Timiskaming and Northern Ontario Railway Steel Passenger Equipment.

The T. and N.O.R. Commission some months ago ordered 13 passenger cars from the Pullman Co., of all steel construction, sufficient to equip two through passenger trains. The order includes five different types of cars: 3 first class passenger cars, 2 second class passenger cars and 2 combination smoking and second class passenger cars, all 71 ft. long over the end sills; and 3 baggage and mail cars with 30 ft. mail section, and 2 baggage and express cars, both these types 60 ft. long over end sills. All the passenger cars will have seating capacity for 80.

The cars will be lighted by electricity, power being supplied from an axle generator, and will, in addition, be equipped with a generous storage battery system for supplying light when the cars are not in motion. The heating will be by a combination vapor and pressure system of steam heat, automatically controlled to maintain the degree of heat desired, none of the cars having a stove, except the mail cars, each of which will have a small emergency stove. In addition to an efficient arrangement of ventilators, the passenger cars will be equipped with two electric fans each, one fan on each end of the car. The passenger car lavatories and washstands will be supplied with the latest type air pressure water supply.

All the cars will have fish belly centre sills in the underframes, with combined cast steel bolsters and platforms. The superstructure will also be entirely of steel, having an exterior finish of steel plates, well insulated from the interior ceiling of fireproof material. Six-weel trucks will be used, the frames of which are to be cast steel.

The passenger cars will have embodied a new feature in steel car design in the shape of an anti-telescoping device, which, it is claimed, will substantially reinforce the end framing and vestibules, and greatly reduce, if not wholly eliminate, the liability of the cars telescoping in case of wreck. This device consists of two I beams of heavy section, bent into a U shape, with the arms upward, the corresponding arms of the two U's forming the door posts in bulkhead and vestibule. These sections are secured in the steel underframe end casting, and also at the top, so that in the event of a collision, it is claimed that the impact would do no more than cause the vertical arms at the outer end to collapse, and if the impact were sufficiently great, the inner arms might also be bent.

The maximum bending moment in the centre sills for the passenger cars is 4,655,671 in.-lbs.; for the baggage cars, 4,159,816 in.-lbs.; and for the baggage and mail cars, 3,592,180 in.-lbs. The centre sills possess an area of 43.62 sq. ins., and the side sills an area of 11.6 sq. ins., so that there is a total area to resist the direct buffing shocks of 55.22 sq. ins. The moment of inertia of the centre sills is 4,863, and the section modulus for the top flange is 474.93, and for the bottom flange, 301.3. The maximum stress due to the weight of the car and lading will occur in the passenger car, amounting to 15,460 sq. ins.

The baggage and mail, and baggage and express cars, are of similar construction, and of the same size. The underframing is of the fish belly type, consisting of two 5-16. in. centre plates, 37 ft. long, connecting to the steel bolster castings. The central 15 ft. of these centre plates is 2 ft. 2 ins. deep, tapering from that point to a depth of 17 ins., where they connect to the bolster casting. These plates are 18 ins. apart. To the top outer edge of each plate, there is rivetted a 5 by 3½ by ½ in. angle, and at the bottom of each plate outside and inside, 3 by 3 by ⅞ in. angles. A ⅜ in. cover plate, 2½ ft. wide, extends the same length as the centre plates.

The body bolster castings are at 42 ft. centres, and there are two crossbearers, 15 ft. apart, of cast steel, in line with which are separators, also of cast steel. The crossbearers and separators have a cover plate extending across the centre sill members. Over the top of the centre sill and crossbearers, is a 1-16 plate, covering the full area of the car, with pressed stiffeners extending from the centre sill outward at centres averaging about 2 ft. Attached to the outer end of the crossbearers on each side of the car, is a 5 in. 11.6 lb. Z bar, extending the length of the car, to the outwardly projecting flange of which is attached a 4 by 4 by 5-16 in. angle, of the same length, the outer flange of which projects upwards. This side sill construction assumes the form of a box under the two side doors of the car, the web of the Z having a 7⅜ by ¼ in. plate, 10 ft. 11 ins. long, attached to its web, with a 3 by 3 by ¼ in. angle, 11 ft. 0½ in. long, rivetted along the top, and two 7 by ¼ in. plates, 6¼ ft. long, attached to the upturned flange of the side sill angle, the whole superimposed with a steel threshold casting.

The two door openings are each 5 ft. 9⅛ ins. wide, and 24 ft. 2⅞ ins. apart from inner edge to inner edge. Extending the length of the car, except for the door openings, which are reinforced as mentioned, there is a side sill plate, 2 ft. 9⅞ ins. deep, of 3-16 in. plate, reinforced along the top edge by a 4 by 1⅜ by 7-16 in. angle. This plate, angles, and Z bar, and box construction under the door openings, form the side sill construction of the car.

