soon as complete proofs could be obtained, special meetings of the Committee would be called for consideration of the new classification so that it might be

Canadian Freight Association.

The general summer meeting was held at Sault Ste. Marie, Ont., July 8. Most of the members went from Windsor, Ont., and Detroit, Mich., by the str. King Edward, of the Algoma Central Ry.'s steamship line, others joining them when the boat touched at Sarnia and Parry Sound, while a few went by other routes. As the King Edward was a day late the committees met on board and had their work completed when the Sault was reached. President J. Pullen presided at the meeting at the International Hotel July 8.

The following were elected active members:—J. H. Sorley, D. F. A., Ottawa Northern and Western Ry., Ottawa; A. R. Evans, G. F. A., Midland Ry., Truro, N. S.; W. Phillips, General Eastern Agent, Canadian Northern Ry., Toronto; J. E. Duval, Car Service Agent, Canada Atlantic Ry., Ottawa. R. D. O'wle, charter member, was elected an honorary life member.

The Car Service Committee presented its statistical report for the quarter ended May 31, respecting which it said:—"The statistical reports show increased business, and increased collections. The detentions to cars, however, compare favorably with the corresponding period last year. Serious delays to cars continue at large places such as Montreal, Quebec, Ottawa, Toronto, Hamilton, Brantford and London, the prevailing reasons given



Q. AND L. ST. J. TEMPORARY TRESTLE, RIVER BENTS.—Scale, 40' = 1".

submitted to the Association at its next meeting.

The Freight Inspection Committee reported that the work of package freight inspection continues satisfactory, there being a substantial increase in the three months of \$2,827.52. At Winnipeg the results are also satisfactory, the total increase being \$691.70. Since the last meeting representatives of the Great Northern, Spokane Falls & Northern, and the Canadian Pacific railways met and decided upon the appointment of a joint inspector for the Kootenay district. B. R. Dawson was appointed. The results of the inspection in this district for April and May indicate a gain of \$320.56 for the C.P.R., and \$83.91 for the G.N.R. and other companies. This will, no doubt, be proportionately increased as the work progresses. The expenses of the Kootenay district inspector are not to be borne by the general Association, but will be paid separately by the C.P.R. and G.N.R.

After the meeting the members and the ladies accompanying them were taken by W. B. Rosevear, General Traffic Manager of the Algoma Central Ry., over the plant of the Consolidated Lake Superior Co., including the steel rail mill, which was seen in operation, the pulp mills and other industries. They were also taken through the Canadian lock and for a drive through Sault Ste Marie, Mich., where they saw the immense power house and power canal under construction.

The W. J. Poupore Co., Ltd., has been incorporated under the Dominion Companies Act with W. J. and L. Poupore, F. L. Marck and P. E. O'Brien, Montreal, as incorporators, to take over the railway, canal and general contracting business carried on by the firm of Poupore & Malone at Maisonneuve, Que., until the recent death of J. Malone.

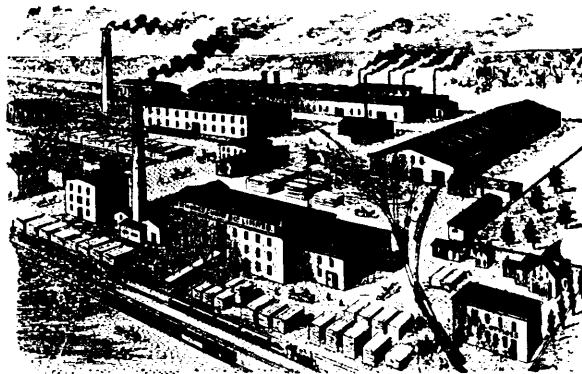
The C.P.R. conductors' adjustment committee recently held its biennial meeting, and elected L. L. Pelletier, Fort William, chairman; H. Hughes, North Bay, vice-chairman, and A. E. Whiteman, Port Arthur, secretary. It was decided that the chairman should in future devote his whole time to the business of the committee, and be paid.

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Thursdays }	Fridays }
Saturdays at 11.00 a.m.	Saturdays at 5.00 p.m.
Leave Cleveland	Arrive Pt. Stanley
Mondays }	Tuesdays }
Wednesdays } at 10.00 p.m.	Thursdays } at 6.00 a.m.
Fridays }	Saturdays }

Between Rondeau and Cleveland.

Leave Cleveland	Arrive Rondeau
Mondays }	Mondays }
Wednesdays } at 8.00 a.m.	Wednesdays } at 1.30 p.m.
Fridays }	Fridays }
Saturdays at 6.00 p.m.	Saturdays at 11.30 p.m.
Leave Rondeau	Arrive Cleveland
Sundays at 11.30 p.m.	Mondays at 6 a.m.
Mondays }	Mondays }
Wednesdays } at 4.00 p.m.	Wednesdays } at 7.30 p.m.
Fridays }	Fridays }

NOTE.—There is no train connection with steamer to and from Rondeau on Sundays.

Route open about June 15th.

For further particulars write

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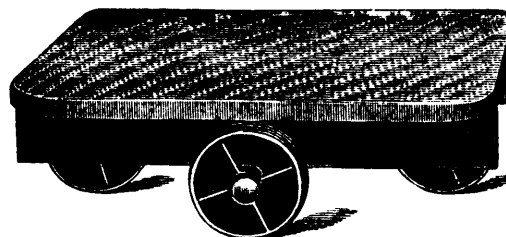
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Stop-Over Charges for Freight.

The C.P.R. and G.T.R. freight departments have issued circulars respecting stop-over regulations at Toronto Jct., Toronto and Montreal (Outremont), on the C.P.R., and Toronto, York, Belleville, Brockville and Montreal on the G.T.R. Flour, meal, mill-feed, peas, beans, potatoes, hay and straw, in carloads, may be consigned to stop-over points as above for inspection, grading or change of destination, or for orders, and may be re-shipped without breaking bulk, at the through rate, from the original shipping point to destination at a per diem charge at stop-over point of 20c. per car per day, plus a stop-over charge of 1c. per 100 lbs. Grain, when billed through for local consumption (not for export) and when original billed destination is not changed, will be stopped over for inspection or grading at a per diem charge at stop-over point of 20c. per car per day, plus a stop-over charge of \$1 per car. If the destination should be changed the charge of \$1 per car will not be imposed, but a charge will be made of 1c. per 100 lbs., plus per diem charge at stop-over point of 20c. per car per day (the same as above for flour, meal, etc.), for each time destination is changed. Forty-eight hours at the per diem charge of 20c. per car per day will be allowed at the stop-over point for inspection, etc., after which period, in addition to the stop-over charges mentioned above a charge of \$1 per car per day or part thereof, will be made for car storage. The above stop-over arrangements apply only when the point of inspection (or the point to which destination is changed) is on the direct run between the original point of shipment and destination in Ontario, Quebec or the Maritime Provinces.

