

was good, but expensive to generate, steam being drawn from the locomotive boiler to work a turbine which in turn worked the dynamo which generated the current. This involved the attention of a special attendant.

Pintsch gas, in common with the electric axle light, is largely used in the States. The improved mantle now being manufactured will enable large economies to be made in the consumption of gas, with a much improved light. Arrangements have been made to give this system a trial in New Zealand at an early date.

I broke the journey to Montreal at Ottawa, and took the opportunity of calling on the Minister for Railways, and the Premier, Sir Wilfred Laurier. I arrived at Montreal on the 22nd April. This is the headquarters of the Canadian Pacific Railway, and I called on the chief officials, but unfortunately most of them were absent.

Went on to Quebec, where I inspected a large plant for dealing with coal imports, and electric railways and a large grain-elevator. It was too early in the season to see the grain-elevator in operation. Notices forbidding expectorating are posted on all railway-stations, in tram-cars, and public places. The penalties for expectorating are very heavy. Glass insulators are in general use on telegraph-lines. Mile-posts are fixed at a reasonable height where they can readily be seen by trainmen. The cattle and sheep yards which I saw were very primitive, and would not meet the views of the New Zealand cattle and sheep owner.

Returned to Montreal on the 26th April, when I again called on the chief officials of the Canadian Pacific Railway, but they were still absent from headquarters. I managed, however, to see the Chief Engineer and the Chief Passenger Manager, and obtained some information from them. The Canadian Pacific Railway comprises a system of some 7,000 or 8,000 miles of railway, and had an endowment of 26,000,000 acres of land to build their railway to Vancouver. The company are large shipowners, trading to China, Japan, and also to Great Britain.

Visited the workshops of the Canadian Pacific Railway Company, where 3,600 men were employed. In addition to the maintenance of rolling-stock, four locomotives are built each week, also eighty-four large box trucks and numerous carriages, &c. The workshops are new throughout, and they are fully equipped with the most modern tools and labour-saving devices. All machines are driven by electric power, generating plant being especially fine. The electric cranes in use are very numerous, and materials are handled at a minimum cost. The shops are also admirably arranged, all raw material passing continuously through the various shops. Rough, strong work with the essential parts well finished is the rule for locomotive and wagon work, and is all that is required. New Zealand should, I consider, work as far as possible on the same lines. One large shop was specially used for the manufacture of points and crossings, and I took a special interest in the methods employed. I did not, however, see anything better in the machinery equipment than ours. I spent a considerable time discussing the manufacture of points and crossings with the shop foreman, who was very courteous and anxious to impart, and possibly obtain, some information. I received much courtesy at the hands of Mr. Vaughan, the Superintendent of Motive Power, a position similar to Chief Mechanical Engineer in New Zealand, and also from his assistant, Mr. Johnston. With the former I discussed the relative advantages of the various types of compound locomotives. At present he is building simple engines only, and is converting his Vaulclain compounds, built by Baldwins, to simple engines. Mr. Vaughan is a firm believer in the use of superheated steam. He claims considerable economy in the use of fuel and water. I have arranged with the Chief Mechanical Engineer for a trial in New Zealand of the superheating system. Plenty of light and elbow-room were two distinctive features of the works. In my subsequent visits to numerous locomotive-workshops I frequently made comparisons between them and the Canadian Pacific Railway's Montreal shops, but in all cases I came to the conclusion that the latter must take the premier position.

In America many of the railway companies are cab and hansom proprietors, and well-appointed vehicles deal with all passenger traffic from many stations. The fares are reasonable, and they are paid to an official in charge of the vehicles at the stations. The drivers wear neat uniforms.

Arrived at New York on the 28th April. Had several trips on the elevated railway. The motive power is now electricity; originally it was steam. The railway is carried on an iron viaduct, in some cases down the centre of the street, and in others over the footpaths. The noise is very objectionable. The services are very numerous, and run continuously night and day. Passengers are well educated in the matter of joining and leaving trains rapidly. I timed stops as low as five seconds at stations. The carriages are comfortably seated, and heated by electric heaters. The pulling-up of trains was rough on several occasions when I travelled, due to the incompetent handling of the Westinghouse brake. The passengers took it all as a matter of course, and I heard no complaints.

Went over the great new suspension bridge, called the New East River Bridge. It is a splendid piece of work. Also saw the Brooklyn Bridge, the traffic over which is enormous, especially between 7 a.m. and 9.30 a.m., and 5 p.m. and 7 p.m. Accidents are very numerous, caused by the rush of passengers to obtain seats on the tramcars which work the traffic.

On Monday, the 1st May, the delegates to the International Congress (a large number of whom were assembled in New York), were taken for a tour of inspection by the entertainment committee at New York, representing the American section of the International Railway Congress. Our first visit was to the Grand Central Station of the New York Central and Hudson River Railroad. There are on an average 1,170 daily train-movements to and from this station, increasing in busy seasons to over 2,000. This company operates 3,512 miles of road, and controls 12,048 miles. Locomotives number 1,733, passenger-cars 2,167, and freight-cars 64,475. During the year 1904, 16,218,174 passengers were carried in and out of the terminal station, and 1,248,735 pieces of baggage were handled, of which number five valises and one trunk went astray. The accommodation for this large business being inadequate, and