

tion is to handle great amounts of volume.

**"PUZZLED"** (Petone) has a six-valve factory-built receiver, and has been troubled of late by loud howls which appear all round the dial. A dealer replaced the valves and later told him to adjust the neutralising condenser.

A.: The agent should not have advised you to interfere with the set. Neutralising, especially when valves other than those recommended by the manufacturers are used, is the job of a service man. It appears that your set is not neutralised, and we advise you strongly not to interfere further with the receiver, but to call up the man who replaced the valves, and to neutralise the set, as he should have done when the valves were replaced.

2. There is a buzzing which ceases when the aerial is removed.

A.: This appears to be outside interference which you cannot control.

**"SHORT-WAVE"** (Temuka) can get only 2ME on his adapted short-wave receiver, and the lower ends of the dial are greatly out of step.

A.: Put a midget condenser in the aerial and increase the detector voltage to 45 or more.

**"W.A.P."** (Wellington) asks for a circuit to suit commercial coils.

A.: It is not our practice to supply circuits. You should have obtained one from the dealer who sold you the tuner. But in this case, we are making an exception, and are sending you one.

2. I have a 5-valve neutrodyne the audio valves of which become warm.

A.: This is not particularly alarming, but try increasing the grid bias battery on the power and first audio stages.

**"R.W.T."** (Foxton) wants to know the life of three "A" batteries (dry cells) supplying 2 amp.

A.: About 200 hours, if used intermittently.

2. Could I use wire such as that enclosed for an R.F. choke?—Yes.

**"J.W."** (Napier) has a five-valve battery set with a horn speaker, and would like to know if he could use one that would give better tone, say the Dynamic.

A.: Yes, he could use a battery model dynamic which draws its field supply from a six-volt accumulator or an inductor dynamic speaker which does not require field supply.

**"NO SIGNALS"** (Wellington) has a Round-the-World Two which will go in one locality but not in another. The "A" battery shows five volts.

A.: Your "A" battery is flat and this is probably the reason you are not getting the outside stations. Other than this, the aerial and earth equipment may be at fault.

**"G.M."** (Tikitiki) wishes to change his three-volt valves to six-volt, and asks:

1. Would this mean better average reception?

A.: In all probability, yes.

2. Would the set need re-wiring?

A.: No. If any of the resistances heat up they should be shorted out.

3. What make of valves would you recommend?

A.: As your set is American, use Radiotron 221 for all stages except the last, where any medium power valve,

such as Radiotron 112, Mullard 256, Philips 509, or Cossor Stentor.

4. Name a make of a reliable accumulator.

A.: Standard makes are advertised in the "Radio Record." We cannot advise any one specifically as they are all good.

5. Would the battery connections be the same as for dry "A" batteries.—Yes.

**"V.A.S."** (Khandallah) has a short-wave set and gets Wellington's harmonics on all coils except the bottom pair, which will not oscillate. Can

issue dated April 12, 1929, we described a combination model of a 1-valve and crystal set which can be used on the local station as a crystal and amplifier, or as a 1-valve receiver.

**"A.R.M."** (Auckland) has constructed a power pack and can only get 180 volts at 60 mills., although it was designed for 250 volts.

A.: Probably the air gap in the smoothing choke will have something to do with your trouble. The correct size of the gap is of considerable importance, when much current is flowing. The width of the gap should not be excessive, for the necessary inductance

to convert "Round the World Two" into a short-wave adaptor.

A.: In 1929 "Guide" we described fairly fully how to connect the adaptor to the set. Take an old valve base and solder wires into the two filaments and the plate prongs. These are then connected to the adaptor as follows: Filament + of adaptor to the prong that will go into the + side of the detector socket. The plate connection comes from P of the transformer in the complete set; thus the plate of the detector of the original set is connected with the plate of the adaptor. The audio stages are omitted.

## Erecting an Efficient Aerial

### A Reader's Experience

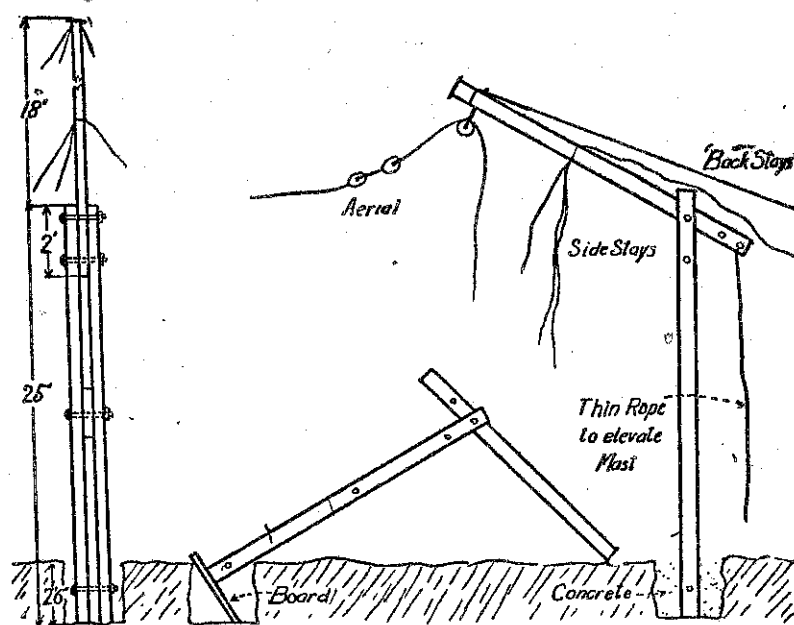
MANY readers have professed themselves interested in an article (appearing on page 28 of our issue of May 23), describing a listener's experiences in erecting an efficient aerial. In answer to many requests we are publishing the accompanying diagrams, which, when studied in conjunction with the article, (reproduced below) are self-explanatory.