The C.P.R. circular says: "Grain through way-billed for export, or consigned through to U.S. points, which may be stopped at Toronto, Toronto Jct., or Montreal (Outremont), for the purpose of inspection only will not be subject to any stop-over charge, but the per diem charge (at stop-over point) of 20c. per car per day must be billed forward for collection on the property. When shipments of grain, flour, etc., are stopped 'for orders' at Outremont, and subsequently ordered to Montreal or Mile End, the charge of 1c. per 100 lbs. for change of destination will not be imposed, but on shipments ordered forward to St. Luc Jct. or Westmount, the charge of 1c. per 100 lbs. for change of destination will be made. In either case, however, the per diem charge of 20c. per car per day at Outremont must be collected on the property."

The G.T.R. circular says: "Grain through way-billed for export, or consigned through to U.S. points from points west of Toronto, may be stopped at York, Belleville or Brockville, for the purpose of inspection only, and will be subject to a per diem charge of 20c. per car per day while so held, but will not be subject to the stop-over charge. Grain from points east and north of Toronto which does not pass through York must be inspected at Belleville or Brockville. Export grain via Portland or other ports or consigned to U.S. points cannot be stopped off at Montreal for inspection."

The steel rail mill at Sault Ste. Marie, Ont., has been in operation some time and is turning out rails at the rate of 500 tons a day. Of the output 35,000 tons will be supplied to the I.C.R. this season. Orders for 100,000 tons have been booked for Canada for this season's delivery.

At the regular meeting of the C.P.R. Club, at Toronto Junction, June 3, T. W. Dow, Air Brake Inspector, gave an address on "Air Pumps," and T. J. Tonge, Locomotive Inspector, spoke on "Lubrication and Mileage." It is pleasing to learn of the rapidly increasing membership of this the first railway club organized in Canada.

Grain Elevator Notes.

The Canadian Elevator Co. has been incorporated under the Dominion Companies Act, with J. S. Lovell, W. Bain, E. W. McNeill, R. Gowan, and R. Richardson, of Toronto, as incorporators, to construct elevators and carry on an elevator and storage business anywhere in Canada. The capital of the Co. is fixed at \$1,000,000.

The Frontenac Cereal Co. (Ltd.) has been incorporated under the Ontario Companies Act with W. Harty, G. Richardson, H. and E. Moores and Capt. T. Donnelly as provisional directors, with a capital of \$600,000, to manufacture cereal foods at Kingston, Ont., and for that purpose to acquire the plants and undertakings of the Frontenac Milling Co., and the Kingston Elevator and Transit Co.

The Canadian Northern Ry. Elevator Co., Ltd., has been incorporated under the Ontario Companies' Act, with W. Mackenzie, D. D. Mann, Z. A. Lash, K.C., R. P. Ormsby, of Toronto; and R. J. Mackenzie, Winnipeg, as incorporators, for the purpose of constructing or acquiring grain elevators, and to purchase stock or bonds in other similar companies. The capital is fixed at \$500,000, and the offices will be in Toronto.

The agreement between the Montreal harbor commissioners and the G.T.R. for the erection of an elevator at Windmill point has been signed. The plans for the elevator are in course of preparation, and it is the intention of the G.T.R. to have it completed by 1904. It will be a steel and concrete structure of 1,000,000 bush. capacity, and will cost \$750,000. The harbor commissioners will spend about \$250,000 in improving the site. It is provided in the agreement that all parties shall have access to the facilities, the rates for which shall be established by the Governor-in-Council or by the commissioners.

The elevator being erected at Montreal under the supervision of the Minister of Public Works will have a capacity of 960,000 bush., and will be of steel and of the type known as the cylindrical bin elevator. The structure which will cost \$606,000, will be 189 ft. long by 84 ft. wide. The bins will be 82 in number, varying in capacity from 20,000 to 2,750 bush. The larger bins are circular in form; of these there are 36 with a capacity of 20,000 bush. each. The smaller bins are formed by utilizing the space between the large circular bins. Of these there will be 22, with a capacity of 2,750 bush., while 24 bins will have a capacity of 7,500 bush. each. There will be four legs for receiving grain from cars, their capacity being 16 cars an hour, a movable tower for receiving grain from barges, and a complete conveyer system for shipping to ocean steamers.

SHIPPING MATTERS.**Notices to Mariners.**

The following notices to mariners have been issued by the Department of Marine:

No. 47. June 14.—British Columbia—174. Vancouver island, Clayoquot sound, buoyage. 175. Vancouver island, Clayoquot sound, Browning passage, discontinuance of buoy. 176. Vancouver island, Clayoquot sound, Stubbs island, hydrographic note. 177. Vancouver island, Clayoquot sound, Browning passage, uncharted rock. 178. Vancouver island, Clayoquot sound, Hectate passage, position of rocks. 179. Vancouver island, Stuart channel, Chemainus bay, uncharted rock. 180. Strait of Georgia, Porter pass, beacons marking Romulus rock established, hydrographic notes.

No. 48. June 16.—Nova Scotia—181. Cape Breton, south coast, depth on Bad Neighbor shoal.

No. 49. June 17.—British Columbia—182. Vancouver island, south coast, Clo-oose vil-

lage, hydrographic notes. 183. Vancouver island, Juan de Fuca strait, Port San Juan, Snuggery cove, hydrographic note. 184. Northern waters, Finlayson channel, Carter bay, correction of shore line. 185. Bering sea, Nunivak island, reef of Cape Mohican.

No. 50. June 25.—Ontario—186. Lake Erie, Pelee passage, light house established. 187. Detroit river, Limekiln crossing, south light vessel replaced on station.

No. 51. June 27.—Ontario—190. Georgian bay, west side, Cape Croker, light and fog alarm established. 191. Detroit river, Limekiln crossing, lights on east side.

No. 52. June 27.—Quebec—197. River St. Lawrence, Traverse of St. Roch, characteristic of light at upper end changed. 198. River St. Lawrence, Montreal harbor, changes in buoyage.

No. 53. July 3.—British Columbia—199. Vancouver island, east coast, rocks in Sidney channel. 200. Trincomali channel, uncharted rock. 201. Vancouver island, south coast, Barkley sound, uncharted rock and hydrographic notes. 202. Scott island, hydrographic notes.

No. 54. July 7.—Nova Scotia—203. Cape Breton, east coast, Point Aconi, whistling buoy established. 204. Gut of Canso, Jaurvin shoal, buoy established.