The side posts are of flanged 3-16 in. plate, at about 2 ft. centres, and are diagonally braced at both ends, and at the both sides of the door openings. There are four window openings along each side, 2¼ ft. by 3 ft. 8 7-16 ins., between the side posts, which are slightly farther apart at these points. The side framing of the car is 7 ft. 5 13-16 ins. deep.

The side posts are attached to a 4 in. Z bar along the top edge, which, with a letter board, 11⅛ by ⅛ in., reinforced along the bottom edge by a 2¾ by ⅛ in. stiffener, forms the top side framing girder.

The side roof, of 0.063 in. plate, is carried on 2 by 2 by 3-16 in. carlines, at 3 ft. centres, bent to a 3 ft. 5⅝ in. radius. A 2 by 2 by ¼ in. angle forms the lower edge of a deck panel, which is 15 ins. deep, of ⅛ in. plate. The upper edge, forming the deck chord, is of ⅛ in. plate, bent to an angle. Between these deck chords, arch the deck carlines, which are pressed from ⅛ in. plate to a radius of 18 ft. 1 in. The roofing is 0.078 in. plate.

The construction of the passenger cars is almost identical with that of the baggage and mail, and baggage and express cars. The length over bumpers is increased to 71 ft., which gives an increased length to the underframing in proportion. Instead of two crossbearers, there are three, one central, and the other two, each 12¾ ft., each side of centre. The central 25½ ft. is straight, the ends tapering to the bolster castings. The truck centres are 55 ft. Apart from this change in length, the whole of the car framing is the same, from centre sill through side sills right up to the decking. The side framing above the side sills construction differs, in that there are a series of windows the length of the car, with main posts between at 6 ft. centres, between which are small posts. The main posts are 12¼ ins. wide, and the intermediate ones, 2½ ins. wide. Apart from these changes, the construction of the cars is identical with the baggage, express and mail cars described above.

The cars have all been delivered.

Dominion Government Railway to Hudson Bay.

In a recent interview, N. K. Boyd, one of the contractors, is reported to have said in Winnipeg that it is expected soon to have 3,000 men on the work, of which over 2,000 will be engaged on grading and the remainder on bridge work, tracklaying and ballasting. The plant on the work consists of 3 steam shovels at Pas, and 2 at mileage 110; 13 locomotives; 100 Hart convertible cars, and numerous box and flat cars, in addition to two passenger cars which are being operated as far as mileage 110. It is expected to have track laid to the Manitou rapids of Nelson River, and to have the grading completed from the Manitou Falls to within 110 miles of Port Nelson by the end of the year. A large bridge is to be built at Manitou Rapids, and the foundation work will be done this year.

The work of laying out the terminals at Pas and at Port Nelson is being proceeded with. Two tracks have been laid at Pas, one from the roundhouse at Eighth St., and another from the Canadian Northern Ry., connecting with the bridge across the Saskatchewan River. It is reported that eight tracks are to be laid in the yards at once, in such a manner that six additional tracks may be added as required. We are officially advised that while track laying in the yards has been started, the complete details of the layout have not been worked out, and that it is expected to lay between six and eight miles of track in the yards during the summer. The work in progress at Port Nelson is of a more preliminary character. (June, pg. 264.)

Small Claims Against Government Railways.—The Dominion Parliament has repealed sections 3 and 4 of the Government Railway Small Claims Act, 1910, and replaced them by sections which provide that process shall not be issued in any suit against the Crown, but against the General Manager of Government Railways, and shall be served on him, or any person only authorized by him to accept such service. The General Manager shall be entitled by such description to appear, plead and defend, subject to the same rules of practice and procedure as any private person. The General Manager shall be entitled to set up and prosecute any setoff or counterclaim. If judgment is given in his favor, he may proceed to execution. In no case shall the General Manager be personally liable in respect of any proceedings under the act. The words "General Manager of Government Railways" are substituted for "Government Railways Managing Board," in sections 5, 6 and 8 of the act. A new section declares the General Manager to be the successor of the Managing Board, and as such to be entitled to receive the benefit of any actions already decided, and to carry on any actions now standing in the name of the Managing Board.

That the electrically controlled brake will be the means of solving many of the braking problems that are now being encountered, was the opinion expressed by H. H. Vaughan, Assistant to Vice President, C. P. R., at the annual convention of the Air Brake Association recently.