

foundland Government to build & run 7 steamers, one to ply direct between St. John's & Labrador, the others on the large bays, to connect with the railway at various points. By this coastwise steam service every fishing village & town will participate in the benefits of the railway, & all will be connected with St. John's.

Northern Pacific & Manitoba Ry. Co.—Notice is given of application to Dominion Parliament for an act to amend chap. 58 of 52 Victoria respecting the incorporation of the Co.; to extend the time for completing the lines & extensions authorized by that act, & by the acts therein recited & confirmed, with the right to construct the same in sections, & for other purposes.

Northern Pacific, Winnipeg Terminal.—This building which comprised the Manitoba Hotel, the station & the divisional offices of the railway, was totally destroyed by fire on the night of Feb. 7. The building was erected in 1891. The hotel portion, 7 stories high, had a frontage of 216 ft. on Main st., & 212 ft. on Water st., & had accommodation for over 300 guests. The divisional offices extended along Water st. south of the hotel & there was a large train shed in rear of the hotel. The building, furniture, etc., was valued at about \$600,000, & it is said the Co. did not carry any insurance. Guests lost effects valued at nearly \$100,000. Nothing definite can be learned of the intention of the Co. as to rebuilding the hotel. The station & offices are likely to be rebuilt on the old plan.

Ottawa and New York.—H. W. Gays has been appointed General Manager of this Co., & of the New York & Ottawa R.R. Co., with headquarters at Ottawa. Mr. Gays has left the General Managership of the Chicago, Peoria & St. Louis Ry., with headquarters at St. Louis, Mo., to accept the Ottawa position. C. B. Hibbard will confine himself to the duties of President in future, handing over the General Managership to Mr. Gays.

Portage la Prairie Westerly.—M. B. Jackson gives notice of application to Manitoba Legislature to incorporate a company to build a line from or near Portage la Prairie westerly north of the main line of the C.P.R. to the western boundary of Manitoba, with branch lines to or near Neepawa or Gladstone, & to or near Brandon or Carberry, & northwesterly or southwesterly to the western boundary of Manitoba.

Qu'Appelle, Long Lake & Saskatchewan net earnings for Dec., \$1,482.75, compared with \$2,094.37.

Quebec Central traffic receipts for Jan., \$27,129.61, compared with \$24,303.82 for Jan., 1898.

Richmond, Nicholasville, Irvine & Beattyville Ry.—The sale of this line to G. P. Magann, of Toronto, & others, on Oct. 6 last for \$160,000, has been set aside, Judge Barr's decision to that effect having been upheld by the U. S. Circuit Court of Appeals.

Rockland, Ont., to Prescott.—Press reports say J. S. Ross & others, of Winchester, are promoting a scheme for the construction of a line from Rockland, Ont., south about 42 miles via Winchester & Moorewood, to Prescott.

The Shedden Forwarding Co., Ltd.—R. Mackay, J. Beattie, H. Paton, D. Macmaster, Montreal, & C. MacKenzie, Toronto, have given notice of application under the Dominion Companies Act for incorporation under this title, with a capital of \$700,000.

Yukon Routes.—L. Coste, Chief Engineer, Dominion Public Works Department, who is now in Europe, was recently interviewed for the Canadian Gazette in London, which says: "Mr. Coste went out to the Yukon country last March by the Stikine-Teslin route. His mission was to inquire more particularly into

the navigability of the rivers which for some time yet must necessarily form the principal means of access to the Yukon owing to the non-construction of the railway from Stikine River to Teslin Lake. Mr. Coste does not, however, hold that the route he took is the best. 'The best available route,' he believes, 'is via Skagway & the White Pass to Lake Bennett, & thence by the Lewes & Yukon rivers to Dawson City.'