The following notices have been issued by the U.S. Hydrographic office:

No. 26. June 28.—872. St. Mary's river, Brush point beacon light re-established. 873. St. Mary's river, Coyle point gas buoy, No. 4, amended position. 874. St. Mary's river, Upper Lake George crib light carried away, provisional float light. 875. Buffalo harbor northern entrance, shoal marked by a buoy.

No. 28. July 12.—941. St. Clair river; St. Clair river, Black river shoal buoy missing. 943. Niagara river, N.Y., Strawberry island shoal buoy moved, Squaw island shoal buoy established. 944. North Atlantic ocean, soundings between Flemish cape and Halifax, N.S.

No. 29. July 19.—916. St. Mary's river, Rains dock gas buoy replaced.

Maritime Provinces and Newfoundland.

C. W. Anderson, of Sherbrooke, N.S., is interested in a proposal to establish a steamship route between Halifax and Canso, N.S., calling at a number of ports en route.

The str. Cumberland, running in the International line between Boston, Mass., and St. John, N.B., was sunk in Boston harbor July 4, as the result of a collision with a steel fruit steamer. The Cumberland had over 300 passengers, but they were all landed without mishap.

The Supreme Court of Newfoundland has dismissed the action of H. Young, who sought to recover for services rendered in connection with the salvage of the I.C.R. ferry steamer Scotia, on the ground that the vessel is the property of the crown and is not liable to such a claim.

The Nova Scotia Steel and Coal Co. has purchased in England two steamers, which have been renamed Wobun and Wasis, for its ore and coal trade. The Co. has hitherto chartered all the vessels it required, having 10 in service last year. A similar number will be required this year.

It is announced that the shares of the Eastern Steamship Co., which controls the International line trading between Boston, Mass., Portland and other Maine ports to St. John, N.B., will be listed on the Boston stock exchange. The Co. owns 18 steamers, and has a capital of \$3,000,000 and \$1,750,000 of 5% bonds.

The city engineer of St. John, N.B., has prepared plans showing the wharf it is proposed to construct in order to give the Dominion Atlantic Ry. Co. the increased accom-

modation required for its steamships, and a sub-committee of the city council is negotiating with the Co. as to the rental for the extra accommodation.

The str. Beaver, which has been acquired by the St. John Steamship Co. (Ltd.), is a screw steamer, and was built at Canning, N.S., 1897, and registered at Windsor, N.S., her dimensions being : length, 80 ft.; breadth, 21 ft.; depth, 7.4 ft.; tonnage—gross, 85 tons; register, 58 tons. She has hitherto been engaged in trading on the Minas Basin, and will now be placed on a route from St. John to Albert county ports.

J. Osborne, General Superintendent of the Atlantic Division, C.P.R., in a recent inter-

view stated that "the question of the provision of increased harbor accommodation at St. John, N.B., was urgent, and he trusted that something would be done. He believed the Minister of Public Works had the right idea of the question which presses for solution. The great thing was to arouse public opinion on the subject. If private enterprise put its hand to the business there would have to be such shipping charges as would frighten trade away, and, of course, competition would be out of the question when you had free ports opposed to you. The government should come forward with a well-defined plan of assistance and extension, to meet the growing needs of the export trade, which was increasing by leaps and bounds."

Province of Quebec Shipping.

The Canadian Forwarding and Export Co.'s tug Dauntless ran on a rock off Red Island, Quebec, July 11, and sank.

The amount received for customs duties at Montreal for the year ended June 30, 1902, was \$10,090,508 against \$8,971,685.60 in 1901.

Plans have been completed for the proposed breakwater and wharf at Quebec, and tenders will be invited for the work at an early date.

Shipping men at Quebec are in communication with the Department of Marine as to graving dock accommodation, and have suggested that a second dock be provided.



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MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1901, gives the following statistics for the year:

CROPS.		
ACRES.	AVERAGE YIELD.	TOTAL.
Wheat.....2,011,835	25.1 bus.	50,502,085 bus.
Oats..... 689,951	40.3 "	27,796,588 "
Barley..... 191,009	34.2 "	6,536,155 "
Potatoes.. 24,429	196.	4,797,433 "

STOCK.

Number of stock in the Province, July 1, 1901:

Horses..... 142,080	Sheep..... 22,960
Cattle..... 263,168	Pigs..... 94,680
Value of Dairy Products..... \$26,314	

18,875 FARM LABORERS

Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.

Farmers erected, this year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.50 to \$5.50 per acre. Payments extend over nine years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.50 and \$4.00 per acre.

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Memphis, Tenn.	Nashville, Tenn.
Cincinnati, Ohio.	Atlanta, Ga.
Louisville, Ky.	Jacksonville, Fla.
New Orleans, La.	Vicksburg, Miss.

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Capt. Koenig, with a ship's crew, has left Quebec for Paisley, Scotland, to bring out the *Druid*, one of the new steamers being built there for the Dominion Government. The *Druid* will replace a vessel of the same name in the lighthouse service in the St. Lawrence river and gulf.

The Great Northern Ry. of Canada, in connection with which the Leyland line steamships operate to Quebec, has been having trouble with the ship laborers in regard to the price to be paid for loading and unloading the steamers. It is stated that unless a settlement is effected the vessels will in future be loaded in Montreal.

The Dominion Government has let a contract to Dussault and Kane to operate a steamship service, between Riviere village, at the terminus of the projected branch railway from Riviere Ouelle station on the I.C.R., across the St. Lawrence river to Murray bay. The subsidy to be paid is \$12,000 for the winter service and \$6,000 for the summer.

A contract has been closed with a U.S. lake shipbuilding firm, for the construction of 10 steel vessels for the Great Lakes and St. Lawrence Transportation Co., to be completed for the opening of navigation in 1903. Their dimensions will be: length, 257 ft.; breadth, 43 ft.; depth, 26 ft. They will be propelled by screws, driven by triple expansion engines, and fitted with Scotch boilers.

The Minister of Marine recently had a consultation with the Quebec Harbor Commissioners in reference to the improvements of the St. Lawrence river. The relative merits of the north and south channels were gone into, and after hearing the opinions of Chief Engineer Anderson, Mr. Cowie and Mr. Morin, Mr. Sutherland seemed to favor having the necessary work done to render the north channel available for vessels of the largest possible draft, and at the same time maintaining the efficiency of the south channel.

Ontario and the Great Lakes.

The Collingwood, Ont., dry dock is being enlarged to 530 ft. in length.

Experiments are being made with a view to equipping lake boats for the use of oil as fuel.

The Port Stanley Navigation Co.'s new str. *Winona* has been placed in service. She made 10 miles an hour on her trial trip.

The Booth Line str. *Dixon*, recently ashore at Michipicoten, was towed to Sault Ste. Marie July 12, and is undergoing repairs at Collingwood.

