

North Island traffic during certain hours of the day. It will also enable the Department to give subscribers at Timaru, Oamaru, Dunedin, and the principal exchanges on the West Coast facilities for communicating throughout the twenty-four hours of the day with subscribers in the principal centres of the North Island, while Invercargill and Gore will be able to communicate with almost all the principal exchanges in the North Island between the hours of 10 p.m. and 7 a.m., and all day on Sundays.

It has already been decided to install several additional carrier-current telephone systems during the next financial year, with a view to effecting still further improvements in the long-distance telephone system of the Dominion.

CHECKING OF TELEPHONE TRANSMITTERS AND RECEIVERS.

A very important factor in telephone communication is the maintenance of the subscriber's telephone in a high state of speech efficiency. This subject has received considerable attention by telephone administrations abroad, and there has been established a Standardization Group for the preparation and supply of standard apparatus with which the corresponding components of subscriber's telephone apparatus may be compared.

Arrangements have been made for the Department to be admitted to the Standardization Group referred to. It is anticipated that this will be of material assistance in maintaining the quality and efficiency of telephone communication in New Zealand.

PROPOSED ESTABLISHMENT OF DOMINION BUREAU OF STANDARDS.

With the rapid development of the higher phases of radio frequency and telephonic transmission generally, the need for the formation of a body having the custody of national physical standards is becoming of increasing importance. The recent movement in this direction by the Department of Scientific and Industrial Research will be of material assistance to the Department, and will furnish a means whereby the delicate testing-instruments necessary for the proper functioning of the Department's telegraph and telephone apparatus can be periodically related to and checked against reliable physical standards.

DEPARTMENTAL LABORATORY.

Owing to the expansion of the Department's activities and the growing need for accurate investigations into developments in communication engineering, it was necessary to seek larger quarters for the Telegraph and Telephone Laboratory. Possession of the new quarters was taken on the 17th July, 1928. The work of the laboratory has been divided into three main sections—telegraph and telephone, field, and radio—each directed by a qualified Engineer acting in conjunction with the Engineer-in-Charge. In order to deal with the increased volume and scope of laboratory work, provision was made for considerable additions to the testing and experimental apparatus, and the staff was strengthened. Accommodation has been provided on the roof of the building for the weathering and testing of all items of line and cable plant which under working-conditions are subject to the effects of climatic exposure. Suitable radio telegraph and telephone apparatus has also been installed for the testing of radio equipment and for experimental work relating to the various phases of radio engineering undertaken or controlled by the Department.

In addition to the more routine work of preparing specifications for telegraph and telephone materials and of testing such materials before issuing for use, considerable investigation is undertaken which is of great value in increasing the efficiency of the engineering service generally.

Technical publications from all parts of the world bearing on the work of the Department are carefully scrutinized with a view to the application of new methods to New Zealand requirements.

In order to take full advantage of the rapid progress being made in the science and practice of radio telegraphy and telephony, it has been found necessary to extend the operations of the radio branch of the Department's service. With the removal of the laboratory to new premises, all radio-inspection activities carried out in the Wellington metropolitan area have been concentrated at the laboratory.

During the past twelve months the radio-inspection staff has done some valuable work in connection with the elimination of power interference in Wellington City and environs, a large number of cases being investigated. On each occasion the source of the trouble has been located, and with the co-operation of the power authority concerned an improvement duly effected. In this connection a van which has been fitted up with radio apparatus for the purpose of tracing and localizing sources of interference has been of great service.

The radio section has also been engaged in connection with the purchase of apparatus required by the various stations for the new short-wave channels referred to elsewhere. Design-work has also been carried out in connection with the supply of a low-power transmitting-set suitable for communication between the main radio stations in the island groups and outlying points in the groups.
