

AUTOMATIC-TELEPHONE-EXCHANGE INSTALLATIONS.

The automatic switching-system in operation and in the course of installation at various exchanges in New Zealand is mostly of the Western Electric rotary type, and is similar to a number of automatic installations in successful operation in England, France, Belgium, and Scandinavia. It also resembles in all essential features and in its fundamental circuits the automatic system of the Western Electric Company, designed to replace the C.B. manual systems in operation in New York and Chicago and other large American centres.

Most of the equipment now being installed was ordered in 1914, and but for the war and its attendant disorganization of production and finance the exchanges at the four centres, now overloaded and working with mixed systems (manual and automatic), would have already been converted to the full automatic system.

During the year the Department has been faced with a serious problem to meet the ever-increasing demand for telephone connections—particularly at the four centres, where the existing manual apparatus is obsolete—and it has only been by the constant improvising of auxiliary apparatus, both manual and automatic, that additional accommodation has been provided from time to time and that the present standard of telephone service has been maintained.

Auckland Metropolitan Area.

The system of automatic telephones for the Auckland City area provides for exchanges at the following points: Wellesley Street (main), Mount Eden, Remuera, Ponsonby, and Devonport, with satellite exchanges at Takapuna and Onehunga: the seven exchanges to be in full automatic intercommunication. The equipment for these installations, comprising 6,900 exclusive lines and 400 party lines, with an ultimate capacity of 35,000 lines and a possibility of subsequent conversion to a 100,000-line system, was ordered in 1914, but owing to the reasons given above it was only during the last twelve months that the installations could be brought within measurable distance of completion. So much time has elapsed between the placing of the order and the delivery of the apparatus that the equipment originally ordered for Auckland is inadequate to meet the growing requirements of the Auckland area, and has had to be supplemented by extensions aggregating 5,600 straight lines.

With the manual system obsolete and incapable of extension, and the Western Electric equipment unprocurable, small installations of another automatic system, which was procurable during the war period, were obtained and installed to meet the unprecedented demands for telephone service; 1,900 lines of this apparatus are in operation at Fort Street and 600 lines at Remuera, while 500 lines will shortly be brought into operation at Mount Eden. The exigencies of the situation therefore necessitated the adoption of a mixed system (partly manual and partly automatic) to cover the transition period up to the time when full automatic equipment could be made available throughout the whole area. In all such systems there must inevitably be a small proportion of mutilated calls, due mainly to the inherent functioning of such a combination of apparatus. There was also the additional difficulty that the outside line plant was not in a proper condition for automatic operation. The inadequacy of the outside equipment is due to war conditions also, telephone-cables being at first unobtainable, and then available only at prohibitive prices. With a return to more normal conditions the materials are now coming to hand regularly, and the work is being prosecuted with all possible despatch. It is certain, however, that at least twelve months' active work remains to be done before the outside plant will be ready for full automatic service.

Two submarine trunk cables to connect the proposed Devonport and Takapuna automatic exchanges were recently laid between Point Resolution and Devonport, reducing the existing trunk circuit distance by eight miles and a half.

The automatic switching-apparatus for the whole of the Auckland area is now coming to hand freely, and the work of converting the existing system to machine switching is well under way. The cut-over to full automatic cannot take place, however, until the outside plant is rehabilitated in accordance with the Department's original designs.

Wellington Metropolitan Area.

The Wellington area will ultimately be a multi-office one, with exchanges at Stout Street (main), Courtenay Place, Wellington South, Kelburn, and Khandallah, all in automatic intercommunication. The equipment already installed and under order for the foregoing exchanges comprises 13,600 exclusive and 400 party lines, with accommodation for an additional 21,400 lines and the possibility of subsequent conversion to a 100,000-line system.

At the present time Wellington is partly manual and partly Western Electric automatic, the auxiliary automatic apparatus in use prior to the opening of Courtenay Place and Wellington South having been transferred to Auckland for a similar purpose at that place.

In August of the past year Kelburn exchange was cut into service with 50 lines, and by the end of the year 350 lines were in use, with the completion of a further 300 now in sight. In addition to the equipment originally ordered, extensions of 2,400 lines and 700 lines have been installed or ordered for Courtenay Place and Wellington South respectively, while the original Stout Street equipment not yet installed is being supplemented by a 4,900-line extension. The installation of the Khandallah exchange, of 100 party lines, is well under way, and should soon be ready to cut into service.

A large building has still to be erected in Stout Street for the "main" automatic exchange, and a commencement of this work has been made. Until this building is ready and the central-exchange automatic equipment installed therein the Wellington metropolitan area cannot be converted to full automatic operation and adequate provision made for the growth in telephone subscribers that is steadily taking place.