The name of the Westcott Wrecking Co. has been changed to the Great Lakes Towing Co. (Ltd.) F. F. Pardee, of Sarnia, Ont., is Secretary.

The str. *Lincoln*, plying between Sault Ste. Marie and Thessalon, Ont., is being operated by W. B. Rosevear, General Traffic Manager of the Algoma Central and Hudson Bay Ry., as a personal enterprise.

The Ontario Department of Public Works has decided on making some further improvements at the Port Carling locks between lakes Muskoka and Rosseau, in order to meet the requirements of the growing traffic.

The *Steinbrenner*, a new steamer, built at Port Huron, Mich., recently carried a cargo of 6,666 tons of coal from Ashtabula, Ohio, to Fort William, Ont. This is said to be the largest cargo ever consigned to Fort William.

The section of the str. *Minnewaska*, which went ashore when being taken through the rapids near Cornwall, Ont., has been released and is now at Quebec. The wrecking company received \$4,000 for towing the section off.

The R. and O.N. Co.'s str. *Kingston* went ashore at Charlotte, N.Y., July 10, owing to the floods, and it was feared that she would capsize owing to the fact that she lay across the river. She was, however, released the same evening.

During a recent trip the R. and O.N. Co.'s str. *Hamilton* had a narrow escape from being capsized in the Rapids du Plats, near Cornwall, by coming in collision with one of the cables attached to the portion of the str. *Minnewaska* then ashore.

The R. and O. Navigation Co.'s str. *Corsican* collided with the Bay of Quinte bridge at Belleville, July 13, and pushed the span next to the draw into the water. The steamer's steering gear went wrong and caused her to swerve from the channel.

The lake built schooner *Lineria* sailed from Menominee, Mich., April 28, with a cargo for Three Rivers, Que., and from there proceeded to New York city, reaching there June 30, with a cargo of lumber. A lake schooner is an unusual sight at an Atlantic port.

The strs. *Turret Cape*, *Turret Court*, and *Turret Chief*, owned by W. Peterson, Ltd., Newcastle, Eng., which have been placed in the lake trade between Port Arthur and Port Colborne, are of the following dimensions: length, 253 ft.; breadth, 44 ft.; depth, 19.4 ft. They are valued at \$110,000 each.

The St. Lawrence River Steamboat Co., controlled by the Folger interests of Kingston, Ont., has had an information laid against it for an alleged violation of the U.S. alien labor laws, by employing Canadians as firemen. The Co.'s steamers are operated on the St. Lawrence in connection with the New York Central Rd.

The str. *Arthur Orr*, of the Canada Atlantic Transit Co., left Milwaukee, Wis., June 15, with 100,000 bush. of grain for Montreal, and reached Depot Harbor, Ont., June 17. The grain was delivered to the Canada Atlantic Ry. placed on barges at Coteau Landing, and delivered on board the str. *Dominion* at Montreal June 20.

The New York Produce Exchange publishes figures showing that in the week ended June 28 there was exported through Canadian ports 1,002,265 bush. of grain, against 742,806 through U.S. ports, 710,322 going through Montreal, and 259,459 through New York. The Exchange asks for the reconstruction of the Erie canal so as to carry 1,000 ton barges.

At the Old Boys' celebration at Owen Sound June 26, an important feature was the presentation to Capt. McDougall, the chief officer, chief engineer and the crew of the C.P.R. str. *Athabasca*, of the tokens awarded them by the Department of Marine in recognition of their bravery in rescuing the crew of the U.S. barge *Preston* in Lake Superior June 29, 1901.

The Morden Transit Co. has been incorporated under the Ontario Companies Act with a capital of \$40,000 to engage in a general navigation business. G. H. Morden, Oakville, Ont.; W. J. Sheppard, Waubashene, Ont.; D. L. White, Jr., James Playfair, Midland, Ont., and J. P. Mackenzie, Tonawanda, N.Y., are the provisional directors. Offices at Midland, Ont.

During June 1, 118,564 tons of freight was carried through the Canadian canal at Sault Ste. Marie, against 1,235,055 in June, 1901; and 3,603,044 tons through the U.S. canal against 3,284,020 in June, 1901. The total tonnage passing through the canals this season is 11,486,501 tons, against 6,767,120 in 1901, of which 1,650,752 passed through the Canadian canal against 1,386,734 in 1901.

The Dominion Government refused to allow the str. *Argyle* to enter Cobourg harbor, July

13, on the occasion of a trip she was announced to make from Rochester, N.Y., to Cobourg, on that day. A. Hepburn, Manager of the Lake Ontario Navigation Co., owning the vessel, is negotiating with the Government to see if some arrangement cannot be made so that the *Argyle* may run on Sundays. In connection with the Sunday trips from Buffalo to Port Colborne, the Customs authorities have given instructions that clearance papers are not to be issued on Sundays to such steamers.

The Polson Iron Works, Toronto, is completing a composite steam yacht, *Juanita*, for E. Leadlay, Toronto, of the open canopy type, with flush decks forward and aft, and cockpit for seating accommodation. Her dimensions are: length over all, 25 ft.; breadth, 6 ft. 3 in.; draft—amidships 3 ft., aft 2 ft. 3 in. The machinery consists of a fore and aft compound engine, open column type, non-condensing, cylinders 2¾ in. and 5½ in. diameter by 5 in. stroke, to which steam is supplied by a Yarrow patent water tube boiler having 100 sq. ft. of heating surface, constructed for a working pressure of not less than 200 lbs. a sq. inch.

The Midland Navigation Co.'s new steel freight steamer is to be built at Collingwood. A contract was let for this vessel some time ago to a Toronto firm, which has sublet the building of the hull, but will build the boilers and machinery at its own shops. The new steamer, which, it is said, will be named the *Midland King*, will have the following dimensions: length—352 ft., keel, 369 ft. over all; beam, 48 ft.; depth, 28 ft. She will be fitted with triple expansion engines with cylinders, 20 in., 33½ in., and 55 in., by 40 in. stroke, supplied with steam from two Scotch boilers 12 ft. long by 14 ft. diameter. This vessel is intended for bulk freight only, such as iron ore, grain and coal, and will be ready for the opening of navigation, 1903. She will be the largest freight vessel on Canadian inland waters.

The U.S. Government has asked the British Government to join in the formation of an international commission to investigate the Great Lake levels, and proposes that three commissioners be appointed for the U.S. and for Canada. The Act of Congress dealing with the matter provides that the commission, if appointed, is "to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines of the U.S. and Canada, including all the waters of the lakes and rivers whose natural outlet is by the river St. Lawrence to the Atlantic ocean; also upon the maintenance and regulation of suitable levels; and also upon the effect upon the shores of those waters and the structures thereon and upon the interests of navigation by reason of the diversion of these waters from or change in their natural flow; and, further, to report upon the necessary measures to regulate such diversion, and to make such recommendations for improvements and regulations as shall best serve the interests of navigation in said waters."

