

Australia—will be held in London, Eng., in the fall. Sir Wm. Mulock will represent Canada. The conference is for the purpose of adjusting certain differences, and an effort will be made to institute a more vigorous policy, so that the Pacific cable may become a more important factor in bringing Australia, Canada and England closer together in trade matters.

The wireless telegraph stations (Marconi system), equipped by the Department of Marine, are situated at Fame Point, Belle Isle, Que.; Heath Point, Anticosti Island; Point Amour, Labrador; Cape Ray, Cape Race, Newfoundland; and were in operation prior to the close of navigation in 1904. Since then a station has been equipped on Sable Island, off Nova Scotia. In the official test made of the stations it was ascertained that they had a range of from 115 to 130 miles, although in the case of the Heath Point station, vessels were held for some miles further. From all of these stations vessels are reported and news supplied. The Belle Isle and Port Amour stations have proved exceptionally valuable in communicating to steamers coming through the Straits of Belle Isle, news as to weather conditions prevailing in the straits. It has been decided to increase the power at the St. Lawrence stations so that the stations may communicate with one another. In order to complete the chain of stations from Fame Point to Belle Isle or Cape Ray, two other stations will be established at suitable points. Three of the Government steamers—Canada, Minto and Stanley—have been fitted with the Marconi apparatus.

High Tension Wires on Railway Right-of-Way.

By W. J. Camp, Electrical Engineer C.P.R. Telegraphs.

Installations are being made at various points throughout the continent for generating electrical power and transmitting it to a distance; the voltage on the transmission wires varying from 10,000 to 70,000 volts according to conditions. Applications have been made to the different railway companies for the privilege of carrying the transmission line along the railway right-of-way, and it is altogether likely that the number of these applications will increase. The main object of this paper is to bring the subject up for discussion, as I have very little data.

The C.P.R. Telegraph Department has generally opposed granting permission, for various reasons, such as danger to life and property, induction on telephone lines, etc. Up to the present the working of the C.P.R. telegraph wires has not been affected, although there are several power lines paralleling the line, for instance, in British Columbia, 20,000 volts from Nelson to the power house, 16 miles; from the power house to Rossland, 55 miles; two power wires parallel the railway for 20 miles, then diverge for some distance, when they again parallel for 15 miles. The distance from the telegraph wires varies from 30 to 200 ft. On other sections in Eastern Canada power lines are on the right-of-way, in one case for 10 miles, but on the opposite side of the track and telegraph line.

I am informed that the Great North-Western Telegraph Co. has suffered somewhat from induction on a line between Chambly and St. Lambert, 20 miles, and between Shawinigan and Montreal, 95 miles. In the latter case the power line is on the opposite side of the track from Shawinigan to Joliette, 50 miles; from Joliette to L'Epiphanie, 12 miles, it takes a different route; from L'Epiphanie to Charlemagne, 10 miles, it is close to the telegraph line. No ill effects were experienced on the telegraph wires until they were transferred to the present route from

Joliette to Montreal, a new piece of railway, but since then it has been found very difficult to keep properly adjusted on account of a continual hum from the power circuit. The voltage of the power circuit is about 50,000.

It may be well to introduce here the subject of foreign wires crossing the railway right-of-way. In Canada there is a Railway Commission consisting of three persons who are appointed by the Governor-General-in-Council. All matters concerning the construction and operation of railways must be brought before this Commission. The Railway Act, 1903, amends and consolidates the law respecting railways and includes the duties and scope of the Railway Commission. Section 194 reads as follows:—"No lines or wires for telegraphs, telephones, or the conveyance of light, heat, power or electricity, shall be erected, placed or maintained across the railway without leave of the Board. Upon any application for such leave, the applicant shall submit to the Board a plan and profile of the part of the railway proposed to be affected, showing the proposed location of such lines and wires and the works contemplated in connection therewith; and the Board may grant such application and may order by whom, how, when, and on what terms and conditions, and under what supervision, such work shall be executed; and upon such order being made such lines and wires may be erected, placed and maintained across the railway subject to and in accordance with such order." The usual procedure is for the company desiring to cross, to make application to the railway company, and after the two companies have reached an understanding, it is submitted to the Railway Commission.

