

Although much has been accomplished in New Zealand in the introduction of automatic telephone exchanges and the like, we are still in the chrysalis stage of long-distance-telephone development, and in many instances the quality of telephone service given falls considerably short of that maintained in the leading telephone countries of the world.

The full development of our toll facilities in New Zealand itself is not a simple economic problem. We are faced with the provision of telephone service between points which are not only remote but sparsely populated. Such problems can be met only by considering the communication system as a whole and by a judicious expenditure upon development.

Upon the careful studies of future expansion now being planned and the policy adopted in relation thereto will depend in a large measure the position of New Zealand in relation to the forward movements that are clearly discernible, and the quality and range of telephonic communication that will ultimately be possible. A short-sighted policy at this stage would throw back the advance of the art in this country, and seriously prejudice the sound development of what has now become a world-wide necessity.

TELEGRAPHS.

MACHINE PRINTING (GENERAL).

The telegraph, like the telephone, is becoming more and more an automatic process. This is more nearly the case in large centres of population having relatively greater traffic densities than in New Zealand. Telegraph circuits having a low load-factor are still operated manually, and in general by that portion of the staff most advanced in years and not possessing the adaptability and dexterity necessary for the newer telegraph systems.

MULTIPLEX.

For some time machine-printing telegraphs were more appropriate in their application to heavily loaded circuits. At that stage of the evolution of the telegraph recourse was had to multiplex systems whereby a single circuit could be made to carry a greater number of messages simultaneously than was possible by manual methods. The multiplex system is still in considerable use, particularly in situations of the kind described, and is still to a certain extent augmented on press and similar circuits by what is known as "high-speed automatic telegraphy."

A multiplex machine-printing system has been in use in New Zealand for some years, forming a backbone to the telegraph system of this country, and utilized on the heavily-loaded circuits between Auckland and Invercargill, with extensions to most of the principal towns in the Dominion. By comparison with the performance of multiplex circuits elsewhere, it was pleasing to find that a high degree of accuracy was being obtained in New Zealand both in regard to the operation and the maintenance of the apparatus. Certain improvements have been made by our engineers and mechanics which called forth considerable commendation. Various systems of multiplex are in operation. These were duly inspected, and full information obtained in relation thereto, with a view to possible improvements in our over-all efficiency.

SIMPLEX OR TELETYPE.

Automatic telegraph methods are, however, no longer confined to the busiest circuits, as their use has been extended to less important lines by the employment of the teletype or simplex system. This is a development from and a simplification of multiplex, and is designed to operate on circuits of comparatively minor importance where multiplex methods could not be justified. Considerable attention has, during the last few years, been devoted towards perfecting its mechanism, with very satisfactory results. The system possesses many advantages, both technical and economic, over manual telegraphy, and, on account of the robustness of the latest apparatus, can now be introduced into situations where, by reason of its greater dependence on skilled attention, the multiplex could not be utilized. Notably in the United States of America the simplex system has been introduced into business houses, hotels, and the like for communication with central telegraph-offices. It is also used for intercommunication as a rival of the telephone where a written record free from the possibility of phonetic errors is more desirable than a spoken one.

Simplex apparatus is being manufactured in both England and the United States. I was therefore able to view its manufacture in both countries, and to study the conditions governing its introduction and operation. Very complete information has been furnished me regarding this rapid telegraphic evolution.

There is a large number of telegraph centres in New Zealand where such apparatus would prove a great improvement over existing manual methods, and where there are available, at associated automatic exchanges, officers well qualified to maintain the apparatus in a highly efficient condition. A study will now be made of the New Zealand telegraph system with a view to the introduction of simplex, which is well adapted to serve as a feeder to the arterial telegraph circuits of this country.

COMMERCIAL AND TRAFFIC ASPECTS OF TELEGRAPHY.

In the United Kingdom, as well as in New Zealand and certain other countries, the telegraphs are operated at a loss. Some time was therefore devoted to the economic side of telegraphy, and special inquiries made into the methods of operation adopted by private companies in the United States and Canada in which efficient and profitable results are consistently obtained. My investigations have shown that in the latter concerns no greater technical efficiency exists, apart from the greater use of automatic methods of operation already referred to; much greater attention is being paid to the training of staffs in efficient methods; great stress is placed upon the efficiency and organizing ability of what in New Zealand are known as traffic and executive officers; female staffs are utilized as typist-telegraphists to a greater extent than in New Zealand; and more striking methods are adopted to advertise and popularize the use of the telegraphs.