Until quite recently the Gisborne district has been more or less isolated telephonically from the principal cities of the Dominion. Conversation between those centres and Gisborne has in the past been possible only with great difficulty. The opening of the Wellington–Napier carrier system was the first important step in the direction of improving the toll service to the East Coast district. This was followed by the establishment of two carrier systems between Napier and Gisborne and one direct carrier circuit between Auckland and Napier. These additional facilities have effected a great improvement in the service in so far as it affects Napier, Gisborne, and other towns on the East Coast between Napier and the East Cape.

The carrier systems which have been established between Wellington and New Plymouth and between Wanganui and New Plymouth have effected a marked improvement in the quality of the service so far as the Taranaki District is concerned, particularly in regard to communication with districts south and east of New Plymouth. In the past all calls from New Plymouth to stations south of Hawera had to be switched through Hawera. The provision of the new direct outlets to Wanganui and Wellington respectively will therefore result in a great improvement in the speed of the service as well as in the quality and volume of transmitted speech.

It became evident soon after the Cook Strait four-core continuously-loaded telephone cable was brought into commission in 1926 that it would be necessary to provide additional circuits to carry the steadily increasing volume of inter-island traffic. The original allocation of cable circuits provided for one direct outlet between Wellington and Christchurch, but for some time past it has been necessary to afford relief by utilizing a circuit which involved intermediate switching at Blenheim. The matter of providing a second direct trunk circuit between Wellington and Christchurch without incurring further heavy expenditure in the laying of a second submarine telephone cable presented technical difficulties of some magnitude, as the only other cables across Cook Strait are of the single-core type, a type not designed for telephone purposes. After extensive investigations and tests, it was found that several of these single-core cables would lend themselves to the application of carrier-current methods, and that it would be practicable to establish one high-grade telephone circuit over each and still retain certain existing telegraph facilities. As a result, an additional telephone circuit has been provided between Wellington and Blenheim which is a modification of the standard single-channel system used in the Dominion. It utilizes carrier frequencies for the transmission of speech in one direction while voice frequencies are used for transmission in the other. The modified system is operating over No. 5 Cook Strait single-core unloaded telegraph cable which terminates at Lyall Bay (Wellington) and White Bay (Marlborough) respectively, the circuit from the latter point being continued by means of open aerial line to Blenheim. It is interesting to note that this cable is telephonically equivalent to 900 miles of open aerial trunk-line of the type used for long toll circuits throughout the Dominion—viz., lines built up of conductors of No. 12 copper wire. By the use of amplifying and equalizing equipment at Wellington and Blenheim the circuit has been made equal in efficiency to toll lines of fifty miles in length. The design of a circuit by the means indicated enabled an additional outlet to be provided for inter-island telephone traffic at a comparatively small cost. By utilizing this outlet for the Wellington–Blenheim traffic the four-wire single-channel carrier system operating over the four-core continuously-loaded submarine cable between Wellington and Seddon became available for use in building up a second direct trunk circuit between Wellington and Christchurch. This circuit was completed by the installation of an additional single-channel carrier system between Seddon and Christchurch, the two systems being permanently linked together on the four-wire principle at Seddon.

The efficiency and reliability of long-distance communications to and from Dunedin, Invercargill, and the West Coast of the South Island have been considerably increased by the installation of the Christchurch–Greymouth and Dunedin–Invercargill carrier systems and by the installation of voice-frequency repeaters at Timaru and Christchurch respectively. The voice-frequency repeaters at Timaru are used to amplify the speech in the two Christchurch–Dunedin trunk circuits while the single voice-frequency repeater at Christchurch is associated with the Christchurch–Greymouth physical circuit, so that it will approximate in efficiency to the high-grade carrier circuit which has been superimposed over it. The provision of one additional circuit between Christchurch and Greymouth, one between Christchurch and Dunedin, and one between Dunedin and Invercargill has effected a further improvement by speeding up the service in these districts.

The terminal apparatus associated with six carrier telephone systems was completely destroyed by fire at Napier as a result of the recent earthquake. There was not sufficient equipment available in the Dominion to enable the Department to restore all of the circuits affected, and some re-adjustment of facilities had to be made so that the necessary equipment could be provided to meet immediate requirements in respect of the toll circuits terminating at Napier. This was arranged by closing down indefinitely one of the single-channel carrier systems between Napier and Gisborne and one between Napier and Palmerston North. The Gisborne and Palmerston North terminals of these two systems were transferred to Napier, and by supplementing these with other equipment from Wellington it was found practicable to restore all toll services, with the exception of the two carrier channels referred to above.

EXTENSION OF TOLL AND TELEGRAPH FACILITIES.

A progressive improvement of toll and telegraph systems has been aimed at throughout the year. Where necessary, reconstruction work has been carried out for the purpose of improving the stability of pole lines and increasing their carrying-capacity. Rearrangement of circuits has also been effected with a view to increasing their earning-power and decreasing the cost of maintenance. In those