

the roof. Should I be able to pick up the Americans?

A.: Your aerial is not very efficient, and it is doubtful that you will be able to pick up these stations. See the D.X. column for a statement concerning your other requests.

**PIAKO** (Hauraki Plains): I am contemplating making an Outspan Five. Would I get approximately as good results as if I used new coils and new valves in my five-valve B.D. and otherwise adapted it for a.c. operation? In other words, I wish to use the screening box now in use.

A.: Yes, you would get good results.

2. The best valves to use in either Philips or Mullard makes?

A.: Mullard, two PM16, PM6D, PM5X, PM256 in push-pull; Philips, two A442, A615, A609, B605.

3. Which would be the more suitable in push-pull, 603 or 605?

A.: 605 would give you a greater step-up, although 603 would deliver a greater undistorted output. However, it is unlikely that you would want to get a greater output than 605 would deliver.

4. Could a 66R be used with my silk diaphragm speaker?

A.: Yes, but you will probably have to make some adaptations in the arrangements to use it. You will probably have to have the rod tapped and extended.

**TAIPO** (P.N.): I find that by varying the grid bias on E442 I can get better results on certain wavelengths. Am I damaging the valves by so doing?

A.: No, you are only making your set more prone to oscillate on the lower frequencies and hence more sensitive.

**WATILLIDO** (Tikurangi): My B.D. four-valve set distorts badly. Can you give me a remedy? I am using PM4 in the first audio stage and UX240 in the first radio stage.

A.: Your first valve should really be a g.p. valve of the PM3 type, and the first audio should certainly be of the latter type and not a semi-power valve of the PM4 type.

2. What grid bias is necessary on a 256 valve with 90 volts on the plate?

A.: From 9 to 12.

**TYRO** (Auckland): The Australian stations come in only faintly on my six-valve a.c. set. Should the set not give a better performance?

A.: It appears that the condensers are out of balance. You could have a technician true them up?

2. Is the valve combination satisfactory?—Yes.

3. I am anxious to learn something about radio. Can you recommend a good book other than the 1931 "Guide," which I have?

A.: "Wireless, the Magic Carpet," by Ralph Stranger, is a good book, though it deals more with theory than construction. It is delightfully written, and you should find it intensely interesting.

**J.R.** (Woodville): I would like to get in touch with the constructor who writes of his "Outspan" in the current issue of the "Radio Record." He signed himself "G.T. (Dunedin)." Should "G.T. (Dunedin)" see this would he communicate with us and we will forward his address on to J.R. (Woodville).

**DUD.** (Wellington): I wish to erect an aerial between two houses 12ft. apart, both having iron roofs. What height would be necessary to avoid interference from the roofs?

A.: Get them up as high as possible, 20ft. would not be too much.

2. Would it be better to erect the aerial on the other side of the house in order to avoid passing over the roof and near electric lines?

A.: If you cannot get the requisite height it would be advisable to do this.

**W.J.H.** (Foxton): How can I connect phone terminals to my a.c. set?

A.: As the set uses an output filter, you can use the speaker posts.

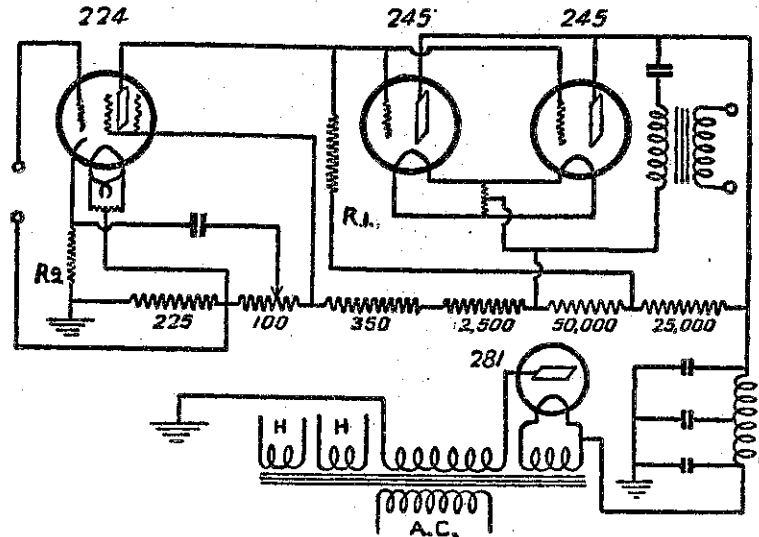
2. Could you give me an idea of the approximate voltages on the different valves?

A.: We cannot tell you this, but it would probably be about that indicated in the slip you sent us for your model.

**DONRAD** (Christchurch): I have built the Loftin Four, but am using two 245's in parallel. The set has developed

then suddenly the hum became greatly reduced and the set ceased to function. The filaments were all right, but I do not know about the "B" voltage, because I have not a meter.

A.: In all probability a resistance in the bias chain has gone. If you have not a meter you must be very careful, for if the bias chain has gone the anode cur-



Loftin-White Amplifier with Parallel Output Valves.

