O.M.R. (Lower Hutt): I find the detector stage of my 5-valve set oscillates fiercely. I am using 135 volts B on the plate, and propose to shift the reaction condenser to place it between the reaction winding and A—. Will this cure the trouble.

A.: The potential applied to the plate is excessive. Reduce to 45 or 67½ volts, otherwise place a .1 megohm. resistance in series with the h.f. choke and p. of the transformer. The new position for the reaction condenser will be quite satisfactory.

SPARKS (Auckland): I am constructing a coil for a receiver which uses 40 turns of 24 d.c.c. wire on a 3in. former. If a 2½in. former is used how many turns will be required for secondary tickler and primary?

A.: Generally speaking when the number of turns on a 3in. former is used and you wish to find the number of turns for a 2½in. former multiply the number by 1.3 If you are using the coils to tune over the broadcast bands the following will be required: Secondary, 105; tickler, 35; aerial, 15.

2. What value fixed condenser will be used in series with a .00025 to reduce the capacity to .0001?

A.: .0015.

3. What value condenser in series with a .0005 will reduce its capacity to .00035?

A.: .001.

4. Where can I obtain the best quality ruby mica and tin foil for making fixed condensers?

A.: Try Johns, Ltd., Auckland, or George Wilton and Son, Willis Street, Wellington. We do not know the price.

5. On a piece of ½in. ebonite tubing with a number of one-eighth discs I wish to construct an r.f. choke for the broadcast band. Please state the number and widths of slots.

A.: You will require about five slots and wind 200 turns in each.

6. With the .0001 tuning condenser and .00035 reaction condenser please state the number of turns a 1½in. diameter former to suit the following wave-bands:

Band. Metres.	Primary.	Secondary.	Tickler.
10-20	3t. 18 DSC	same.	4t. 30 DSC
18-30	5t. 20 enam.	same.	4t. 30 DSC
28-38	8t. 24 DCC	12t. 24 DCC	8t. 30 DSC
34-60	10t. 26 DSC	22t. 26 DSC	15t. 30 DSC
56-100	12t. 30 DSC	45t. 30 DSC	24t. 30 DSC

t. signifies turns.

7. What gauges are the enclosed pieces of wire?

A.: There was no wire in your letter when it reached us.

8. In my set B minus connects with A minus and C plus. In the adaptor B minus connects with A plus and A minus with C plus.

A.: Disregard B minus when using the adaptor, as B minus is already connected to the set, otherwise separate A minus from the combination on the set and substitute it by A plus.

9. Will the 100 turns 30 DSC on a 1in. former be satisfactory for a 10 to 100-metre choke.—Yes.

F.E. (Dunedin).—I propose to add a line voltage regulator to my set. Is this valve used in series with the a.c. leads to the transformer?

A.: Yes, you can use either power clarostats or regulator valve ballast 876. These are designed for the 115 volt lines.

2. Would it be an advantage to install this?—No.

3. What tapping should I use—210, 230, or 250?

A.: If the voltage is steady use 230, otherwise 210.

4. How would I be sure if the circuit was correct when the wall-plug fits the socket in either way?

A.: If a slight hum is heard reverse the plug. There is no polarity on the a.c. line, but one way is better than the other.

TRICKLE CHARGER (Khandallah). —I have a trickle charger and on connecting a volt meter across the output the needle flashes over to about 11 volts and vibrates vigorously. Is this charger functioning correctly?

A.: Yes; a charger supplies a greater voltage than that required by the accumulator to overcome back emf. The fact that the needle vibrates indicates only that the current is not perfectly smooth and while it is sufficiently smooth for a charger, would not do for an eliminator. The purpose of chokes is to smooth out this residual ripple. Note: Your request for information concerning the design of inductance coils has been forwarded to "Cathode," who will devote a special article to it.

S.W. Adaptor (Wanganui)—I am contemplating making a push-pull battery-operated amplifier for my set (the R.W.3). Could you tell me:—

1. How to change the diagrams in the "Listeners' Guide" to d.c.?

A.: A d.c. push-pull amplifier was described in the "Radio Record" of November 2, 1928. If you wish to work from the a.c. model described in this year's "Guide" you will disregard the cathode connection and connect A— to B— and C+.

2. Would this work without too much noise after the two audio stages in my set?

A.: You could use the push-pull part of the amplifier with the last valve of your set as the first stage of the pp. amplifier. You could not use the complete amplifier after the last valve.

3. I bought some new wet "B" batteries. After the initial charge one appeared to have sulphated and does not now hold any current. What is the reason of this, and what the remedy?

A.: It appears that there has been an internal short circuit which has ruined your battery. Treatment was outlined in the 1929 "Guide." You will probably have to take the battery to a battery house for expert attention.

UNION (Pukekohe): Concerning a screen-grid all-wave battery set, I should like to know why an h.f. choke is included in the plate lead of the screen grid valve when mine works perfectly without one.

A.: A choke in either or both of the plate and screening grid leads minimises radio frequencies feed back to the battery or eliminator. In some cases due to the characteristics of the circuit, the batteries or the valve, feed back does not take place, and this seems to be happening in your case.

2. Is my set large enough to install a heavy power valve such as DFA 6 or LS 6A.?

A.: No. To obtain satisfactory results from these valves you would be required to load them more than your set is capable. The best valve would be a 256 or P265A. Probably P265, with 250 volts would prove a good valve.

3. Would an a.c. power valve taking up to 6 volts work satisfactory from an accumulator?

A.: Yes, providing you keep the accumulator regularly charged.

4. Are two smoothing chokes of 20 henries each sufficient for a B battery eliminator to be used on short-wave?

A.: You may be successful with these two chokes, but the chances are against you. The smoothing inductance has usually to be higher than this, and plenty of capacity is also required to make a successful job of eliminating the batteries on short-wave.

LOFTIN-WHITE (Canterbury) — I have endeavoured to add a stage of r.f. to the L.W. amplifier, but this has not been successful. A strong hum, which practically disappears when the potentiometer is adjusted, appears. On adjusting the grid-leak regular clicks are heard in the loudspeaker.

A.: You are experiencing one of the difficulties with the Loftin White circuit, that is the addition of radio stages. Our