There has been launched from the yards of the Polson Iron Works, Toronto, a large dipper dredge for W. J. Poupore, Montreal, who has a large government contract for dredging and harbor improvement works on the St. Lawrence at Three Rivers, Que. The dimensions of the dredge are: Length over all 96 ft.; beam, 36 ft. 8 in.; draught, forward, 9 ft. 9 in.; draught, aft, 10 ft. 9 in. The hull is of composite construction, having steel framework and wood planking. The machinery equipment consists of a Clyde boiler, 10 ft. 6 in. in length, by 10 ft. 6 in. in diameter, having a working pressure of 150 lbs.; with a modern hoisting engine having cylinders 16 and 18 in. The special features include: steel spuds 66 ft. long, the

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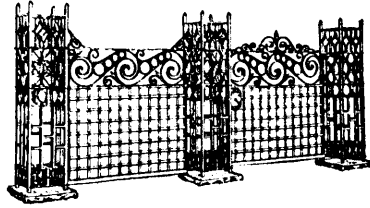
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aft spud being a walker, steel dipper handle, and steel crane of very massive and substantial design. The hull has an overhead truss of heavy steel channels and I beams, which take up the working strain of the vessel. At each dip of the spuds 80 yards of material is brought to the surface. The dredge, which has been named Sir Wilfrid, was constructed from the designs of A. L. Desy, Montreal, consulting engineer for Mr. Poupore, under the direction of W. E. Redway, N.A.

Manitoba and the Northwest Territories.

Press reports make reference to the Blackfriars Steamship Co., Edmonton, Alta., but no information is available as to who are interested in the Co., or as to its intended operations.

During the winter 17 scows were built at J. Walter's yard, Edmonton, Alta., and 6 by private persons. Nine were for the Hudson's Bay Co., 4 for the Roman Catholic Mission on Onion lake, and two for Rev. J. D. Matheson on Saddle lake.

We are advised that it is the intention to construct the hull of the snag boat for the Red river at Winnipeg by day labor, and that the machinery will probably be built at the government dockyard, Sorel, Que. \$10,000 was provided for this boat in the estimates passed at the last session of the Dominion Parliament.

B.C. and Pacific Coast Shipping.

A survey of Nanaimo harbor, B.C., is being made by G. Turner, assistant engineer of the Dominion Department of Public Works.

It is reported that the C.P.R. will take over the steamer service on Trout lake, B.C., and operate it in connection with its Arrowhead and Kootenay Ry.

A new steamer, the Britannia, is being completed on False creek, Vancouver, for freight and passenger trade on Howe Sound. She will take the place of the Defiance.

The government dredge King Edward has commenced operations in the deepening of James' Bay, Vancouver, and the reclamation of the land beyond the embankment wall. The work is expected to be completed by Sept. 30.

The C.P.R. wharf at Vancouver now under construction extends to Abbott st., and connects with Stimson's wharf. A large shed is to be erected on the wharf for the accommodation of the trans-Pacific and Australian steamers.

The Terminal Steamship Co. (Ltd.) has been incorporated under the B.C. Companies Act for the purpose of operating steam and other vessels, owning wharves, hotels, warehouses, docks, etc. The capital of the Co. is fixed at \$50,000.

The extra vessel chartered to run in the Canada-Australia steamship line is the screw steamer Foreric, of 5,600 tons deadweight capacity. She is expected at Vancouver, about Aug. 15, and will sail on her first trip about Aug. 25, calling at Suva, Fiji islands, and Auckland, New Zealand.

A new boat to be propelled by a gasoline launch, designed to ply on the upper reaches of the Koyukuk, a tortuous and shallow river, has reached Dawson, Yukon Territory, from Seattle, Wash. The boat is propelled by a fantail wheel operated by sprockets, and will carry 28 tons on a draft of 6 inches at a speed of 12 miles an hour.

The Merchants' Transportation Co. is reported to have purchased the machinery of the river str. *Gold Star*, which it purposes placing in the hull just completed at Victoria, and which will be towed to Dawson for her boiler and engines. The M.T. Co. at present

operates the LaFrance and Nora, and will name the new steamer the Thistle.

The Yukon str. Portland left Seattle April 26 for Cape Nome, and together with the Jeanie, a whaling vessel, was caught in an ice pack, June 4, and drifted away towards Bering strait. On July 4 news was brought to Cape Nome that both vessels were uninjured and the passengers and crews all right. A few days later the Portland arrived at Nome city, all well.

A short rate war affecting the trade between Whitehorse and Dawson, Yukon Territory, was brought to a conclusion by the agreement between the independent companies and the White Pass and Yukon Ry. Co., establishing a rate of \$50; the rate to Whitehorse being \$40, the W.P. and Y. Ry. allowing the other lines a differential of \$10 for the Skagway end of the business. A new freight traffic is also being arranged.

There is under construction at Coal harbor, Vancouver, a highspeed gasoline launch for the Vancouver Power Co. Her dimensions are: length, 38 ft.; breadth, 9 ft.; depth, 4 ft. 3 in.; and she will be equipped with a gasoline engine capable of making 11 miles an hour. The launch will be used by the V. P. Co.'s engineers in running between Vancouver and Lake Beautiful on the north arm of the inlet, where the tunnel to Coquitlam lake is under construction.

The Klondike Nugget says: "The opening of river navigation was inaugurated by the arrival of no less than nine steamers, all of which are now in regular commission and ready to handle the big volume of summer traffic. No more welcome sound is ever heard in Dawson than the whistle which announces the arrival of the first steamer. The event is an inspiring one, for it proclaims the glad tidings that Dawson is again in close touch with the great, busy, outside world."

A steam barge for the Hudson's Bay Co., to be used as a supply vessel for the Co.'s posts on the Labrador coast, was launched from the yard of the Polson Iron Works, Toronto, July 19. The hull is of composite construction, with straight stem and elliptical stern, having a flush deck with rail and bulwarks, and is built of extra strength so as to withstand the great pressure when forcing her way through the ice. Her general dimensions are: length between perpendiculars, 80 ft.; depth from top of keel to top of main deck beams at lowest point, 8 ft. 6 in.; breadth, 18 ft.; draft not to exceed 7 ft. when carrying 100 tons of cargo and 4 days' fuel. There is a large cargo hatchway amidships, steam capstan forward and a tow post aft, and she is also fitted with two masts, and is schooner rigged. The engines are fitted aft, and comprise fore and aft compound surface condensing engines with cylinders 8 in. and 18 in. in diameter, by 12 in. stroke, to which steam is supplied from a Fitzgibbon boiler, 4 ft. 6 in. diameter, 9 ft. long and 8 ft. high, having 508 sq. ft. of heating surface and constructed for a working pressure of 150 lbs. per sq. in. The boiler is so constructed that either coal or wood can be used as fuel. The barge, which was named the Inewen by Mrs. F. B. Polson, was expected to leave by the end of July for her port of service.