R1, 500,000 ohms (grid-leak type). R2, 25,000 ohms (G.L.). Potentiometer across the power valve supply, 20 ohms. Potentiometer across the detector filament, 20 ohms. Condenser in plate circuit of power valves, 1 mfd. Condensers in power pack rating from the bottom, 2, 1, 2 mfd. or more. Condenser between 100 ohms potentiometer and R2, .5 mfd. Full wave rectification can be used equally well as half-wave, the hook-up being the same as for the standard Loftin-White.

excess hum. I find by earthing the filament heads of the 224 that the hum is deadened but causes this.

A.: It is due to your by-passing, the hum frequencies originating in the 224 filament circuits. You could try an extra choke in the h.f. plate supply.

2. When the pickup is connected the hum is very bad.

A.: This should, of course, not be. It indicates a wrong layout or a wrong connection in some respect. Try changing the position of the pickup. If you have it now in the grid return, take it over to the cathode and vice versa.

3. Is it necessary to shield the 224's and condensers?

A.: It may be. If you are troubled with instability then by all means do so. This would not cut the hum down.

4. Was the value of the special tapped resistance absolutely correct?

A.: No, but notice that the resistance in the main chain was 2500 not 12,500 as first stated. A diagram is reproduced herewith showing the resistances and their value.

5. If the pickup leads touch the lead from the mains a loud blasting and hum is caused.

A.: This is quite in order. You are picking up a.c. hum from the mains and transferring to your input.

6. Can you supply a blue print of this set? It has a wonderful tone and power.

A.: We are sorry we do not have a blue print for this particular circuit.

**ARGON** (Auckland): Can I connect two 1.1 volt valves in series to a supply of 2.5 volts?

A.: Yes, though whether your set will operate under these conditions is another thing. They will certainly get all the power you want, but you will probably pick up hum. You will not need the 400 ohms potentiometer indicated across the filament of the first valve. The earthing will take place through the .5 mfd. condenser shunted across the 3000 ohms variable resistance. Your method of obtaining grid bias is correct.

**BEN ADHEM** (Christchurch).—With my Loftin White the 400 ohms potentiometer made no difference, and

A.: The oscillation was due probably to there being too many turns on the primary coil, and as you have probably had a defective resistance from the start, these two factors have combined to make your set troublesome.

**POWER PENTODE** (Kawroa).—

Would the Lamplugh speaker be suitable for my four-valve set, used in conjunction with the pentode?

A.: Yes, it is identical with the Silver Ghost, which was advertised recently by L. M. Silver.

2. I wish to build the "Sparrow Hawk" one. Would it be practicable to use a mid-set condenser for tuning?

A.: Yes, if it is to be used on shortwave only.

3. I have a Mullard PM2, and in all tables I can find it listed marked 150 volts max. In the literature accompanying the valve it is stated that its rating is 100 volts. Which is correct?

A.: Both, the tables refer to the later types of valves, and yours is probably one of the earlier makes. Do not exceed the voltage specified on the leaflet which accompanies your valve.

**SPARKES** (Gisborne).—My set is rather broad in tuning. Is it possible to use the knife edge rejector so as to sharpen tuning?

A.: It is possible but not practicable. The knife edge rejector will sharpen up one station only on one adjustment. This means you have to be continually adjusting it. If you use an ordinary wave-trap and adjust this as you would an extra dial on your set, you would achieve the desired end, but if you used a condenser of .0003 mfd. in series with the aerial you would possibly sharpen the tuning satisfactorily.

**H.M.T.**: Why does my set squeal when I use PM5X in the first stage instead of 201A?

A.: Your set is neutralised for a 201A, and if you use 5X you must reneutralise it.

2. The set has a tapped primary coil. Most of the stations come in on one clip, but 2FC and 4YA cannot be tuned in properly, because the set will not go out of oscillation. The primary coil con-

(Concluded on page 30.)

## RADIO DIRECTORY

### What to Buy and Where

#### CITIES.

**ACE & HAMMARLUND SETS**, Johns, Ltd.

**WESTINGHOUSE Rectifiers** Chancery Street, Auckland.

**BURGESS RADIO BATTERIES**, All Radio Dealers.

**LOFTIN-WHITE AMPLIFIERS** Stewart Hardware Ltd., Courtenay Place, Wellington.

**MULLARD VALVES** . . . . . All Radio Dealers.

**N.Z. DISTRIBUTORS PILOT PARTS AND RECEIVERS**, Harrington's, N.Z., Ltd., 40-42 Willis St., Wellington. 142 Queen St., Auckland.

**RADIOLA RECEIVERS** and **Farmers' Trading Co., Ltd.**, Expert Radiola Service . . . . . Hobson Street, Auckland.

**STEINITE RADIO** . . . . . G. G. Macquarrie, Ltd., 120 Willis St., Wellington.

#### COUNTRY TOWNS.

**PHILIPS VALVES AND APPARATUS** . . . . . All Good Radio Dealers.