

of tunnelling operations in the countries I visited overseas would indicate that this work can be carried out in from four to five years by utilizing the most modern methods of construction. Plans and specifications have been prepared for the letting of this work by contract.

There are a number of railway works which should be undertaken, but there is one—the Paeroa-Pokeno Railway—which has been started and which should be completed as soon as the necessary man-power is available. The completion of this link will cut down the rail distance from Auckland to the Bay of Plenty by forty-seven miles.

STATE PULP AND PAPER PROJECT, MURUPARA

The Ministry of Works is interested in the whole of this project, but in particular in regard to the building of the town, the construction of thirty-eight miles of railway-line from Edgecumbe to Murupara, and the provision of improved harbour facilities at Mount Maunganui. Recommendations are now before the Government with a view to importing the necessary plant and skilled workmen to permit of this important undertaking proceeding as quickly as possible. It is expected that considerable Maori labour will be available from this area and other districts, but, in addition, a number of other workmen—mostly tradesmen—will be required to complete the scheme within a reasonable time.

DEVELOPMENT OF THERMAL AREAS

In view of the limitations to development of hydro-electric power in the North Island, whilst abroad, on your instructions, I visited Lardarello, in Italy. The Government also sent the Government Geologist, Mr. Ongley, to Lardarello to report on the geological formation, on which the supply of steam is dependent. Shortly some 250,000 k.w of power will be continuously generated from the underground steam sources there and will be used principally for railway purposes and industrial development in Northern Italy. The geological structure at Lardarello is different from that which has already been proved at Rotorua, yet the size of our thermal areas in comparison is so vast that the Government Geologist has recommended that a full exploration of these should be immediately commenced. Apart from the main area in which Rotorua is located, there are possibilities of similar development in North Auckland also. This survey is now in hand.

AUCKLAND HARBOUR BRIDGE

In view of the Royal Commission's findings on the Auckland Harbour Bridge, you instructed me to get in touch with Sir Ralph Freeman, of Messrs. Freeman, Fox, and Partners, in London, with a view to this firm undertaking the design of this bridge. Arrangements have now been made to utilize the services of this firm. Sir Ralph Freeman was responsible, on behalf of the contractors, for the design and the supervision of the construction of the Sydney Harbour Bridge, and is recognized as a world-wide authority on major bridge construction.

The Government has sent Mr. R. H. Packwood, until recently District Commissioner of Works at Auckland, to England with site data and all information bearing on the design of this bridge. Mr. Packwood was a member of the Royal Commission. It is not considered that site investigations can be completed and the designs prepared within a period of three years, by which time it is hoped that the steel position will be considerably improved.