

It will interest New Zealand listeners to know that British manufacturers are more seriously applying themselves towards the production of neutralized sets embodying radio-frequency as well as audio-frequency amplification and having a minimum of controls.

The subject of the New Zealand regulations in relation to the prohibition of the worst forms of "interfering" sets came up for frank and free discussion. When the nature of the New Zealand restrictions was fully explained and understood, I was gratified to find an almost unanimous approval of the attitude taken by the Department in this connection. I learned that many of those with whom the subject was discussed had strongly advocated a similar procedure in the early days of British broadcasting, but, due to a variety of influences that happily do not obtain in New Zealand, their ideas, although partially realized for a time, had subsequently to be abandoned. I am satisfied that we have been proceeding on sound lines in endeavouring to keep the ether as clear as practicable of unnecessary interference from "transmitting-receiving sets," and that the benefits of such action will be considerable.

A great deal of useful work has been done by the Canadian Radio Administration in detecting causes of interference to broadcast reception arising from electric light and power lines and machinery connected thereto. Properly-equipped testing-vans locate these sources of trouble, power companies and private individuals co-operating in the employment of approved remedial measures. Bulletins have also been prepared by this progressive Radio Department dealing with the various cases met with in practice.

It was the general opinion in all places visited that the elusive "howling valve" does not lend itself to equally satisfactory treatment along similar lines. The remedy undoubtedly lies in prevention rather than cure.

QUALITY OF BROADCAST RECEPTION.

Those who are chiefly interested in high-grade reproduction of broadcast programmes are inclined to the view that the principal weaknesses of broadcasting to-day lie in the use of unsuitable receivers employing amplifying units of too limited a capacity, and badly-designed loud-speakers. The better class of manufacturers has of late been paying great attention to these features, which they claim to have satisfactorily met, with, however, a resultant high development cost and comparatively higher sales cost. It needs to be emphasized that satisfactory quality of reproduction is obtainable only by the use of properly-designed receiving-sets, amplifiers, and loud-speakers. The broadcast transmitter itself has made wonderful strides during the last few years. A well-designed transmitter properly manipulated leaves little to be desired in its ability to modulate with complete faithfulness the "carrier wave." The improvement most urgently required is in the design of the complete receiver and reproducer, and in the appreciation by the public of the fact that, while results of a kind can be obtained with the simplest of apparatus, only well-designed receivers will reproduce with a high degree of faithfulness, and with results satisfying to a musical ear, the complex sound-waves emitted from a well-designed broadcasting transmitter.

ABSORPTION AND DISTORTION.

There is no doubt that the conditions governing reception are much more favourable in New Zealand than in more densely settled communities, where, in certain regions, considerable absorption and distortion are experienced. These effects are due to interference from tall buildings which have a definite relation to broadcast frequencies. There is also the advantage that in New Zealand there are comparatively fewer sources of electrical disturbance, which in some locations are a serious hindrance to broadcast reception.

FADING OF BROADCASTING STATIONS.

The peculiar fading effects experienced when listening to remote broadcasting-stations at night were discussed with specialists who have devoted much time and thought to the problem. At the present state of the art there is no practicable remedy for such evils in cases where they arise from variations in the upper atmosphere. The available means of determining definitely whether such causes are atmospheric or instrumental were inquired into, and valuable suggestions obtained. In addition, literature was supplied dealing with the most recent investigations into this perplexing phenomenon.

CARRIER CURRENT.

APPLICATION TO TELEGRAPH AND TELEPHONE LINES.

One of the most interesting developments of modern telegraph and telephone practice is that known as "carrier current," by which existing channels of communication can be multiplied without increasing the wire plant.

By the application of these principles as many as three telephone channels or ten telegraph channels may be added to an existing wire circuit. The system possesses great flexibility, and has a wide range of application to a variety of differing conditions such as are met with in a young and developing country. In brief, the method consists in the application of radio-frequency currents to land-line practice, the wires serving as a guide to the radio frequencies impressed upon them, and the latter in turn being modulated in accordance with the requirements of telegraph or telephone signalling. The high frequencies employed are thus popularly described as "carriers" of the signals, which, by means of appropriate treatment at the receiving end of the line, are reproduced in their original form.

The first application of carrier-current signalling was to aerial lines, but considerable work is now being done upon its application to specially-designed underground cables, and much practical work has already been done in this direction—notably in the United States, where this system has to date found its greatest development.