

for the remodelling of these centres. I am dealing with the proposals in greater detail later in the report under the heading of "New works."

#### MAINTENANCE OF PERMANENT-WAY.

The permanent-way, bridges, and other structures connected therewith are in excellent condition, and give practical evidence of the care and attention bestowed on their upkeep. The cost of maintenance per mile of railway is high, but an inspection of the track has satisfied me that the money has been wisely spent.

#### BRIDGES.

The replacement of wooden bridges with iron and steel structures and rebuilding others in iron-bark timber has been beneficial, but before the best results can be obtained from the expenditure incurred it will be necessary to still further strengthen some of the bridges to enable them to carry the heaviest type of locomotive in use, so that the maximum tractive force available can be utilized.

An item of £50,000 has been included in the loan asked for, in order to accelerate the strengthening of bridges. The fact that several bridges on the North Island Main Trunk line require strengthening to carry an X locomotive with an axle-load of only 11½ tons illustrates clearly the limitations placed upon the New Zealand Locomotive Engineer in designing more powerful locomotives and upon the Traffic department in making up good train-loads. The maximum locomotive-axle load allowed in England, France, and Belgium is 17 tons, whilst in the United States it is 23 tons, and in consequence vastly more powerful engines can be employed. New bridges in New Zealand are now being constructed to bear an axle-load of 14 tons.

#### SIGNALLING AND INTERLOCKING.

The signalling and interlocking appliances that have already been installed are of the best-known type, and the work of erecting and installing has been well carried out. The system, however, now requires extension with greater expedition to comply with the requirements of safety in dealing with our expanding business. Interlocking should be installed and distant signals fixed at all crossing stations and junctions on the main lines. The signalling at switch-out stations requires remodelling, and in other respects considerable improvements are now desirable. It is not possible to carry out the necessary additional safeguards expeditiously out of the annual "Additions-to-open-lines" vote or out of revenue, and in the loan already referred to I am including an item of £250,000 for improvements in signalling and interlocking, which amount will be spent at the rate of £50,000 per annum over a period of five years.

#### LEVEL CROSSINGS.

The experiments that have been made with the level-crossing automatic alarm installed at Levin having proved satisfactory, material has been ordered for 300 machines, which it is proposed to install at busy crossings and at other crossings where the view of the railway-line is restricted. It will take three years to complete the installation, which it is proposed to undertake at the rate of 100 machines per annum. The expenditure involved will be approximately £22,500.

To give timely warning to drivers of road vehicles of the approach to railway-crossings an offer has been made to local bodies which control roads under which the Railway Department would provide and erect advance notice-boards some distance from railway-crossings, provided the local bodies would afterwards maintain the notices. Up to the present the majority of the local bodies have declined to fall in with the suggestion. This is unfortunate in view of the fact that the Railway Department cannot maintain notices or perform works outside the railway boundaries. It was proposed that the distant warning-boards referred to should be in addition to and not in substitution of the warning notice-boards already placed by the Railway Department at the crossings.

The advent of the motor-car and other forms of motor traction has materially increased the danger at level crossings owing to the high rate of speed road vehicles now attain. Distant warning notices are therefore desirable in the interests of the users of the road, and the road authorities should undertake some responsibility in connection with the maintenance of such notices. I purpose communicating further with them on the matter, which is of general public interest.

#### CONSTRUCTION OF NEW RAILWAYS.

The arrangements under which new railways are authorized and built in the Dominion are, I would respectfully suggest, capable of considerable improvement. At the present time a new line is undertaken without any consultation with the Railway Department, and in consequence the only official estimate available before the country is committed to additional expenditure is the Public Works Engineer's estimate of the cost of construction. The Department which will ultimately take over and work the new railway is not consulted as to the route, grades, and alignment, nor are the plans submitted to it before the new line is commenced. No estimate is obtained from the Railway Department as to the cost of building the additional rolling-stock required. No estimate is made of the annual cost in the shape of working-expenses, and no figures are prepared by the Railway Department as to the probable revenue from the proposed line, therefore no reliable calculation can be made as to whether the net revenue will represent a profit or a loss.