**"YOUR** articles on wireless aerials were most interesting and instructive. Permit me to give my experience in making and erecting mine. The masts are made of oregon pine, 3in. by 2in. Three lengths, each 25ft. long, are required, and can be used either rough or smooth. Before erection they require at least two good coats of paint. Two pieces, each 2ft. 6in. long, are cut from one of the 25ft. lengths.

These are fastened between the two long lengths, with half-inch bolts and nails. One piece is placed at the end and the second piece about about the middle of the long lengths. The end of the remaining long lengths has two bolt holes, drilled to correspond with similar holes through the top of the bottom section of the mast. The topmast, with pulley for aerial, back stay, and side stays attached, is now loosely bolted through one of the aforesaid holes in the lower mast, which is now ready for erecting.

Owing to its comparatively short length, viz., 25ft., the lower portion is easily erected. A board placed at one side of the hole, for the foot of the mast to rest against, will prevent it sticking into the earth, as the mast is raised. When this operation is completed, the hole can be filled with concrete. The topmast will have its lower end sticking up at an angle.

By means of a strong thin line, or wire, previously attached, it is an easy matter to elevate the top half until a strain can be placed on it by means of the back stay. Just before it reaches the extreme vertical position, a ladder can be placed against the lower section, and the line removed. A further haul on the back stay brings the lower bolt-hole in line, and with the insertion, and tightening up, of the bolts, the job is done. All that remains now is to anchor the back and side stays, and haul up the aerial. The above idea is cheap, easy to carry out, and will stand any amount of wind. I have found three side stays ample, but more can be added if desired.



An improved aerial mast which has the advantage of being able to be lowered without difficulty. See description in fourth column.

this be cured? The aerial is 110ft. long and 30ft. high.

A.: The aerial is too long for ultra short-wave reception. Put a midget condenser in the aerial or increase the number of turns on the tickler.

2. I was disappointed that you have not included the amateur Australian shortwave stations in the 1930 "Guide."

A.: It would have taken far more space than was justified. They can be obtained from "Amateur Radio," obtainable from Te Aro Book Stores, Wellington.

**"W.S."** (Whangarei) has built up an adaptation of the silk diaphragm speaker, but has met with very little success. The frame is circular, 6 inches wide, made by gluing segments of rimu together so as to form a cylinder  $\frac{3}{4}$ in. thick. The resulting tone was thin and empty.

A.: The speaker as described goes perfectly, and when adaptations are made like this there are so many chances of failure. Your best plan is to construct the speaker as it was described and you can be assured of good results. Are you sure there is not too much tension on the reed. This frequently causes trouble, the solution being to have the reed lengthened by a tapped rod.

**"L.R.J."** (Wellington) has found it difficult to obtain a circuit of a 1-valve receiver.

A.: We do not encourage the construction of 1-valve sets, because they can be a great annoyance to everyone within a mile or two. However, in our

could not be obtained to build up a sufficient reactance voltage to prevent fluctuation. On the other hand, if the width of the gap is insufficient, the coil will become saturated, and a large degree of variation results in a reduction of the filtering action of the choke, and consequently allowing a fluctuation in the voltage to the plates of the valves.

2. I am allowing 50 volts drop in the valve, and about 15 in the choke. Is this correct?

A.: Voltage drop in the valve is greater than you have reckoned. BH equals 90, BA equals 45, B equals 140. The maximum anode voltage for BH valves should not exceed 350 volts per side. You should be getting, if you have provided 350 volts on either side of the centre tap, 250 volts at 60 mills. The resistance of the choke coil is about 500 ohms.

**"E.L.W."** (Auckland) asks if the 6R would be a good unit for the silk diaphragm speaker.—Yes.

2. Would the 2ft. box baffle be better than the above?

A.: Depends upon the construction, but there is really very little difference between them.

3. Would either of the above combinations be satisfactory on 4-valve Hammarlund Roberts? All 201A's with 90 volts "B"?

A.: Yes; but we advise you to use a semi power valve instead of 201A in the last stage.

**"S.W. Adaptor"** (Wanganui) asks what modifications are necessary