Among the Express Companies.

The Dominion Express Co. will not, until further notice, accept money shipments for transmission to points between Grand Forks, B.C., and Republic, Wash., owing to the suspension of train service on the Kettle Valley lines. Shipments of ordinary freight will be received and forwarded by stage from Grand Forks.

Gordon C. Metcalfe, who has been operating in Canada and the U.S. under various names, has been arrested at Hartford, Conn., at the instigation of the Canadian police, on a charge of stealing \$520 from the Dominion Express Co. in Manitoba in Dec. last. It is alleged that Metcalfe has been engaged in robbing railway stations and express offices for the last 12 years, by obtaining employment as a telegraph operator or clerk, effecting a robbery, absconding, and reappearing in another town under a different name. He has been handed over to the Canadian police.

The B.C. Express Co. operates 650 miles of stage line from Ashcroft, on the C.P.R., giving a semi-weekly service to Barkerville between May 15 and Oct. 31, and a weekly service the rest of the year; with an extra service on Wednesdays in summer, and Fridays in winter from Ashcroft to Clinton; a semi-weekly service all the year round from Ashcroft to Lillooet; and weekly services all the year round from Clinton to Alkali lake; from 150 Mile House to Horse Fly; from 150 Mile House to Quesnel forks; and from Soda creek to Alexis creek. The branch line services are all timed to meet the through stages between Ashcroft and Barkerville.

Telegraph and Cable Matters.

The Western Union Telegraph Co. has opened a new office at Digby, N.S.

At the recent session of the Newfoundland Legislature \$14,000 was voted for telegraph construction.

The cable laid in 1901 between Chateau Bay and Belle Isle is being repaired, after having been broken by the grounding of an iceberg on it.

The report that wireless telegraph apparatus of the Marconi type would be installed on the Richelieu and Ontario Navigation Co.'s boats is denied from the Montreal office.

The Postal Telegraph Co. has secured the control of the telegraph service on the Pennsylvania Rd., east of Pittsburg and Erie, and has replaced the Western Union Telegraph Co., which previously had the contract.

The Marconi wireless telegraph apparatus installed by the Dominion Government in 1901 has not been working satisfactorily, and D. H. Keeley, Superintendent of Government Telegraphs, is making an investigation.

The cable str. Tyrian is engaged in repairing and relaying the following cables, under the direction of D. H. Keeley, Superintendent of Government Telegraphs: repairing break in the 20-mile cable between Anticosti island and the north shore of the St. Lawrence; stretching 5½ knots of cable over the sandbars at Magdalen islands, and laying a cable about 2 miles to Scatari island, N.S.

The Department of Public Works has under consideration tenders for the construction of the following telegraph lines in Nova Scotia, in addition to those mentioned in our last issue, for which we were informed, July 1, that contracts had not been let: from Mabou to Port Hawkesbury, 40 miles; from St. Peters to Port Hawkesbury, 30 miles; from Port Mulgrave, via Guysborough, to Canso, 55 miles.

The wireless telegraph station at Glace Bay, N.S., has been completed, and much of the machinery installed. It is reported that messages have been exchanged with the station at Poldhu, Cornwall, but no official announcements have been made. Marconi is expected in Canada shortly, when the station will be placed in service. He is reported to have stated in London, Eng., that by Dec. it will be possible to transmit 30 words a minute, and that messages would be sent at the rate

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Certificate fee.....1 00	" " \$3,000 " " " 7 00
Registration fee.....1 00	" " \$4,000 " " " 9 00
Medical Examination fee.....1 50	" " \$5,000 " " " 10 00
Total minimum cost.....\$4 50	Sick benefits, when required, cost extra.

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- 5.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 6.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 7.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—Social and Fraternal Privileges of the Court Room.

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Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.60
1882	1,134	12,058 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.33
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	5.78
1887	7,811	59,014 67	81,384 41	10 44	6.43
1888	11,800	89,018 16	117,821 96	9 98	6.85
1889	17,349	116,787 82	188,130 36	10 84	5.18
1890	24,604	181,846 79	283,967 20	11 54	6.40
1891	32,303	261,436 21	408,798 20	12 65	6.35
1892	44,024	344,748 82	580,697 85	13 49	5.47
1893	54,484	392,185 93	858,857 89	15 76	6.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.67
1895	86,521	685,000 18	1,560,783 46	18 03	5.80
1896	102,838	820,941 91	2,015,484 38	19 60	5.56
1897	124,685	962,225 60	2,558,832 78	20 52	5.37
1898	144,000	1,176,125 14	3,186,370 96	22 12	6.30
1899	163,610	1,490,200 33	3,778,643 58	23 09	6.53
1900	180,717	1,545,145 64	4,483,364 44	24 81	

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of 6c. a word for private purposes and 2½c. a word for press purposes.

The str. Colonia, with the 3,500 miles of cable to be laid between Vancouver island and Fanning island, for the all-British cable to Australia, is expected in Vancouver early this month, and will set to work laying the cable a few days thereafter. The cable str. Anglia is in England loading the section of the cable to be laid between Fanning island and Suva, Fiji islands. This work is expected to be completed by Nov. A steamer has been specially built for use in repairing the cable, and is expected at Suva, which will be her headquarters, in October. She is a twin-screw steamer of 2,300 tons.

In connection with the Pacific cable, now being laid from Australia to Vancouver island, the C.P.R. telegraph department is constructing a line from Nanaimo to Bamfield creek, where the cable station is situated, 105 miles. At present a single line extends from Wellington to Alberni; this will be reconstructed and two wires strung on new posts from Wellington to Englishmen's river, and from that point to Alberni the present posts will be used for the two wires. The double line will be carried from Alberni to Cape Beale. The total cost of the work will be about \$12,000, and the new line is expected to be completed by Sept. 30. The present line is a Government one, but the new one will be the joint property of the C.P.R. telegraph department and the Government.

Dominion Telegraph Company.

