

ENGINE HEADLIGHTS.

During the year it was decided to equip the engines running the more important passenger-trains with electric headlights, the current being provided by a dynamo fixed on the engine and driven by a small steam turbine. A commencement was made during the year by equipping a number of engines used for working the Main Trunk express trains through the Ohakune district, and the lights were found to be very efficient, and a considerable improvement on the headlights previously in use, and are greatly appreciated by the enginemen. The lights have undoubtedly afforded a greater measure of security against accidents, and have already demonstrated their value in this direction. Practically the whole of the engines used on the express passenger-trains in the North Island have now been equipped, and the material is coming to hand which will enable the equipment of the engines in the South Island to be taken in hand immediately.

RAIL MOTORS.

The problem of economically working lines on which the traffic is sparse, either generally or at particular times, is one that has engaged the careful attention of transport authorities in all parts of the world for some considerable time. The solution which now seems to be more or less generally accepted is the provision of suitable rail motor-vehicles. There has, however, not yet been reached any general agreement as to the type most suitable for adoption, and various types have been favoured in different countries according to the conditions prevailing. Many of the types are scarcely yet beyond the experimental stage, and with a view, therefore, to determining the qualities of the various classes of vehicles and their suitability for working on New Zealand lines it was decided to carry out some experimental work in this country. With this end in view arrangements have been made to obtain coaches fitted respectively with a Leyland petrol-driven motor-engine, a Clayton steam-engine, and a Sentinel steam-engine. It was also decided to send an officer to Australia to study the conditions existing there and the progress that is being made in that country in connection with rail motor traction. The knowledge that will be gained by the observations of this officer and the Department's own experiments will enable the Department to decide upon the type, or types, of vehicle best suited to the working-conditions of this country, and it is hoped that the provision of a sufficient number of these vehicles will go far towards lightening the financial burden involved in working the traffic which cannot be made remunerative under the present system of working.

AUTOMATIC SIGNALLING.

The automatic signalling that has already been installed on various sections of the railway has worked very satisfactorily during the year, and has more than justified its installation. The number of failures has been practically negligible, and these have principally arisen out of circumstances inseparable from the commencement of working on a large scale of installations of this nature.

Especially on the line between Wellington (Lambton) and Upper Hutt the system has demonstrated its usefulness, as without it the traffic could not have been carried on with satisfaction either to the Department or to the public, and the rapid and efficient handling of the heavy trains necessary to cope with the race traffic between Wellington and Trentham would not have been possible.

On the Midland line also the system has demonstrated its usefulness by avoiding the necessity of stationing men at isolated points along the line in order to enable the sections of line between crossing-places to be made sufficiently short to permit of the proper working of the traffic between the east and west coasts, while the general reliability of the system has afforded a very great sense of security in the rough country through which the Midland Railway passes between Springfield and Otira.

The extension of the system is gradually being pursued, and the work is now in hand between Addington and Rolleston, and Auckland and Penrose. Ultimately it is proposed to extend it from Penrose southward to Marton Junction, and when this is done it will provide an additional factor making for security and economy in the working of the trains through the Main Trunk district.

HOUSING.

The operations of the Architectural Branch were developed during the year and received a considerable impetus by the commencement in July, 1923, of the cutting of material for houses at the specially equipped factory at Frankton Junction. This factory has been designed to enable the house materials to be cut to fit therein, and taken thence to the selected site complete and ready to be put together. This system makes both for economy and speed, and it is estimated that when working at full capacity the factory will be capable of producing approximately four hundred houses per annum.

During the year improvements were made to the house settlements at Frankton Junction, Kaiwarra, and Wadestown. At Maungaturoto roading-work has been done on the land reserved there for the housing settlement. Land for housing purposes has been acquired at the following places—namely, Whangarei, Helensville, Otahuhu, Papakura, Pukekohe, Mercer, Morrinsville, Matamata, Paeroa, Henderson, Maungaturoto, Te Awamutu, Hawera, and Stratford.

Additional drainage facilities have been provided to the houses erected by the Architectural Branch at Foxton, Frankton Junction, Taihape, and Lyttelton. At Otira refreshment and dining rooms, girls' hostel, men's quarters, and a storeroom were completed, and a contract has been let for the construction of similar facilities at Maungaturoto.

At the house-factory, Frankton Junction, various improvements were carried out which will have the effect of enabling the work to be done more expeditiously and economically.