

to obtain reliable telephonic communication at all hours. The efficiency of the network of long-distance telephone communication in the South Island was further enhanced by the installation at Timaru of voice-frequency amplifiers. By means of this additional equipment, two high-grade telephone circuits have been made available between Christchurch and Wellington, which, together with the additional carrier equipment, has resulted in a marked improvement in the volume, clarity, and reliability of the long-distance conversations over the various circuits with which the equipment is connected.

A progressive improvement of the toll and telegraph wire systems has been aimed at throughout the year, and in those cases in which existing facilities could not be sufficiently augmented or improved capital works were undertaken with a view to erecting new circuits.

The development of the local telephone-exchange systems throughout the Dominion has not been so great as in some other years. The number of new connections installed was 12,779, which is nearly as many as were installed during the previous year, but, as the number of relinquishments of service was greater, the net increase in subscribers has fallen off to some extent. In view of the prejudicial effects likely to be felt from the general depression now existing, the developmental work in connection with local exchange systems has been curtailed to some extent.

At Wellington Radio a 165-ft. steel lattice mast has been erected. The higher mast and aerials have considerably improved the range of the medium-wave transmitters. A directional transmitting array of the horizontal doublet type, with reflector of similar design, has been erected for the New Zealand-Australian radio-telephone service, which was obtained by the addition of a 5 kw. modulating-unit to the existing 3 kw. short-wave continuous-wave transmitter. A second array has been provided for the Pacific islands radio-telegraph service, with a considerable improvement in reliability. The change of voltage in the Wellington City power-supply system necessitated the complete replacement of the electrical wiring and the substitution of all direct-current motors by alternating-current type. To minimize the risk of an entire interruption to the power-supply, provision has been made for the supply to be obtained over alternative routes and for emergency service to be given from a storage-battery source.

The earthquake and fire in Hawke's Bay on the 3rd February, 1931, were responsible for a considerable amount of damage to telephone and telegraph plant that was originally provided out of Telegraph Extension vote. Temporary arrangements were made to carry on the communication services, but the whole of the equipment destroyed will ultimately require to be replaced.

#### WORKS FOR DEFENCE DEPARTMENT.

The net capital expenditure for the year under "Contingent Defence" was £13,812, as against £46,766 for the previous year.

The restricted vote has meant that the expenditure and work carried out has been reduced to a minimum, and absolute immediate essentials only gone on with.

The mobilization bases and training-camps at Waikato, Trentham, and Burnham have been maintained in good order.

Various improvements to fortifications, drill-halls, and miscellaneous buildings throughout New Zealand have been carried out, and the buildings maintained.

Owing to the Mount Cook site being required for the War Museum and Art Gallery, the Ordnance Workshops have been removed to Trentham.

Central Command Headquarter buildings were burnt down, but in the interests of economy it was determined not to rebuild, but to transfer these Headquarters to Wellington.

The Gisborne Drill-hall was totally destroyed by fire, but, owing to the Defence Department's programme of training being in abeyance and the necessity to economize, no action is being taken to rebuild until such time as the requirements of the district have been determined.