

A.: G. Wilton and Son, Willis Street, Wellington.

4. Could you set aside a page for amateur transmitting and give a circuit for the working man's pocket?

A.: Amateur transmitters are well catered for by their own magazines. If you want help in this respect communicate with Mr. S. Perkins, Puru Crescent, Lyall Bay, Wellington, who is the Dominion secretary for the N.Z.A.R.T.A.

G. R. (Eltham) is getting fair results with "Round the World Two." He would like to correspond with a constructor who has built his set. His address is "81 Conway Road, Eltham."

SUBSCRIBER (Oamaru) asks what is the best height and length for an aerial. His present one is 30ft. high and 80ft. long. Would he get better results with higher poles and a shorter aerial?

A.: Generally speaking a high short aerial is better than a lower and longer one, although the latter is usually better when there is a great deal of static about.

2. Would a higher aerial lessen the amount of noise?

A.: No, it would increase it if anything.

3. Does direction have any effect.

A.: It does under certain conditions. See the "R.R." March 21 and 28.

FAIRFAX (Otane): What would be the best combination of valves for my 3-valve set?

A.: Detector, Radiotron 112, Philips A415, Mullard 4DX, Osram L410. First audio the same except A409 and PM3. Last stage B406, PM4, P410.

2. Could a pentode valve be used in the last stage successfully?

A.: It would probably be satisfactory.

3. Will a joined lead-in affect signal strength?

A.: Not unless the joins are unsoldered.

J. S. (Auckland): I cannot get the s.g. receiver described in the "Guide" to oscillate below 38 metres.

A.: Decrease the screen voltage and increase the detector voltage. If necessary wind more turns on the tickler.

2. For the audios I use two 605's. Is this right?

A.: No, a 409 should be used in the second last socket as 405 takes a very heavy current and is designed for last stage operation only.

3. Will the set work with "B" power pack?

A.: Yes, quite well.

4. Is last year's "Guide" procurable, and what is the subscription rate to the "R.R."?

A.: A few copies of the 1929 "Guide" are still obtainable for 2/9 posted, while the subscription to the "Record" is 12/6 posted in advance or 15/- booked.

W. D. W. (Dunsandel): I cannot get any foreign stations with my 9-valve receiver.

A.: You should do. From the sketch of your aerial it appears that it is altogether inadequate. You will need another pole, the height of the pole at the house-end. You will further need more insulators on the tree-side of the aerial. See our article on aerials published in the "R.R." March 21 and 28.

PETONE (Petone): In the DX and Shortwave Notes the prefix "R" and "QS" are given to denote signal strength. What are the values of these figures?

A.: They will be published in this week's Shortwave Notes.

2. How can I compare different standard times with our clock?

A.: The time officially adopted for a country or a portion of a country is usually based on one of the 24 standard meridians which start with the meridian of Greenwich and extend 15 deg. apart around the globe. The local time on each of these meridians differs from Greenwich time by a whole number of hours, thus American Eastern time taken from the 75th meridian is 5 hours behind Greenwich or 16½ hours behind

ours. The Central time is taken from the 90th meridian and is 17½ hours behind ours, while the Pacific time is 19½ hours behind. This could be ascertained from our DX clock considering San Francisco as Pacific time, and New Orleans as Central time, and New York as Eastern time.

3. I am having oscillation troubles on the broadcast band of my s.e. a.c. all-wave set.

A.: You will need to see the Wellington agents for that particular receiver and put your case to them. Usually all-wave sets compromise on either of the bands, but it appears in your case that there is something wrong, and it is most unlikely that we can advise you satisfactorily without having seen the receiver.

M. H. M. (Christchurch): I enclose a circuit of a 2 r.f. a.c. Browning-Drake. I would appreciate criticism.

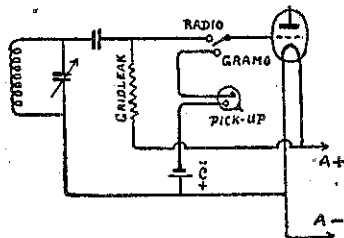
A.: Your circuit appears quite good and you appear to have the number of turns on your coils correct.

2. Will I lose any efficiency by gang-ing all tuning condensers?

A.: You will lose a little, but they are well worth ganging.

3. I understand that Philips a.c. valves, American series, are directly heated. If this is so, why cannot I use ordinary d.c. valves?

A.: Philips have the equivalents to the American indirectly-heated valves. You could not use d.c. valves in the



Pick-up trouble is experienced by a correspondent. Here is the method one is connected to the detector grid.

radio audio stages. An a.c. directly-heated valve has a very much heavier filament than its d.c. prototype. If you wish to use 4-volt valves use the E409's with E415 detector and B406 as output.

IGNORANT (Waipori Falls): I cannot get good results from distant stations. Reception is fuzzy and distorted. My aerial is about 47ft. high and, including the lead-in, 80ft.

