

LONDON AUTOMATIC EXCHANGE NETWORK.

During my stay in London I was able to view the installation of automatic apparatus to provide for the London metropolitan network. The system adopted for London is the step-by-step system, and to adapt it to the needs of such an extensive network auxiliary apparatus known as the director system has been developed. The problem of interconnecting a number of large exchanges is a difficult one, which has been met in England and America along different lines. In the United States, as already indicated, considerable use is being made of the panel system, which has been specially designed to handle large volumes of traffic between the different branch exchanges in the network. London will be the first city of such magnitude to obtain the same results by means of the director system and the employment of step-by-step apparatus. The director apparatus, in response to the dialling of the wanted number by the subscriber, substitutes a new series of electrical impulses designed to direct the call over appropriate connecting-links to the branch exchange in which the wanted subscriber is located. Since my return to New Zealand, cable advice has been received that Holborn Automatic Exchange has been brought into operation, which means that the first important step has been taken in the conversion of the London telephone system to modern automatic methods. It may be of interest to New Zealand automatic-exchange subscribers to know that in London and all cities of similar size seven figures must be dialled, instead of five as in our principal New Zealand centres.

Neither the director system used for London nor the panel system being used in New York and other large cities of the United States is of direct interest to New Zealand, which does not possess the large concentrations of population which exist in the older lands, and which form the most appropriate field for systems of this nature. These systems do, however, possess certain features which may ultimately prove useful in this country, and these have been noted.

AUTOMATIC EXCHANGES VISITED AND COMPARED.

Every opportunity was taken to visit exchange installations, both automatic and manual, and to compare notes with those responsible for their operation and maintenance. In this way one was able to compare the installation and operation features and maintenance costs with New Zealand results. Much useful information has been collected in this way, which, along with other matters incidentally referred to in this report, will be made the subject of special treatment for those officers who are responsible for the various phases of these systems in New Zealand. Automatic and manual switching exchanges of all kinds were inspected in England, Belgium, Holland, Canada, and the United States. On the whole, it can safely be said that in many cases the New Zealand automatic installations compare more than favourably with those seen in other countries, and it can confidently be predicted that the methods employed in installation and the care given to details by our engineers and mechanics will reflect themselves in efficient operation, reliable service to the public, and comparatively low cost of maintenance.

CUTOVER PROCEDURE.

In changing over from manual to automatic telephone-exchange operation a great deal of preliminary work has to be done on both the outside and inside plant in order to facilitate a speedy and accurate change from one system to the other. It has been of value to study the methods adopted in other countries and to compare them with our own. It has been interesting to note that in certain important features the methods adopted by our Engineers in relation to these major operations have possessed many ingenious features. Not only have they contributed towards highly satisfactory results, but, in addition, this complicated feature of the transition has been executed at a minimum of cost.

APPLICATION OF AUTOMATIC-SWITCHING METHODS TO THE SMALLER TELEPHONE COMMUNITIES.

As already indicated, the larger New Zealand centres are well provided for in the matter of machine-switching telephone systems. From the automatic standpoint the outstanding telephone engineering problem in New Zealand, as in other countries visited, is to render available to the smaller communities the undoubted benefits of automatic methods. These advantages are well recognized, and are along the lines of uniformly quick and reliable service at all hours of the day or night, irrespective of holidays and other similar conditions; secrecy of conversation; quick disconnection and reconnection to another subscriber, and general high grade of service. These advantages are more fully appreciated at small exchanges where it is not economical to provide a high grade of manual service during twenty-four hours of the day.

There are already installed in small exchanges in New Zealand, consisting of only a few hundred lines, automatic switching-apparatus meeting all the above conditions, including the automatic operation of ten-party rural lines, but the difficulty has been to "prove in" this system on economic grounds. This difficulty is not peculiar to New Zealand, and was discussed frankly with me by manufacturers of such equipment, who were very pleased to be able to obtain first-hand information as to the conditions obtaining in New Zealand and the modifications considered desirable to enable automatic switching to fulfil the requirements of such situations. Certain manufacturers had already seriously addressed themselves to this problem, and a good deal of developmental work had already been done. By discussing the matter at this stage manufacturers were able to gain a clearer idea of the conditions which we desire to meet in our rural communities, and, on the other hand, I was able to obtain first-hand information as to the extent to which these demands could be met at the present stage of the art. New Zealand is in certain respects ideally situated for the extension of automatic switching into its country districts by reason of the fact that a number of strategic centres