Fire Precautions.

A topic of common interest was the means adopted for minimizing fire risks in connection with telegraph and telephone equipment. This subject is of more than usual importance to a country situated so remote from the great manufactories of the world. We have so far been singularly fortunate in the avoidance of serious dislocation of telegraph and telephone traffic by reason of fire losses. The latest and most approved precautions that are being adopted by other interested parties have come under review, and useful information obtained. In this minor subject, as on matters of major importance, the resources and experimental work of both Government and private telephone administrations have been made freely available to me.

Auxiliary Telephone Apparatus: P.B.X. and Interphone; Telephone Pay Stations.

The apparatus with which the subscriber is most familiar is the telephone, which is the essential unit of a telephone substation installation. With the growing complexity of modern business methods there have arisen from time to time demands for auxiliary apparatus which will give intercommunication between the various units of a business concern, and, in addition, enable communication to be obtained with the central exchange system. I find that in the matter of studying the interests of subscribers and of furnishing apparatus auxiliary to the telephone for meeting the various needs of business intercommunication New Zealand has little to learn from other countries, and, in fact, has in some respects gone much further than the older countries of the world.

There are few countries where—as is the case in New Zealand—private automatic exchanges are installed by the Telephone Department, capable of giving full automatic intercommunication between the different units of a commercial concern, and at the same time of providing full automatic communication to or from any internal extension to any subscriber connected with the central exchange system. In most cases it is imperative to employ an attendant in the commercial house to attend both to incoming and outgoing calls.

Another innovation in New Zealand has been the introduction, as a component part of the public system, of intercommunication key-boxes—commonly called "interphone sets." These provide intercommunication service by a simple process for systems up to about twenty internal lines, and also give service to the central exchange from any point. In New Zealand these interphone sets are installed by the Department where required. They are furnished with special facilities to enable the user to hold a call from the central exchange while obtaining over the interphone set information from a local source necessary to the completion of the business being discussed with the outside client. The use of an attendant is by this process limited to calls incoming from the central exchange system. Unlike the automatic private-exchange system just referred to, the interphone system does not give absolute secrecy, but apart from this feature it is a long way in advance of many of the methods being adopted by up-to-date administrations coming under my notice elsewhere. The question of furnishing secrecy for this equipment has not been lost sight of in my investigations. There are several methods whereby this additional feature could be provided, but few of them could be introduced without undesirable complications or weaknesses. The matter is, however, receiving further attention, so that the wishes of a section of our subscribers in this respect may be met if at all practicable.

The New Zealand automatic pay-station telephone (familiarly referred to as a "slot telephone"), mechanically designed by the late departmental Designing Engineer, Mr. F. Palmer, was, of its kind, as ingenious and reliable a piece of mechanism as came under my observation. By its use a full automatic pay-station service at a uniform charge of 1d. is given over the whole base-rate area of our automatic networks, and manual operating-expenses are non-existent.

Toll Operating Methods.

To some extent the connection of local toll lines to subscribers' circuits is giving place to automatic operation and registration, and within certain well-defined limits will no doubt still further reduce the manual element in telephone switching practice.

Some time was spent in observing the working of large toll offices upon which hundreds of toll lines are concentrated, and which form the long-distance "clearing-houses" for countries with a large toll network and toll-using public. In this connection I was enabled to investigate in some detail the methods of handling toll service both in the United Kingdom and the United States of America. In both countries the practice has reached a high state of development.

In the latter I found that extensive improvements in toll operating methods had recently been introduced, with results that had to some extent exceeded expectations. As in New Zealand, it had been the custom to pass all requests for toll service through a "recording operator," after which the subscriber was dismissed until such time as the toll service could be made available. At this stage an effort was made to recall him—not always with the most satisfying results. This method is being rapidly replaced by a "combined line and recording" system, whereby the subscriber gains primary contact with a toll switching operator who endeavours to give immediate service, and, failing this, in a large percentage of cases effects the connection within a few minutes, during which the subscriber "holds the line" and is ready immediately to respond when the distant station is raised. Such methods are naturally most easily and efficiently executed where the traffic justifies a group rather than a single or limited number of circuits between toll centres. They are, however, capable of assimilation into New Zealand practice at certain points, and will become more easy of application with the growth of toll traffic, and consequently toll channels, between any two centres. This change of practice has had a marked effect on the appreciation of and increased use by the public of toll facilities. The more rapid method of giving service, and the elimination of the previously irritating and disconcerting delays, have resulted in such an unexpected increase in the demand for toll calls that the system is being extended as quickly as circumstances permit. It is a remarkable testimony to the efficiency of the United States toll system that within approximately five minutes—and in many cases in a much shorter time—toll service to toll centres can be expected over a network extending from east to west over three thousand miles and embracing all States of the Union.