

# NEW FREQUENCIES

## An Engineer Explains

ON March 10 a conference will be held in Melbourne between Australian and New Zealand radio engineers to discuss the choice of operating frequencies for future broadcasting stations in these two countries. The chief engineer of the NZBS, W. L. Harrison, B.E., B.Sc., A.M.I.E.E., and the chief engineer of the Post and Telegraph Department, E. H. R. Green, M.Sc., M.I.E.E., will represent New Zealand at the conference.

The reasons for this conference were described to *The Listener* by Mr. Harrison. "All the transmitting frequencies used by the various nations of the world for broadcasting and communication," he explained, "are contained in what is known as the radio spectrum. The spectrum is divided into various sections, some being used for communications and others for broadcasting, the latter being subdivided into medium, long, short and ultra-short wavebands. These sections and bands are laid down

plete freedom from interference and good quality reproduction is required. But Australia already has 130 stations, some received quite strongly in New Zealand, while New Zealand itself has 23, and some of these are received in Australia. We thus have the position that over 150 stations have to be fitted into the 52 channels available in the band, and this cannot be done without some stations being placed on the same frequency. Under these circumstances one station can interfere with reception from the other by causing a heterodyne or whistling sound, or producing another programme in the background which cannot be tuned out.

"To reduce this interference to a minimum common operating frequencies are allocated only to stations which are as far apart as possible. Stations in Central and West Australia are rarely heard in New Zealand, in contrast with those on the East Coast, so that by carefully studying the power and location of the various stations it is possible to reduce interference considerably. An example



Spencer Digby photograph  
W. L. HARRISON



E. H. R. GREEN

by international conferences held usually every four or five years. In New Zealand the broadcasting stations operate in the medium waveband, which extends from 550 to 1,600 kc/s per second. "It is obvious that only a limited number of clear channels (one station operating without interference from another in the vicinity) can be available in any particular band. Therefore if the number of stations on the air exceeds the number of channels, and if these stations are all located within receivable distance, a certain amount of interference must result.

"These difficulties are experienced seriously in Europe and America, where there are very many stations in operation. To a lesser extent, the trouble exists in New Zealand because of its proximity to Australia. On rare occasions some American stations are also heard here, but medium wave broadcasting stations in the rest of the world do not usually interfere with the reception of New Zealand stations.

"In the medium waveband only 52 stations can be accommodated if com-

of this is 4YA Dunedin, which is on the same frequency as a Perth station, but suffers little from it.

"In country districts," Mr. Harrison said, "radio interference is more noticeable than elsewhere. When the listener is some considerable distance from the nearest local broadcasting station the signals he receives are much weaker than they are in the cities, and thus more prone to interference from stations in adjoining countries.

### Plans for New Stations

"Co-operation between the New Zealand and Australian authorities has existed for many years in the matter of interference and the allocation of frequencies. Up to now we have been able to agree by correspondence on the many minor changes that have taken place. Now, however, with both Australia and New Zealand going ahead with development plans for new stations, it has been found necessary to hold a round-table conference to discuss the problem adequately and find a satisfactory solution to all the difficulties."



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