

enterprise. Observed in its true perspective, it was characteristic of the expansion of a transcontinental system, aiming to have feeders from every part of the prairie country. President Mackenzie only learned at 11 o'clock one morning last summer that there was a chance for him to acquire the road. At four that afternoon the bargain was concluded.

There is talk of asking the Federal Government to operate the road; and the Railway Commission's officer proposed that the Grand Trunk and Canadian Pacific should lend engines and cars, mainly for the Regina to Prince Albert section. It is useless to go to the sick for healing. The C.P.R. itself had an exceptionally large proportion of rolling stock disabled during the winter, and now has all it can do to get immigrants into the promised land over roads affected by spring freshets.

The C.N.R. ought to have had better repairing shops, and should have built less and bought more, no doubt. But, things being as they are, even Mr. Mackenzie cannot produce engines and cars faster than they are made. He and his colleagues have an opportunity of seeing how rapidly a service can be revolutionized, especially as the construction of new lines this summer will be reduced to a minimum; and the authority recently given by Parliament to increase the bonded indebtedness of the road by \$5,000 per mile will do much to improve the roadbed and otherwise strengthen the service.

In any event, there would have been inconvenience on Western railroads this spring. The exceptionally cold winter was accompanied by exceptionally heavy snows, and every weak place in the track has been mercilessly exposed and made weaker as the weather has become warmer. There seems to be an epidemic of broken rails all over the continent. Trains have become heavier without everywhere corresponding increase in the weight of metal beneath them. The price of phenomenal growth is being paid.

While improvements are being made it is interesting to verify how much has been spent within recent years to improve Canadian railways. In 1906 the C.N.R. expended \$3,750,000 on rolling stock, and no more such work could be secured from Canadian workshops. One hundred and sixty-three engines were on the lines west of Port Arthur, and with 6,000 freight cars and a large number of passenger coaches they were able to handle the traffic.

For 1907 delivery the Company has placed orders for 120 new engines, 1,500 box cars, 200 stock cars, 200 dump-cars, 200 flat cars, 50 steel ore cars, 25 cabooses, 4 snowploughs, 20 refrigerator cars, 20 express and mail cars, and about 80 passenger coaches. This new equipment will cost in the neighborhood of \$5,550,000, and, with the exception of eight sleeping and dining cars, will be made in Canada.

In a letter to Ottawa regarding the car shortage in the West, Sir Thomas Shaughnessy gives some very interesting information regarding the C.P.R.'s outlay for property during the last five years. At the end of 1901 the Canadian Pacific had 732 locomotives and 22,473 freight cars. At the end of 1906 the Company had 1,204 locomotives and 37,467 freight cars, an increase in five years of 472 locomotives and 14,994 freight cars; and it must be remembered that this new equipment is of much greater capacity than the old. The value of rolling stock purchased during the five years ending in December 1906 was \$28,000,000, which amount, together with \$44,000,000 spent on line improvements and operation, make a total of \$72,000,000. This amount is exclusive of \$35,000,000 spent during the same years for new lines and the development of the steamship service. This means that over \$14,000,000 has been spent annually on improvements to the different lines, about two and a half times what the shareholders have received in dividends on their shares.

This is a vast amount of money to spend in five years, but much more would have been spent had it

been possible to get the work done. In fact, the Company has on order, for delivery within four months, rolling stock to the value of \$11,808,751, and it is expected that by next autumn this will all be in service.

BOUNTIES FOR ELECTRICAL SMELTING.

The Minister of Finance has introduced a resolution at Ottawa in which he states that it would be expedient to make provision for the payment of bounties on pig iron and steel manufactured by electrical processes. It may almost be taken as a certainty that this resolution will sooner or later be transmuted into law. There is nothing very special about the bounties which the resolution proposes, since they are only an application and extension of time on the iron and steel bounties as now paid. The resolution is as follows:—

That it is expedient to provide that the Governor-in-Council may authorize the payment out of the consolidated revenue fund of the following bounties on pig iron and steel ingots manufactured in Canada for consumption therein, when such pig iron and steel is the product of Canadian iron ores smelted in Canada by electricity—viz., on pig iron manufactured from Canadian ore by the process of electricity smelting during the calendar years: 1909, \$2.10 per ton; 1910, \$2.10 per ton; 1911, \$1.70 per ton; and 1912, 90 cents per ton. On steel ingots manufactured by electric process direct from Canadian ore, and on steel ingots manufactured by electric process from pig iron smelted in Canada by electricity from Canadian ore during the calendar years: 1909, \$1.65 per ton; 1910, \$1.65 per ton; 1911, \$1.05 per ton; and 1912, 60 cents per ton.

From this it will be seen that Mr. Fielding merely wishes to extend to manufacturers of iron and steel by the electrical process a period of four years' bounty assistance similar to that which owners of blast furnaces and steel works now get. The bounties to be paid for pig iron, as made at present from Canadian ore, is as follows: In 1907, \$2.10 per ton; 1908, \$2.10; 1909, \$1.70; 1910, 90 cents. When not less than 50 per cent of the weight of steel ingots is composed of pig iron made in Canada, the following bounties will be paid: In 1907, \$1.65 per ton; 1908, \$1.65; 1909, \$1.05; 1910, 60 cents. The same rates apply to iron and steel produced by the electrical process, the only difference being that the four-year period for the electrical products commences in 1909, whereas that for the present iron and steel products commenced in January last.

It has been practically demonstrated that the refractory ores of this country can be successfully treated by the electric process. It is believed that before very long there will be a number of electric smelting plants in operation. One is already under construction at Welland.

In this connection reference may be made to the experiments which were conducted during the early part of last year at Sault Ste. Marie under the supervision of the Dominion Government, a full account of which appeared in the Canadian Engineer. It was shown that the refractory ores of Canada, which it is impossible to reduce in the blast furnace, can be successfully treated in the Heroult electric furnace. It now only remains for Canadian capitalists to take up the question of electric smelting. The power and the ore are to be found in abundance. They await the enterprising man to turn them into commercial product. A plant using the Heroult process is now being installed in California. After what has been done in the way of experiment there need be no hesitancy in making use of the electric furnace.

EDITORIAL NOTES.

An English journal lays stress on the numerous opportunities that there are for electrical engineers and electrical men generally in Canada, thanks to our enormous water powers. If anyone must benefit from this great natural resource, young Canadians should have first place. In many places throughout the Dominion