

Tokarahi and Duntroon; the laying of a submarine cable between Maraetai and Awaroa; the installation of direct-dialling circuits between Wellington and Blenheim, Wellington and Masterton, Paekakariki and Wellington, and Palmerston North and Dannevirke, and the improvement and extension generally of toll facilities; the installation of a universal-battery system in Palmerston North Telegraph-office; the opening of new exchanges at Wellsford, Towai, Waimamaku, Mangapai, Kirikopuni, and Tokanui; the installation in thirty-seven exchanges of additional switching equipment for 3,940 exclusive lines and 200 party lines; the establishment of sixty-six new public call offices (coin-in-the-slot telephones); the laying of 2,772 chains of underground telephone-ducts and 10,160 chains of underground cable; the erection of 5,260 chains of overhead cable; the erection of 850 miles of pole-line and 8,270 miles of open wire; and the connection of 12,119 new subscribers' stations.

Some idea of the extensive network of lines interconnecting the various exchanges and telegraph-offices throughout the Dominion may be gauged from the fact that on the 31st March last there were approximately 380,000 poles in use, carrying over 62,602 miles of open wire. In addition, approximately 400,000 poles and over 495,000 miles of wire of all classes were in existence in telephone-exchange subscribers' lines.

Notwithstanding the many important extensions that have been made to the system of electrical communications during the last few years, the necessity for additional facilities, particularly in the matter of telephone-lines, is just as real and just as urgent to-day as it was ten years ago. This condition is not peculiar to New Zealand—it is world-wide. In all the foremost telephone countries the difficulty is not to obtain the traffic, but to keep pace with it in the matter of providing additional circuits. Telephone service is now so intimately connected with the business and social life of the community that no sooner is telephone communication provided between cities and towns widely separated (and not previously interconnected) than there is a demand for additional circuits to relieve the traffic congestion. A striking example in that respect is the inter-Island telephone service. Two years ago telephonic communication between Wellington and Christchurch was impossible. To-day, as a result of providing an efficient means of communication between the two cities, it is necessary to double the capacity of the South Island land-line section of the Wellington-Christchurch circuit in order to relieve the congestion of traffic.

In the matter of extending and improving the long-distance telephone facilities throughout the Dominion the most important development during the year was the introduction of the system known as carrier-current telephony. The carrier-current system consists briefly in the application of radio-frequency methods to existing telephone circuits, thus enabling additional telephone speech channels to be obtained without increasing the existing wires. The new process is in reality a system of wireless communication in which the electro-magnetic waves, instead of being broadcast, are directed along the metallic conductors of the wires already erected without interfering with the purposes for which such wires were originally designed. The most important feature of the new system from the practical point of view is the large saving it effects in installation and line-maintenance costs. In addition, the system provides an excellent speaking-circuit, and as compared with the well-known metallic wire circuit it gives louder speech and is less subject to the interfering noises caused by power lines and similar disturbing influences. The initial installation in New Zealand of carrier-current equipment comprises three single-channel systems for use between Auckland and Hamilton; a three-channel system for use between Hamilton and Palmerston North, which will provide a single channel between Hamilton and Palmerston North and two channels between Wellington and Auckland; and a single-channel system to supplement the South Island land-line section of the Wellington-Christchurch telephone circuit. At the present time two channels of the Auckland-Hamilton system are in operation, and it is hoped to have the other systems working at an early date. When the three systems mentioned are in use, and the equipment is properly tuned in, high-grade and efficient telephone speech channels will be available at any hour of the day or night between Auckland and Dunedin, and between the principal centres within