The annual meeting was held at Toronto July 9. Following is the financial statement for the year ended June 30, 1902:

ASSETS.	
Capital expenditure	\$1,281,819 47
Toronto, Grey & Bruce Ry. 1903 bonds, and interest thereon	1,596 24
Cash in bank and on hand	29,372 36
	\$1,312,788 07
LIABILITIES.	
Capital stock paid up	\$1,000,000 00
Dividends unclaimed	907 50
Dividend 104, payable July 15	14,000 00
Suspense	422 13
	\$1,015,329 63
Balance at credit of profit and loss	297,458 44
	\$1,312,788 07

The directors reported the regular payment, quarterly in advance, of the guaranteed interest at the rate of 6% per annum on the capital stock of the Co., by the lessees, the Western Union Telegraph Co., up to June 30, 1902, which interest has been duly distributed quarterly to the shareholders of the Dominion Co.

The officers for the current year are: President, F. Swinyard; Vice-President, T. R. Wood; other directors, A. G. Ramsay, H. Pellatt, T. F. Clark, C. O'Reilly, M.D., R. C. Clowry and B. Brooks, the two latter Western Union Telegraph officials replacing Gen. Eckert and C. A. Tinker.

General Telephone Matters.

The Bell Telephone Co. paid a quarterly dividend of 2% on July 15.

The Bell Telephone Co. has extended its long distance line to Jackson's Point, Ont.

The Union Telephone Co., Arichat, N.S., has given a bill of sale for \$7,200, covering its capital stock, to the Eastern Telephone Co., Ltd.

The Bell Telephone Co. has completed an installation of its system in North Bay, Ont. There are 50 instruments connected with the exchange.

A telephone line is being constructed from Jocelyn to Marksville, via Carterton, in the vicinity of Sault Ste. Marie, Ont.

The Bell Telephone Co. is stringing a copper wire between Owen Sound and Toronto, and will install a new central energy switch board at the Owen Sound exchange.

The Bell Telephone Co. has purchased the Pontiac telephone line, running from Quyon to Portage du Fort, Que. It is reported to be the intention of the Co. to establish a connection with Aylmer, Que.

The Ottawa city council has asked the Bell Telephone Co. on what terms it will sell out the local exchange, so that it can be operated as a civic enterprise, but the Co. will not entertain the proposition.

Fifty telephones have been connected with the recently established exchange at Parrsboro, N.S., and long distance connections have been secured with Halifax, Truro, Amherst, Advocate and other points.

The Hull, Que., Board of Trade has appointed a committee to confer with a committee from the Hull city council, and the Ottawa city council with a view of securing a cheaper telephone service for the two cities.

The Nova Scotia Telephone Co. has under construction a new copper line, weighing 370 lbs. to the mile, from New Glasgow to the strait of Canso. The line is expected to be completed to Antigonish by the end of Aug.

The Bell Telephone Co. is putting up a new metallic circuit between Winnipeg and Portage la Prairie, Man., and will probably make a short extension into Wellwood, Man. It is also building a new line from Winnipeg to the International boundary.

The Bell Telephone Co. has filed an appeal against the decision of Justice Street that the Co. has not the right to carry any poles or wires, above or underground, along any street in Toronto without first obtaining the consent of the city council.

The Bell Telephone Co. has been given permission by the Montreal city council to open a number of streets, with a view of placing its wires underground. The Brantford, Ont., city council has deferred the consideration of a similar application from the Co.

The Kent Telephone Co. was given power at the last session of the New Brunswick Legislature to extend its lines to Buctouche, Bass River, Harcourt and Chatham, and through the parishes of Wellington, Weldford and Harcourt, N.B., and was given two years within which the extensions are to be made.

No action has been taken by the Hamilton city council on the telephone question. The Bell Telephone Co. is pressing for a decision regarding its franchise, but the council is not disposed to do anything pending consideration of the O. W. Rogers offer to put in a service at \$15 for offices and \$10 for houses, and an investigation of the system of which the Canadian Machine Telephone Co. has control in Canada.

J. L. Murphy, barrister, Windsor, Ont., has secured an injunction against the Bell Telephone Co. compelling it to give him a service although he declined to sign a contract, and a verdict of \$10 damages sustained by reason of the Co. cutting the connection, with costs. Mr. Murphy declined to sign the contract on the ground that it contained clauses giving all the protection to the Co. and none to the patron. Stay of execution was granted to enable the Co. to enter an appeal.

The Eastern Telephone Co. is constructing a long distance line from Sydney, N.S., to the strait of Canso, where a connection will be made with the Nova Scotia Telephone Co.'s

line from New Glasgow to the strait, now under construction. The N.S.T. Co. owns a large proportion of the shares of the E.T. Co., which confines its operations to Cape Breton island. It is reported that as soon as the work at present in hand is completed, a long distance line will be constructed connecting the strait of Canso and Port Hood.

The Modern Telephone Co. of Hamilton, (Ltd.) has been incorporated under the Ontario Companies Act, with a capital of \$300,000, to construct a local telephone line in Hamilton, Ont., and in adjoining towns and cities in Ontario, and to carry on a general telephone business. The provisional directors are: O. W. Rogers, F. Leoffler, of New York City; J. S. King, C. A. Johnson, W. A. Johnson, H. A. Drummond, W. Vandusen, S. C. Biggs, F. Dagger, of Toronto; and J. B. Scovill, of Buffalo, N.Y. The offices of the Co. are to be in Hamilton.

The Association of Railroad Telegraph Superintendents at their recent convention at Chicago discussed the question of telephoning from moving trains, and it is probable a series of tests will be made under its auspices. B. Bidwell, in a paper on the subject, said that while telephone and telegraph connections might be made from a moving trolley car, such a system has not yet been found feasible on the ordinary railroad. For this reason it was suggested that communications could be had with moving trains if a trolley wire or third rail were placed alongside the tracks.

The Canadian Machine Telephone Co. (Ltd.) has been incorporated under the Ontario Companies Act, with R. Neill, Peterborough, Ont.; Hon. G. E. Foster, M. H. Ludwig, J. A. Phin, Toronto; J. E. Ganong, J. De W. Chipman, St. Stephen, N.B., as provisional directors, to carry on the general business of a telephone company, and with the consent of municipalities, erect poles on, or construct conduits under any streets, highways, etc.; to manufacture telephone appliances, etc. The head offices of the Co. are to be in Ottawa, and the capital is fixed at \$250,000.

The Yorkton Northwest Electric Co. (Ltd.) was incorporated June 1, and has elected the following officers: President and Manager, Thos. Paul; Vice-President, J. J. Smith; Secretary-Treasurer, J. A. Magee; other directors, Thomas Meredith, M. A. Eby, G. Betts and J. H. Nelson. The offices of the Co. are at Yorkton, Assa.; its capital is \$20,000 in \$1 shares, \$11,000 of which has been subscribed and \$5,500 has been paid up. The Co. takes over the telephone line and exchange constructed by T. Paul, described in our issue of Aug., 1901, pg. 255, and expects to add 50 miles of line in the rural districts this year. These lines will extend to Saltcoats, Theodore, Crescent, and to the Beaver hills. The lines in Yorkton are being extended and improved.