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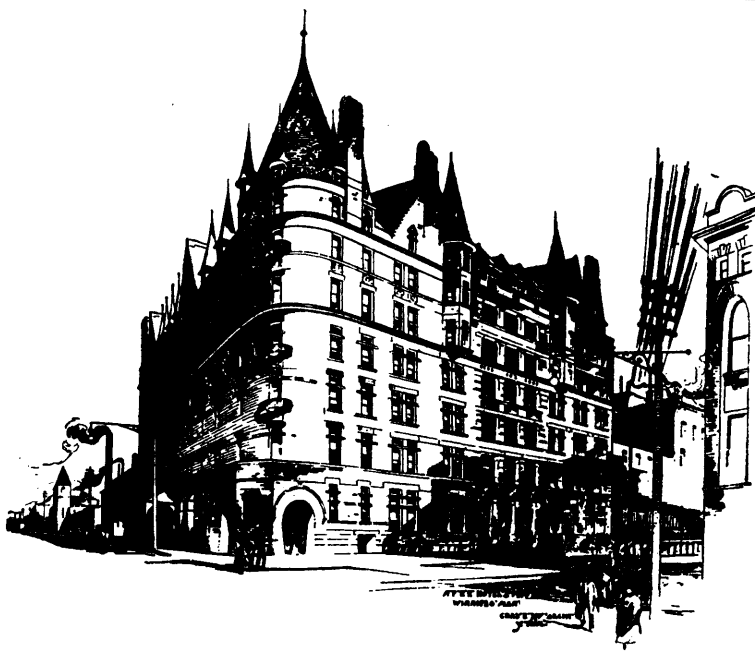
The Electric Lighting of Trains.

By Robert A. Ross, E. E.

Electric train-lighting is occupying the attention of the larger railway companies on this continent at present to a large extent, & in a number of cases has been adopted for the better class of train service. In Europe the development has been much more rapid & on many lines it has or is in process of displacing the oil & gas formerly in universal use. The reason for the change is not far to seek. The public demands the utmost luxury when traveling, & having been educated to the advantages of electric lighting at home is quick to appreciate the same advantages on the railways where at the present time it is counted a luxury, but will soon become a necessity. The public recognizes the fact that as the electric lamp is free from flame there is no risk of fire & no vitiated atmosphere to breathe & it has an illuminant & not a mere gloom disperser as with oil & gas. Its ready adaptability to being placed where wanted makes possible the use of reading lights in the seats & in other positions where any other form of illuminant would be impossible.

The railway companies are not slow to appreciate these advantages, but naturally wish to be assured that electrical illumination will not be more costly & less reliable than other methods. As regards the cost, from recent experiences of different companies it appears that it is at least as cheap as gas & more expensive than oil. That this inferiority in point of cost as compared with oil will not hinder its introduction is evident, for oil has superseded candles although more costly, & even if electric lighting were more expensive than gas its acknowledged superiority would render its use advisable. As regards reliability, which is certainly equally important with cost, the apparatus used in all systems of electric lighting is practically identical with that used for the illumination of buildings & should be as reliable in operation.

Storage batteries at the present time are thoroughly commercial, as are the dynamos & generating apparatus. In the case of axle driving some complication in the regulating apparatus may exist, & it is particularly at this point that a careful selection of apparatus is



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essential. The several systems in practical operation may be divided into two general classes, the first where each car on the system is independent & capable of taking care of itself, & the second where each car is dependent upon some method of charging located either upon the train or at certain points along the line. The first class necessitates the use of an axle-driven dynamo under each car with sufficient storage battery capacity to carry the lights over the periods when the train is not in motion or running too slowly to enable the dynamo to light the car. Generally speaking the operation of this equipment is as follows: When the train is at rest or running under 15 to 20 miles an hour the battery operates the lights, when the speed mentioned is reached the dynamo having attained the proper voltage is automatically connected to the lights & battery through the operation of a governor or electro magnetic mechanism, & the battery is charged & the lights operated from the dynamo. To regulate the voltage which would increase in proportion to the increase of speed of the train if not controlled, two general methods are adopted, either by keeping the speed of the dynamo constant or by regulating its field strength. The first is attained where the machine is belt-driven by allowing the belt to slip, the amount of slip being governed by some form of belt-tightening arrangement. This, while apparently unmechanical at first sight, works well in practice & has the merit of extreme simplicity. Where the dynamo is rigidly geared to the axle the system of the regulation of the field strength to vary in inverse proportion to the speed is adopted, which may be done either by an automatically controlled resistance in the shunt field, by changing the resistance of the magnetic circuit of the field magnet, or by a system of differential field winding. By the above system each car is a separate & self-contained unit & may be attached to any train on any line. Under the second class, where each car is not a separate unit but is dependent upon outside assistance, there are two general systems, the first where the car equipment consists of storage batteries alone, which are charged at suitable stations along the line, & second, where either an engine & dynamo unit driven by steam from the locomotive boiler or a separate boiler in the baggage car, or an axle driven unit for the entire train is located in the baggage car. Where the simple storage system is used each car is dependent upon obtaining charged batteries at regu-