

LABORATORY.

One of the most neglected features of our Engineering Division has been the equipment of our departmental laboratory with suitable testing and electrical-research apparatus. This matter was fully recognized prior to my visit abroad, and it was agreed that I should select and purchase what apparatus was most needed. Upon my arrival in London this was made one of my first duties. In this matter I was rendered invaluable assistance by the well-equipped Research Department of the British Post Office, whose resources in equipment and personnel were freely placed at my disposal. It was thus possible to select approved apparatus which had stood the test of use similar to that which will be undertaken by our own laboratory, and which could be relied upon to furnish suitable standards of reference in fields which we had not previously explored. This selection of apparatus involved a good deal of detailed inquiry and investigation, and absorbed about one-fifth of the total time available in the United Kingdom. I feel, however, that the time was well spent, and that this work alone would fully have justified my visit. An arm of our service that is becoming vitally important to development along modern lines will now be in a much more favourable position to contribute its due share to the investigation of problems which frequently call for urgent treatment, and the solution of which is necessary to the efficient carrying-on of a complex communication system. We have officers well qualified both by education and experience to carry out these duties successfully, but their efforts have been largely nullified by the absence of suitable apparatus. In all administrations having responsibilities commensurable with our own I found that great attention was being paid to this branch of the service. With a capital investment of £7,500,000 in telegraph and telephone plant and equipment, and with annual accretions to the value of approximately £850,000, it is obvious that economies in methods and materials cannot be effected without proper laboratory investigations into the principles and processes involved. With the availability of such testing-apparatus due attention must now be paid to personnel and accommodation so that the full benefits of this branch may be realized.

PLANT ACCOUNTING.

The statutory requirements as to the keeping of a departmental balance-sheet and Profit and Loss Account have of recent years resulted in the institution by the accountancy section of the Department of a comprehensive and carefully-designed system of plant accounts whereby costs may be duly assigned to the various works in progress—both internal and external. The application of such an accounting system to field-works scattered over remote parts of a developing country presents certain inherent difficulties compared with a system of workshops or factory accounts. It was interesting to find that these difficulties had been experienced by other administrations, and that serious efforts had been made towards simplifying as far as possible the amount of accounting-work to be done by the field staff, and at the same time retaining all the necessary elements for an accurate accounting system. The time was very opportune for comparing methods and for collecting data regarding the same from telegraph and telephone administrations and telephone companies. This information will enable our responsible officers to study the question from fresh angles.

The ultimate result will, I hope, be along the lines of enabling field staffs to concentrate to a greater extent upon the work in which they have had special training without sacrificing essential details necessary to adequate accounting, and will assist in the effort to keep the cost of field accounting systems in close approximation to their actual worth.

CONCLUSION.

One of the outstanding advantages of my visit is the fact that I was able to get into touch with experimental work which had not yet reached the commercial production stage, but which may have an important bearing upon future departmental practice. This work does not reach the publicity stage until a much later date. In the light of these probable developments, engineering practice can now be carried on with a better realization of changes that may eventuate. Unnecessary expenditure can thus be avoided by reason of an enlightened anticipation of requirements, and by the design of works to fit in with these ultimate and inevitable departures from existing methods and standards.

Definite information is now available—and in certain respects unexpected conclusions already reached—as to practices which in some cases were considered unsuitable for this country and in other cases were the subject of a converse opinion.

A clearer idea has been obtained of the organization and practice of telegraph and telephone engineering work in other countries, and the reasons for failures together with the factors contributing towards success more clearly understood.

What is even, in my judgment, more important than the foregoing is the fact that cordial relations have been established with leaders of telegraph and telephone engineering developments in all countries visited, and a personal understanding of New Zealand conditions communicated to manufacturers to whom the Department looks for the best possible service in the supply of its plant and equipment.