

During the year increased traffic at the Auckland Central automatic exchange caused somewhat serious congestion in certain of the busier traffic groups, and resulted in delay in the time of connection of many subscribers. Consequent upon a study of the incidence of traffic throughout the whole exchange, it was found necessary to change many telephone numbers, including those of two hundred or more business subscribers. As a result, a more even distribution of traffic has been effected, with considerable improvement in the grade of service given to all subscribers to the exchange. The inconvenience experienced by those subscribers who had their numbers changed is compensated for by the improvement in their service. Similar reviews of traffic are constantly being undertaken at all automatic exchanges in the Dominion with a view to ensuring that the standard of service for which the equipment is designed is maintained at the highest possible level.

#### MAGNETO TELEPHONE EXCHANGES.

During the year up-to-date branching multiple switchboard equipment was installed at Morrinsville and Rangiora. The switching-equipment now installed at these exchanges should meet requirements for many years to come. In order to meet demands for service, increased switchboard accommodation was provided at the Kerikeri, Tauranga, and Ranfurly telephone exchanges, while the existing switchboards at a number of other exchanges were improved.

#### INTERCOMMUNICATING EXTENSION EQUIPMENT.

With the return to more prosperous times there has been a greatly increased demand from large business houses, hotels, and hospitals in automatic-telephone-exchange areas, principally Wellington, Auckland, and Christchurch, for private automatic branch exchanges, and to a lesser extent for private manual branch exchange switchboards of the central battery type. In a number of cases the demand for additional extension lines and/or exchange junction lines has necessitated replacing the existing private automatic branch exchange equipment by equipment of much larger capacity. Thirteen new private branch exchanges were installed during the year, and four existing installations were transferred for use elsewhere. Three private manual branch switchboards of the central battery type were also installed during the year, one in a central battery exchange area. Extensive additions have also been made to three private automatic branch exchanges, and minor additions to many others.

The class of internal intercommunicating telephone service known as the "Interphone" is also in heavy demand, there having been a substantial increase during the year in the number of new installations and in the number of additions to existing installations. The "Interphone" system, which is suitable for small and medium sized businesses, offers a number of advantages, one of which is that, in addition to meeting inter-house communication requirements, it enables calls to be made to and from the public telephone exchange which, of course, is not possible with privately-owned inter-house systems.

#### SUMMARY OF OPERATIONS.

The following is a brief summary of the more important operations during the year in regard to the development and maintenance of telephone-exchange systems in the Dominion:—

- The laying of 22 miles of underground cable ducts.
- The laying or erecting of 47 miles of lead-covered cable containing 11,156 miles of wire for subscribers' circuits.
- The erection of 192 miles of pole-line and 2,196 miles of open aerial wire for telephone-exchange subscribers' circuits.
- The installation of 70 public call offices and 7 pay stations.
- The installation of additional two-party-line equipment at Auckland Central, Wellington Central, and Dunedin Central, and the initial provision of similar equipment at the Onehunga, Takapuna, and Oamaru automatic telephone exchanges.
- The modification at a number of automatic exchanges of the end-line equipment of certain groups to provide "step-on" facilities for private automatic branch exchanges where more than one trunk is leased.
- The provision of motor-generator sets with automatic charging control at P.A.B.X. stations at Auckland.
- The installation of a stand-by engine-generator set at Wanganui automatic telephone exchange.
- The installation of timing-devices in a large number of public call offices.
- The installation of branching multiple switchboard equipment at Morrinsville and Rangiora, and the removal of the latter exchange to the new building.
- The installation of increased switchboard accommodation at Kerikeri, Tauranga, and Ranfurly telephone exchanges.
- The replacement of the telephone exchange battery at Greymouth.
- The reconstruction or partial reconstruction of open aerial systems at forty-nine exchanges.
- The replacement of marline hangers for aerial telephone cable with galvanized steel cable rings at a number of exchanges.

#### INTRODUCTION OF CADMIUM COPPER LINE WIRES.

Up to the present time the line wires used on the Department's pole-lines have been mainly of either copper or bronze. Copper wire possesses a higher electrical conductivity, but has not such a high tensile strength as bronze wire. On account of its high tensile strength bronze wire has been employed in circuits where a light wire can be used—*e.g.*, subscribers' lines—and as there are some 109,000 miles of subscribers' open aerial wire in the Dominion it will be obvious that a very large quantity of bronze wire is in use.