We have tried various devices for protection from high tension wires crossing the right-of-way, generally using something in the form of a cradle. An article in the Electrical World, May 21, 1904, recommended the use of high poles and short span, so that if the high tension wire broke, neither end would be long enough to reach either the track or telegraph line. We have a crossing arranged on this principle in British Columbia. The power wires are 400 ft. above the track; parallel with the track on each side, a heavy iron rod is supported on poles and earthed. Generally this plan is impracticable. The article also mentions a wire screen over the telegraph wires, but no protection for the railway. Another article proposed a somewhat similar arrangement, but using iron pins and arms which are earthed; and also a grounded cradle device. The Transactions of the American Institute of Electrical Engineers for Sept., 1904, contain a committee report on high tension transmission, which includes a list of protection devices for crossing other wires, highways and railways. From the discussion of the report it appears that the system of using a screen under the power wires was the one most in use, but many objections were raised, although nothing better was suggested.

In conclusion, I would ask—Should high tension lines be kept off the railway right-of-way, and if so, why? Also, what is the best device for protection where high tension currents cross the railway, and should the same be used for telephone and other wires also?

Since writing the above I received the following advice from our Superintendent in British Columbia, referring to the line between Nelson and Rossland: "No appreciable induction, excepting when power wires partially grounded between stations, then quite bad, even when location of ground is two or three miles away and across the river." I also find that the Postal Co. experiences a similar effect in the neighborhood of Detroit.

The foregoing paper was read before the American Association of Railway Telegraph Superintendents at Chattanooga, Tenn., May 17th.

General Telephone Matters.

The Quebec Legislature has passed an act amending the charter of the Bellechasse Telephone Co.

The Bell Telephone Co. is extending its line to Quoyne, Que., and along the Gatineau to Wakefield, Que.

The Bell Telephone Co. has constructed a rural telephone line between Stratford and Sebringville, Ont.

The Portneuf Telephone Co. has been authorized to increase its capital from \$10,000 to \$49,500, by supplemental letters patent under the Quebec Companies' Act.

Brantford's city council telephone committee has recommended the granting of an exclusive franchise to the Bell Telephone Co. for three years at \$800 a year.

The Canadian Machine Telephone Co. expected to complete stringing its wires in Peterboro', Ont., by the end of May. It will have 400 instruments in connection when the plant is ready for operation.

The Bell Telephone Co. has made application to the Montreal city council for permission to open up three miles of streets for the extension of its conduit system. It is also laying conduits in Kingston, Ont., and is extending its conduit system in Toronto and London, Ont.

The Provincial Telephone Co. has been incorporated under the New Brunswick Companies' Act with a capital of \$9,000 and offices at Andover, N.B., to carry on a general telephone business in Victoria county. The provisional directors are: D. Fraser, Fredericton, N.B.; H. S. Giberson, J. F. Tweedale, H. W. Beveridge, Gordon, N.B.; J. Burgess, Grand Falls, N.B.; A. Straton, Andover, N.B.

The Campobello Island Telephone Co. has been incorporated under the New Brunswick Companies' Act, with a capital of \$2,000, and offices at Wilson's Beach, N.B., to construct telephone lines between Wilson's Beach and Welchpool, N.B. The incorporators are: W. E. Ludlow, A. Matthews, J. L. Savage, J. Brown, Jr., J. W. Matthews, M. Calder, W. Osborne, Wilson's Beach; J. M. Johnston, Welchpool, N.B.

The Burgessville Telephone Co. of Ontario has been incorporated under the Ontario Companies' Act, with a capital of \$40,000, and offices at Burgessville, Ont., to carry on a general telephone business within Oxford county. The incorporators are M. Emigh, J. G. Corless, North Norwich tp.; H. E. Service, H. Sneath, Burgessville; A. E. Wilson, E. F. Park, East Oxford tp.; W. T. Nutt, Dereham tp., all of Oxford county, Ont.

The commissioners of the Temiskaming and Northern Ontario Ry. have decided to construct a telephone line between North Bay and New Liskeard, Ont., for its own purposes, and also to serve local customers. It is probable that the proposed line will be used as a trunk line connecting the independent companies now being established at Haileybury and New Liskeard, and possibly will connect at North Bay with the Bell Telephone Co.

The Ontario Telephone Co. is the title of a company which is applying for a charter of incorporation at the current session of the Ontario Legislature. The applicants are N. Andrews, J. Muir, T. Elliott, R. Ryerson, W. S. Brewster, of Brantford; the proposed capital is \$200,000, and the offices are to be at Brantford, Ont. The company desires to carry on a general telephone business, and to make connections with the lines of any other telephone company.

The Nova Scotia Telephone Co. has resumed work on the construction of its trunk lines between Amherst and Springhill Jct. Of these lines, one will be for the through line to Halifax; one for the through line to Oxford,