

RADIO LABORATORY

Alpine Radio.—The development of a system embracing a base equipment and a number of hut sets was requested by the Tourist Department for alpine resorts. The initial requirement stated that only in strict emergency was the communication system to be used, and on this basis tests were carried out in the Hermitage area, using 470 kc./s. The utility of the system for routine communication in order to help to prevent emergency conditions was soon recognized, however, and this wider application necessitated the use of a frequency removed from the international distress band. The prototype equipment was modified to operate at 3,180 kc./s., and successful trials were carried out across the Tararua Range.

At the instance of the Post and Telegraph Department, the hut equipment prototype has been modified to permit its supply either from a hand-driven generator or from storage batteries. Both the hut and base prototypes have been handed over to the Post and Telegraph Department, which will arrange the manufacturing contracts.

Radio-path Investigation.—Preliminary measurements of the variation of absorption on the path between Awarua and Wellington have been carried out. Attempted correlation between these measurements and vertical incidence ionosphere absorption measurements, previously carried out at Christchurch, near the mid-point of the path, showed a discrepancy. A new series of measurements is now being prepared, in which the oblique and vertical absorption will be observed simultaneously.

The object of this work is to improve the accuracy of predictions of usable frequencies on short paths within and about New Zealand. It is being investigated with the approval of the Radio Research Committee, and both the Post and Telegraph Department and the National Broadcasting Service are interested in the results.

Microwave Propagation Tests. Equipment held on loan from the Admiralty is suitable for the determination of the transmission characteristics of visual paths at 30 cm. and 3 cm. wave-lengths. It is intended to make use of this to conduct an extended operational trial of a path across Cook Strait from Island Bay to Blind River, near Seddon.

Radio Research Office. A central office for the collection and correlation of radio research information has been set up in the Carter Observatory building. Some useful work has already been carried out in the correlation of radio performance figures with predictions and with indices of ionospheric and magnetic disturbance. Detailed analysis of short-term forecasts produced by the Director of the Carter Observatory showed that these were statistically a little more successful than those of the Stromlo Observatory. The office provides routine ionospheric frequency predictions for fixed circuits required by the Navy and the amateur radio organization.

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Canterbury Project.—After the completion of the field-work, a remnant of the staff commenced to prepare the results for publication prior to their being analysed theoretically. The analysis will best be done at T.R.E. in England, and provisional arrangements exist for two of the staff to be seconded there. The work has been delayed by staff difficulties, but is now progressing satisfactorily.

Microwave Meteorological Radar M.E. 7.—Of the four equipments that have been manufactured, two are now installed—at Whenuapai and Nandi. The Whenuapai equipment is giving very satisfactory results, balloons being followed to 60,000 ft. in altitude and up to 130,000 yards in range. Installation at Taieri is in preparation.

Subsidiary Meteorological Radar.—The Meteorological Service has expressed a requirement for a small number of subsidiary stations of lower performance than the M.E. 7 above, to supplement the coverage of upper wind information in New Zealand.