The Eastern Telephone Co. (Ltd.) has elected the following directors and officers: President, R. A. H. Mackeen; Vice-President, Judge Dodd; Secretary, W. Crowe; other directors, J. E. Burchell, B. Archibald, H. Donkin, C. F. Fraser, B. W. Chipman, R. Uniacke and F. B. McCurdy. The annual report showed that there had been a steady growth in the business both in Sydney, N.S., and over the whole system. Besides erecting the new building there has been installed over a quarter of a mile of underground system using 6,000 ft. of ducts. In these is half a mile of cable, and four miles more have been strung overhead. These cables contain 400 miles of wire. An entirely new exchange has been fitted up at Glace Bay with a switch board of the latest pattern. The Union Telephone Co., of Arichat, operating in Richmond county,

and the Inverness and Victoria Telephone Co., operating in Inverness and Victoria counties, have been purchased by the Eastern Telephone Co., and construction for the purpose of connecting all these properties will be started shortly.

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PURCHASING AGENTS' GUIDE.

(Continued from third page of Cover.)

Steel Buildings	Dominion Bridge Co.	Montreal.
Structural Metal Work	Dominion Bridge Co.	Montreal.
Switches	Canada Switch and Spring Co.	Montreal.
Switch Lamps	The Hiram L. Piper Co.	Montreal.
Switch Locks	N. P. Macmullan & Co.	Montreal.
Switch Targets	Acton Burrows Co.	Toronto.
Telegraph and Telephone Office Signs	Acton Burrows Co.	Toronto.
Tobacco and Cigars	The Hudson's Bay Company.	
Toilet Paper	The Hudson's Bay Company.	
Tools	Rice Lewis & Son.	Toronto.
Track Jacks	James Cooper.	Montreal.
	Duff Manufacturing Co.	Allegheny, Pa.
	N. P. Macmullan & Co.	Montreal.
	W. H. C. Mussen & Co.	Montreal.
	A. O. Norton.	Coaticook, Que.
Track Tools	F. E. Came.	Montreal.
	Canada Switch and Spring Co.	Montreal.
	James Cooper.	Montreal.
	Rice Lewis & Son.	Toronto.
	W. H. C. Mussen & Co.	Montreal.
Tramway Equipment	James Cooper.	Montreal.
	J. J. Gartshore.	Toronto.
Trucks (Electric Car)	Baldwin Locomotive Works.	Philadelphia, Pa.
	Canada Switch and Spring Co.	Montreal.
Trucks (Warehouse and Express)	Rice Lewis & Son.	Toronto.
Turntables	Dominion Bridge Co.	Montreal.
Varnishes	McCaskill, Dougall & Co.	Montreal.
Vessels	Polson Iron Works.	Toronto.
Waste	Rice Lewis & Son.	Toronto.
	N. L. Piper Ry. Supply Co.	Toronto.
	The Queen City Oil Co.	Toronto.
Wheelbarrows	James Cooper.	Montreal.
	Rice Lewis & Son.	Toronto.
Window Blinds	The Hudson's Bay Company.	
Wines and Liquors	The Hudson's Bay Company.	
Wire & Wire Rope	Dominion Wire Rope Co.	Montreal.
	Rice Lewis & Son.	Toronto.
	W. H. C. Mussen & Co.	Montreal.
	The Wire and Cable Co.	Montreal.
Wire, Copper	E. F. Phillips Electrical Works, Ltd.	Montreal.
Wire, Electric	E. F. Phillips Electrical Works, Ltd.	Montreal.
	The Wire and Cable Co.	Montreal.
Wire, Insulated Copper	E. F. Phillips Electrical Works, Ltd.	Montreal.
Wire, Telegraph and Telephone	E. F. Phillips Electrical Works, Ltd.	Montreal.
	The Wire and Cable Co.	Montreal.
Yachts	Polson Iron Works.	Toronto.

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Aerated Waters E. L. Drewry..... Winnipeg.	Electric Car Route Signs Acton Burrows Co..... Toronto.	Numbers Acton Burrows Co..... Toronto.
Air Brakes & Fittings Westinghouse Mfg. Co..... Hamilton, Ont.	Enamelled Iron Signs Acton Burrows Co..... Toronto.	Oakum Rice Lewis & Son..... Toronto.
Ales E. L. Drewry..... Winnipeg.	Engines, Stationary & Marine Polson Iron Works..... Toronto.	Oils Galena-Signal Oil Co., Franklin, Pa., & Toronto. The Queen City Oil Company..... Toronto.
Anchors Rice Lewis & Son..... Toronto.	Engraving Acton Burrows Co..... Toronto.	Office Signs Acton Burrows Co..... Toronto.
Axles Jas. W. Pyke & Co..... Montreal. Rhodes, Curry & Co..... Amherst, N.S.	Express Office Signs Acton Burrows Co..... Toronto.	Packing Gutta Percha and Rubber Mfg. Co..... Toronto.
Babbitt Rice Lewis & Son..... Toronto.	Fencing Canadian Steel and Wire Co..... Hamilton, Ont. Page Wire Fence Co..... Walkerville, Ont.	Pinch Bars The Hiram L. Piper Co..... Montreal.
Blankets & Bedding The Hudson's Bay Company..... Montreal.	Flags Rice Lewis & Son..... Toronto.	Pipe Covering Mica Boiler Covering Co..... Montreal.
Block & Tackle Dominion Wire Rope Co..... Montreal. Rice Lewis & Son..... Toronto.	Flour The Hudson's Bay Company..... Montreal. The Ogilvie Flour Mills Co..... Montreal.	Plushes The Hudson's Bay Company..... Montreal.
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Bolsters Simplex Railway Appliance Co..... Montreal.	Groceries The Hudson's Bay Company..... Montreal.	Rail Joints Montreal Rolling Mills Co..... Montreal.
Bolts Rice Lewis & Son..... Toronto.	Hardware Rice Lewis & Son..... Toronto.	Rails (New) James Cooper..... Montreal. Drummond, McCall & Co..... Montreal. J. J. Gartshore..... Toronto. Rice Lewis & Son..... Toronto. Jas. W. Pyke & Co..... Montreal.
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Bumpers Acton Burrows Co..... Toronto.	Illustrations Acton Burrows Co..... Toronto.	Rope Rice Lewis & Son..... Toronto. The Hudson's Bay Company..... Montreal.
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Rice Lewis & Son Montreal.	Locomotives (Compressed Air) American Locomotive Co..... New York, N.Y. Baldwin Locomotive Works..... Philadelphia, Pa.	Signs Acton Burrows Co..... Toronto.
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