handy. What steps can I take to reduce the noise? I cannot get the Australian stations in the daytime, nor the American stations.

A.: You appear to be in a very bad area and the noises are due probably to electrical interference over which you have no control. Take off the aerial from your set and then turn it up to its maximum point. If you get any noise then your set is probably defective and you should call in the agent who sold it to you. If it is outside interference you might approach the hospital and ask them to take steps to prevent the noise. It can be reduced by a suitable filter.

LAMBDA (Wellington): How is a midget condenser placed in parallel with the tuning condensers?

A.: You connect the fixed plates of the midget to the fixed plates of the tuning condenser of your set, and the moving of each to one another. A midget condenser will contain 7 to 9 plates.

2. When the detector is just about to oscillate there is a tingling sound when the table on which the set rests is touched.

A.: Use a non-microphonic valve socket, or, preferably, see the expert of the firm who handles your sets.

HUM (Blenheim): I am troubled with noise which I think I picked up from high-tension lines which run about 30 feet from our aerial. A pole nearby sends out sparks on a wet day. The power board engineer said we could always get noise if we are near high-tension wires.

A.: The sparking should be prevented, as it is a very lively source of interference. It can quite easily be overcome, and if you have not mentioned this to the power board engineer do so immediately. A certain amount of noise will always arise from high-tension lines.

J. C. (Dunedin): I have an old model battery set and wish to know if the enumerated combination of valves is satisfactory.

A.: It is decidedly unsatisfactory, providing they are placed as you indicate. B605, first radio, and A609 first audio, should be interchanged, but make quite sure B605 is not now in the power position. You should use A609 not A409 for a detector. B605 with 100 volts should have a bias of 9 volts at least.

STINGY (Petone): I wish to get better results from my set. Would a change to other makes of valves improve matters?

A.: No, if you are using the same make of valves as your set you are using the best possible. If you think your results are unsatisfactory, call in one of the experts of the firm who run these sets.

2. Does the DX Club imply the use of short-wave receivers?—No; ordinary broadcast.

O. K. (Napier): How can one obtain a license for operating a B class station, and what is the cost?

A.: It is necessary to pass an examination set by the P.M.G.'s Department; for information write District Radio Inspector, Wellington.

2. Can a semi-power valve such as DEP 410 be made to oscillate?—Yes.

3. Can an a.c. directly-heated valve be used in a transmitter of, say, 2½ watts?—No.

4. How many volts would be needed on the plates of the oscillators in a 2½-watt transmitter?—Approximately 250 volts 20 m. amps.

MICROAMP (Gisborne): How can two rectifying valves be connected to the a.c. mains without a transformer?

A.: To do this would be contrary to the regulations. A transformer with a separate primary must interpose between the mains and any radio apparatus.

2. What is the inductance of the following filter?

A.: The sum of the separate inductances. Do you know that as it is at present it contravenes the regulations?

3. Would two chokes be better as a filter if used in parallel and how would this affect the inductance?

A.: The total of inductances in parallel is equal to the sum of the reciprocals of the separate inductances and in series to the sum of inductances.

Note: We advise you to construct a "B" supply on orthodox lines, as details of such a system are always readily available.

A. F. (Gisborne): Can a screen-grid valve be added to the R. the W. Two?

A.: Yes, see the description in the 1930 "Guide" on the screen-grid short-wave set.

2. The set goes in and out of oscillation with a plop.

A.: A short time back we had an article dealing with troubles on short-wave such as this. Try varying the "B" voltage, the capacity of the grid condenser, and even change your detector valve, preferably to one of the special detectors.

E. J.H. (Napier): Would I get better results with my three-valve kit set by adding another stage or by using six-volt valves?

A.: Six-volt valves would give you slightly stronger signals, but adding another stage would be better. An additional stage has been described in the "Radio Record" recently.

B. S.D. (Wanganui): Will the voltage divider in "Megohm's" 250 power pack have to be changed if a Raytheon valve and the 250-volt tap is used?

A.: Leave out the extra resistance of 12,000.

2. Would a Raytheon B.H. supply enough current for two 245's in push-pull?—Yes.

3. What will be the resistance to break down the current for (a) one 227 in the amplifier and two 227's as radio and detector?

A.: For the audio valve 4500 ohms and for the other valves 2000 ohms. The two resistances are connected in series, the 4500 ohms first.

4. Will the bias potentiometers have to be altered?

A.: For bias for 245 about 1000 ohms variable would be required. The two 400-ohm potentiometers could be wired in series, one made variable and used for the two 245's.

5. Would any part of the pack need altering?

A.: Only the chokes, which should have a smaller gap.

6. With the original pack was it possible to get 130 volts grid bias—by using 250 valves?—Yes.

7. Where will I have to tap the secondary to get 250 volts rectified and smoothed?

A.: At the 1800th turn.

8. How many turns and what gauge wire will I need to supply 2.5 volts for a torch bulb pilot light?

A.: Sixteen turns of 30 d.c.c.

9. How many pieces of each size stalloy are required for the transformer?

A.: This depends upon the thickness of the stalloy. If you ask the dealer for stalloy of the two sizes, each enough for a pile 2½ inches high, you will get the right amount.

10. I wish to use the metal rectifier to supply speaker current. Can I have a winding on this power transformer to supply the eight or nine volts necessary? If so, what size and covered wire?

A.: You will require 55 turns of 26 gauge d.c.c. wire.

11. Will the gauge of primary wire need to be changed for this?—No.

12. Where should this winding be?—On the outside.

13. Would I get better results from the speaker if I used a separate transformer?—Not necessarily.

T. G.N. (Lower Hutt) asks certain questions regarding an A and B trickle charger described in the "Radio Record" some considerable time ago.

A.: We regret that we cannot now advise constructors to make this piece of apparatus, as we have received advice from the electrical supply authorities that apparatus of this nature presents a certain danger and should not be made. Your best plan would be to make a charger such as described in this year's "Radio Guide."

OKAPUA (Gore-Chatterton): When I attempted to advance the volume control, especially if I am operating on the lower wavelength, the set sets up a vigorous howl which stops if I hold my hand over the second radio valve.

A.: Your set is not neutralised. If you can locate the neutralising condenser adjust the one controlling the second radio valve slightly until this trouble disappears.

W. T.C. (Timaru): Please supply particulars for building a transformer for stepping current down from 230 volts a.c. to 180 volts, to light thirty-three six-volt lamps in series.

A.: You have not stated the amount of current to be taken by each lamp. The transformer would have a core 1½ x 1½ with 1070 turns on the primary and 1025 on the secondary. The gauge of