Short-wave Notes

(Continued from page 30.)

This subject has been very fully dealt with previously.

Capacity Feed-back: This type of feedback is the most troublesome because it is the hardest to locate and remedy. There are capacities inside the valve between the filament, plate and grid, also between the wirings of transformer and all the coils. At ordinary broadcast frequencies some of these capacities form a path almost as easy as a piece of metal for the high frequencies to follow. We could not hope to cover the cause and effects of different types of capacitive feed-back in one article, so we shall merely summarise the methods in which this is overcome.

Use external balancing feed-backs or valves. This is accomplished by the designer of the circuit and is known as neutralisation.

Place coils far apart.

Use coils of small physical dimensions.

Do not run plate and grid wires parallel.

Make plate and grid wires short.

Place tuning condensers well apart.

Make transformers with little capacitive coupling between primary and secondary windings, e.g., by keeping the primary within a small compass.

Do not use excessively close inductive coupling with radio frequency transformers. This aspect has been dealt with by "Cathode" in his article on resonance.

Audio feed-back howling is often caused by feed-backs from the audio frequency stages. Such trouble may usually be avoided by using short wiring in the audio stages, by using a detector plate by-pass condenser (.002 mfds.) and a radio frequency choke, by keeping the speaker cords and leads away from the radio frequency stages, by not using run-down B or A batteries, by proper plate and grid circuit bypasses in the audio amplifier, and by keeping audio transformers at right angles. These were fully described when we were considering radio frequency oscillation.

Audio frequency oscillation can be distinguished from radio and detector oscillation by its continual howling no matter how the tuning is altered. Motorboating is another form of A.F. oscillation, but its treatment would require a separate article.

We have now skimmed over the surface of the cause and cure of oscillation in the radio receiver. No attempt has been made to go into the subject deeply, as it would require very much more space than we have at our disposal, but it is hoped that those who have noisy receivers will be able, in some little measure, to obtain better results by following the few simple instructions we have given herewith.

Transmitting Stations

Auckland Amateurs

(By "Call Up.")

THERE are approximately forty licensed amateur transmitters in Auckland city and suburbs, and some of these stations have put up very excellent performances. The N.Z. Amateur Radio Transmitters' Association has about seventy members in Auckland, and the local branch has a club room and conducts regular lectures The next series of lectures are to begin in about a month's time and are expected to be fortnightly. Mr. E. Whitely is the secretary.

The most interesting amateur transmitting station in Auckland, in the minds of the technical experts at any rate, is the Auckland University College experimental station, ZL1X1, which is operated under the supervision of Professor Burbidge. Various types of transmitting sets are used with different wavelengths. The output, too is also very variable. The station takes its part in the regular university courses and provides students with training in radio measurements, induction capacity, frequency and resistance.

One or two students particularly interested in radio work have continued experimenting with the station after their regular courses were completed, in most cases using this further research for their Honours M.Sc. thesis.

In 1921 Mr. E. H. Green, now in the laboratory of the Post and Telegraph Department, conducted a great deal of experimenting with the station, and visited Fanning Island on the cable ship Iris in pursuit of his research work. He was really the first man to discover indications of what is known as skip distance, but he did not publish his results.

Another student to conduct interesting experimental work was Mr. G. H. Munro, who made research into sunrise and sunset errors in distance finding, later publishing a full account of his work Mr. Munro is now with the Radio Research Board in Australia.

Experiments about to be started this year will be research in directional work in atmospherics, the object being to co-relate atmospherics with weather disturbances. This research will be conducted by Mr. R. Lyons, and will be financed partly by grants from the Department of Scientific and Industrial Research.

Transmitting Stations.

FIVE years ago Mr. H. B. M. Arthur began to operate his station ZL1AN, and he has since put up a very fine record. It was the first New Zealand station to work overseas on 10 metres, and, in fact, the first to experiment with this wavelength. In September last Mr. Arthur built a new transmitter with a Vallauri push-pull circuit, and this has proved the most satisfactory ever used on short wavelengths, especially on 10 and 20 metres. The majority of the local transmitters are now installing it. Since putting his set on the air, Mr. Arthur has worked 200 foreign stations, including 70 European, and 43 different countries.

Dictator Stalin, the originator of the "Five-Yearly Plan" for the betterment of Soviet Russia. According to a recent broadcast from Siberia of a public meeting at Kharbarovsk, the Dictator's schemes are not meeting with the success anticipated.

The station has worked on different wavelengths—80, 40, 20, and 10—but is now concentrating on 10, on which it has worked Australia several times, and on which it is hoped to work U.S.A. during the next two months.

Mr. Arthur was formerly with Superadio, Ltd., Auckland, and is now managing the Radio Equipment Co., in that city. He is secretary of the Auckland Radio Society and has for some time edited "Break In," the official organ of the N.Z.A.R.T.A., of which he was formerly general secretary.

ZL1FQ

A VERY well-known Auckland amateur transmitter is Mr. T. Clarkson, whose call-sign is ZL1FQ. Mr. Clarkson has been operating in Auckland on this call since 1925, and previous to that was in Hastings, where he was known as 2AR. He says that he does little experimenting now, but always keeps his set in good order and is on the air fairly frequently. He recently installed the popular push-pull circuit, and his input is between 50 and 60 watts. The transmitter is equipped with interchangeable coils for 80, 40 and 20 metres. ZL1FQ has been heard nearly all over the world as a large stack of cards on Mr. Clarkson's desk testifies. As far back as March, 1927, he was heard by FO-9SR, Southern Rhodesia. On tuning up his set a few weeks ago he worked all continents within two days. Mr. Clarkson is Dominion president of the N.Z.A.R.T.A., and is employed in the Post and Telegraph Department, where he is engaged in technical wireless work.

ZL1FW

STATION ZL1FW, operated by Mr. E. Whitely, has been on the air for two years, first transmitting in March, 1928. Communication has been established with 42 different countries, and as the aerial is only 20 feet high, this speaks well for the circuit, which is another Vallauri push-pull. The input is between 70 and 90 watts. This station is shortly to install a crystal-controlled transmitter.

Radio in 1913

"Telephony without Wires"

A VERY interesting clipping from a magazine, dated June, 1913, has been forwarded to us by a correspondent. The article, which incidentally is headed "Telephony without Wires," discusses the possibilities of wireless telephony over moderate distances, and gives a brief account of some experiments conducted along these lines. After reading this article, it is amazing to think that only thirteen years ago people considered the maintaining of a conversation by radio over a distance of a mere twenty-five miles, a marvellous achievement. What a contrast to the recent two-way radio telephony tests between New York and Sydney! The article in question is given below:—

ONE of the most remarkable experiments in the science of voice reproduction yet made has recently been brought to public notice by Mr. H. Grindell Matthews, the young inventor of the aerophone system of wireless telephony.

Mr. Matthews stationed himself in a closed strongroom in a large building. The walls of the strong-room consisted of nine inches of armour steel, nine inches of fire brick, and six feet of concrete, but, notwithstanding this, Mr. Matthews easily carried on conversation with another operator in a room at the other end of the building! At the time of writing he proposes to carry out another test of his apparatus by an endeavour to talk through five miles of rock, between Chepstow and Tintern.

By means of man-lifting kites, Mr. Matthews hopes to raise his receiving aerials sufficiently high to enable him to carry a conversation between Chepstow and Cardiff, a distance of over twenty-five miles! Mr. Matthews explains that "the vibrations produced by his electrical apparatus are not in the form of Hertzian waves, like Marconi's wireless telegraphy, but that the discharges are of such frequency that there are no appreciable breaks between."