A.: The distortion is due probably to a defect in your set. Communicate with your dealer. Your aerial is quite good.

DX-er (Waihopo).—Could I expect good results from a 2 r.f.H.R.? I submit a sketch for your consideration.

A.: The two should be almost equal in sensitivity, while the H.R. would be easier to handle. Your sketch is quite good.

2. Will an extra stage of r.f. in the form of a separate unit be sufficient?

A.: It would be worth trying, but you would probably have to build a set like the two r.f. Browning-Drake, that is, with each unit completely shielded.

R. J. G. (Auckland): How can a crystal set eliminate an amateur transmitter 200 yards away?

A.: Probably by changing the direction of the aerial, which should be at right angles to the line of direction of the transmitter. Another coil and condenser would probably be effective.

2. Can a 1-valve short-wave receiver be built? If so, where can I get the particulars?

A.: Build "Round the World Two," using only the detector stage. Use telephones in the place of the audio transformer. Note: We have referred your other query to the DX Editor.

G. C. (Dunedin): Will you give me the number of primary turns for certain valves (here the correspondent enumerates a list of receiving valves)?

A.: You can work them out for yourself from the following formula:—

$$P = \frac{T}{\sqrt{R_i}}$$

Where P = number of primary turns.
T = number of secondary turns.
R_i = the impedance of the valve.

2. Will it be satisfactory to connect the two r.f. condensers on the same spindle with a trimmer across the first r.f. condenser and another trimmer across the detector?

A.: Unless you are seeking maximum efficiency with almost as many controls as a three-dial receiver, it would be better to put the trimmer across the detector only and connect all three on the one spindle.

3. Is it necessary to put an amperite rheostat between aerial and earth?

A.: You need put a rheostat in the valve circuit only when the valve is of less voltage than your accumulator. It would not be across the filament circuit, but in series with it. The resistance across the aerial and earth would be a good volume control.

PAIKO (Turua).—I cannot get the reaction to work properly with my 2 r.f. Browning-Drake. It gives me splendid results otherwise?

A.: Try the swinging coil method of applying reaction.

2. I do not understand clearly where the 200,000 ohms resistance to control the r.f. late current should be placed.

A.: They are placed in series with the B plus r.f. tapplings. The by-pass condenser is shunted across the resistance; r.f. and a.f. current should not be drawn from the same tapping unless an r.f. choke is in series with the r.f. leads, and the set side of the choke brought to B minus.

C. E. M. (Kingsland).—My commercial-made receiver is selective on the shorter wavelengths, but the stations spread out a good deal on the longer waves?

A.: Try a .00025 fixed condenser in series with the aerial.

2. Could I add a stage of push-pull amplification? My last valve is a 171, but there is an output filter.

A.: If you use first-grade transformers it should be all right.

3. What is the maximum undistorted output of two 245's in push-pull—4.8 watts?

4. Would Pilot giant transformers be satisfactory?—Yes.

5. Could I use a volume control across the primary of the in-pull transformer as well as the original volume control on the set?—Yes.

AERIALS (Napier).—Which is the better aerial, an "L" aerial 40ft. long and 30ft. high, or a "T" 100ft. long and 40ft. high.

A.: The effective length of the "T" aerial is almost the same as the "L" aerial so that there is really no difference between them.

BATTERY (R.D. Balclutha).—A crackle has developed in my 5-valve receiver. I cannot locate it.

A.: It seems to be a broken-down condenser, but possibly it is your speaker.

2. Could I expect better results were I to change to a 5-valve Browning-Drake?

A.: Results would be better, but you would have more trouble.

3. Results would be better, but you would have more trouble.

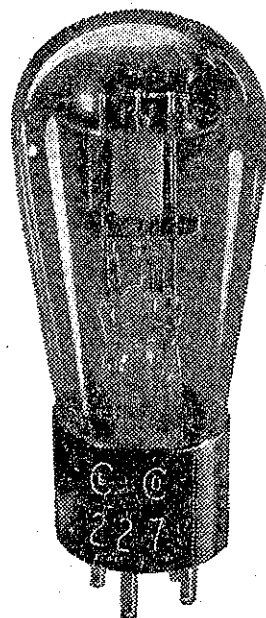
3. If I made the Browning-Drake could I use the parts?

A.: Yes, but you would need fresh coils, of preferably 2in. or 2½in. formers.

4. What valves do you recommend in the radio stages? Mullards or the new Radiotrons?

A.: There is really little difference between them.

Listen to the Difference



YOUR radio receiver is dependent on the valves you use for correct reproduction of broadcast programs. A good set deserves good valves—and they are the least expensive part of your radio enjoyment. When valves are such an important item you cannot afford to take a chance on inferior brands. Try a complete set of CeCo Valves and listen to the difference in clarity and tone quality. CeCo Valves have longer life.

CeCo

RADIO VALVES

Write to-day for free booklet "F"
Bond & Bond Ltd., P.O. Box 331, Auckland.