

RESEARCH WORK.

A very interesting commentary upon the rapid growth in the higher phases of telegraph and telephone technique was furnished by the large amount of experimentation being done upon the adaptation of scientific discoveries to practical use and operation. Special departments are constantly engaged on such work with a view to improvements in methods and reduction in cost. This was impressed upon me by viewing the research and development sections of the British Post Office and of the American Telegraph and Telephone Co., as well as by visits to national physical and technological institutions.

STAFF TRAINING: ENGINEERING AND TECHNICAL.

In addition to the expenditure upon research and development work referred to in the above paragraph, it was of interest to observe that some of the administrations referred to organize instructional schools and refresher courses for engineering and skilled workers generally, in anticipation of the introduction of new and complex methods of communication.

It was interesting to learn that the British Government permitted engineering representatives from other countries to take full advantage of the experience and information obtainable from their telegraph and telephone laboratories and educational institutions. Students of communication engineering are constantly arriving from practically all European and Asiatic countries and from British dominions. Considerable regret was expressed that New Zealand was not sharing in these advantages. I was assured by the authorities of the British Post Office that they would be delighted to do all in their power to place the full benefits of these institutions at the disposal of any New Zealand Post and Telegraph Engineer having the necessary time to make a detailed study of the problems there dealt with.

In view of the rapid developments now taking place in the higher phases of telegraph and telephone work, considerable benefits would be derived by taking as full advantage as possible of such an organization, the cost of which would be more than offset by the first-hand knowledge of developments which must shortly be introduced if our telegraph, telephone, and radio services are to keep pace with those of other countries. In addition to the actual training received, such an officer would be given free access to the accumulated and detailed data in all branches of telegraph and telephone activity, from which much practical and useful information would be gleaned.

In contrast with the serious efforts made by telegraph and telephone administrations abroad to keep their engineering officers abreast of modern developments and consequent changes in practice, our own methods do not appear favourably by comparison. It cannot be expected that we should emulate the larger administrations in spending equivalent sums of money in the promotion of such objects, but there are obvious directions in which our policy is capable of considerable improvement both in the interests of officers and of the work entrusted to them. A survey of the telegraph and telephone methods of other bodies permits the practice in this respect to be viewed in a truer perspective. It is quite natural that in a rapidly developing country our engineer-technicians should in the past have been called upon to spread their energies over too wide a field. In addition, the growing routine work connected with the engineering division of the Department, and the heavy demands consequently made upon its limited personnel, have made it a matter of considerable personal sacrifice for our Engineers to keep closely in touch with the rapid developments taking place outside the sphere in which they have been immediately engaged. This condition is likely to continue, and to be accentuated as later and still more complex developments are introduced.

SPECIALIZATION.

Only of recent years has any attempt at specialization been made, and that only when the urgent demands for some complex phase of the telegraph and telephone art has rendered it unavoidable. It is clear that a broad policy of specialization is now necessary if plans are to be laid for the future and the best and most efficient results obtained from the apparatus available.

UNDERSTUDIES.

Consistent with the above, the policy of releasing telegraph and telephone Engineers from routine work which can be efficiently performed by others of lesser training and qualifications can safely be extended. I found that in the most efficient telegraph and telephone organizations, where a real impression has been made on the art and practice of communication, professional workers were given every possible assistance so that their energies might as far as possible be concentrated upon engineering and technical considerations. The remarkable results achieved proved the wisdom of such a course.

Under "Observation and Traffic Studies" I have referred to the assistance rendered to plant and equipment Engineers elsewhere by competent traffic sections. In New Zealand, traffic and development studies requiring a degree of engineering knowledge and training have necessarily been carried out by our own Engineering Division in addition to their plant and equipment duties. Nominally, however, traffic matters have been the function of another division of the service.

The time has in my judgment arrived when a readjustment of this important section of our work on modern lines would give much-needed relief to plant and equipment Engineers and be fraught with much benefit from an economic standpoint.

ENGINEERING CONFERENCES.

Engineering conferences have occasionally been held by our Department, and a considerable amount of good has resulted therefrom. At such conferences technical matters of all descriptions and proposed modifications can be fully discussed, and the results of research into the field of communi-