

REPORT ON NEW ZEALAND RAILWAYS BY J. HENRY LOWE, CIVIL ENGINEER.

Order of Reference.—When the New Zealand railways were taken over by the Government from the Railway Commissioners a special Commission was appointed to report on their condition. In view of another contemplated change in the administration it is desired to obtain an opinion on the present condition of the railways, and particularly as compared with their condition when I retired from office as Chief Engineer about thirteen years ago.

Extent of Inspection.—It was understood that the time at my disposal would not admit of my seeing the whole of the lines, but I have inspected about 1,700 miles out of the approximate total of 2,859 miles, including the lines next mentioned, viz. :—

North Island: Main Trunk, Wellington to Auckland; Auckland North line; Frankton to Thames and Waihi; Morrinsville-Rotorua; Wellington-Manawatu; Palmerston North and New Plymouth; Palmerston North-Woodville and Napier; Woodville-Wairarapa and Wellington.

South Island: Lyttelton to Bluff; Invercargill to Kingston; Lumsden to Gore; Otago Central to Middelmarsh; Rolleston-Sheffield; Oxford to Rangiora; Rangiora to Addington.

The large proportion of the railways seen has so many features in common that I am assured it may be taken as a fair average of the whole.

The mileage opened for traffic has been increased from 2,084 miles in 1899 to 2,807 at date of last official return, to 31st March, 1912, and is further extended, approximately, to 2,859 miles at the present time.

Beginning with the most important item, the maintenance of the permanent-way, I have found the running-surface and alignment in excellent condition. It shows that great care has been given, and attention to details, with only a very few exceptions.

I consider the proportion of the mileage in uniformly excellent condition is greater than formerly; also a greater proportion of the mileage has a full complement of ballast. In respect of ballasting, there are nevertheless many miles that require more or less additional ballast. The deficiency at present existing, I understand, has been due to difficulty in obtaining engine-power enough to fully overtake the work.

Relaying of Rails.—The improvement noted in permanent-way is due in very large measure to the relaying of the lines with heavier rails. The main lines, formerly laid with 53 lb. and 56 lb. rails, have been replaced with 70 lb. steel rails to the extent of nearly 1,000 miles, and nearly 300 miles of branch lines have been relaid with rails of heavier type which had been removed from the main lines, and are still in such good condition that they will serve the lighter traffic of the branch lines for many years. Taken together this represents a practical renewal of rails over 1,300 miles of a considerably more substantial character than originally. The increased strength of rails over the whole of the lines may be easily apprehended by the following comparative table, showing proportion of weight of metals in the years under comparison :—

1899.				1912.			
Weight of Rail.		Miles.	Per Cent.	Weight of Rail.		Miles.	Per Cent.
30 lb. iron	64	3.0	30 lb.	All out	..	..	..
40 lb. and 45 lb. ..	563	27.0	40 lb. and 45 lb. ..	202	7.2	40 lb. and 45 lb. ..	7.2
52 lb. to 56 lb. ..	1,397	67.0	52 lb. to 56 lb. ..	1,588	56.6	52 lb. to 56 lb. ..	56.6
64 lb. and 70 lb. iron ..	56	3.0	65 lb. steel	26	1.5	65 lb. steel	1.5
70 lb. steel	4		70 lb. iron	16		70 lb. iron	
			70 lb. steel	973	34.7	70 lb. steel	34.7
			100 lb. steel	2		100 lb. steel	
Totals	2,084	100.0	Totals	2,807	100.0	Totals	100.0

Check-railing of sharp curves and guard-railing for bridges have been greatly extended, providing increased security against derailment and protection in case of derailment.

Sidings.—Another very noticeable addition is in the number and length of sidings at stations, particularly the lengthening of crossing loops, to meet the requirement of trains much longer than were formerly provided for. A very great number of additional sidings have also been laid down.

Junctions.—A great number of station-yards have been reconstructed and greatly extended, and at the same time improvements effected, particularly in the arrangement of junctions and approaches to large stations, providing for shunting clear of main lines, much of which was necessitated in arranging for interlocking of points with signals.

Sleepers.—New sleepers have been laid throughout the mileage relaid, and additional sleepers per rail-length put in to bring the lines up to an increased standard of support for the rails, besides extensive renewals of sleepers in tracks not yet relaid.

It is a satisfaction to note that the recommendation made in my last annual report (1899) as to the rate of renewal of rails and sleepers during the then ensuing ten years was very closely carried out. Relaying proposed—896 miles in ten years; actually relaid in same period—new, 768 miles, and second-hand, 161 miles. Sleeper renewals anticipated for six years, 1900 to 1906 inclusive, 2,264,000 sleepers; number laid in same years, 2,282,251.