

## In Brief.

**H. MITCHELL** (Wanganui).—Your queries are answered in "Notes on 'B' Eliminator Construction." Any further difficulties, please write. Stalloy can be obtained from National Electrical Engineers, Wellington, and Johns, Ltd., Auckland.

## Coil Specifications.

**R. GARDINER** (Denniston).—As accurately as can be mathematically calculated, the tuning ranges of your coils are:—

1. 12 to 18 metres.
2. 20 to 35 metres.
3. 35 to 55 metres.
4. 55 to 80 metres.

The coils appear to be designed to cover the band 12-80 metres, and it is likely that the gap between 18-20 metres does not occur in actual practice.

Regeneration and coil capacity have to be considered and to arrive at an exact range would involve a great deal of work. These have not been considered, but practice will show the precise range of the coils.

The correspondent asks for a good make of condenser. The capacity he is using, .0001, is quite good. He could not better it. It should be smoothly operating and the moving plates should be connected to the frame by a rat-tail connection.

"Could I use two 30 ohm. rheostats, one for the detector and the other for the amplifier?"—Yes, quite well.

## Odd Points.

**N.Z.R.** (Otahuhu) asks the following:—

1. I used to be able to log 4QG; now I cannot get a whistle on his wave length.

A. Has the detector voltage dropped? Try raising it a little. However, natural conditions may be causing weakness of 4QG. Strange phenomena happen and cannot be accounted for.

2. I am using A 409 as detector and B 406 as audios in my three-valve set. Can you recommend better values?

A. If you desire Philips, try A 415 detector, A 409 first audio and B 406 second audio.

3. I am using 90 volts "B," 9 volts "C." Is that right?

A. The audio voltages could be increased, but the detector should be kept low—22½-45. Grid bias is O.K.

4. Should the stay wires of aerial poles be insulated? Both poles are galvanised iron.

A. It would be advisable, but not essential. Providing the aerial is well insulated from both wires and pipe, the aerial should function well.

5. Why is it that Wellington fades so badly up here; more so than any other station?

## Questions and Answers

A. This is a peculiar phenomenon, depending on your locality. It is difficult, if not impossible, to explain.

## Eliminator on Shortwave.

"X" (Palmerston North) has a broadcast receiver using a B battery eliminator. He inquires whether a shortwave adapter could be used without discarding it.

A.: The accepted idea is that a battery eliminator cannot be used on shortwaves, but recent investigation has shown this, in many cases, to be fallacious. In fact, some very good results have been claimed by using an eliminator on shortwave. We should like to hear the results obtained by this correspondent.

## The A Battery Charger.

"W.J.B." (Morrinsville) asks the following questions re the A battery charger described in the Guide:

1. Is a Philips 828 valve suitable as a rectifier?—Yes.

2. What must I order for a resistance valve?

A.: If Philips, 329.

3. What amperage fuse would be necessary instead of tinfoil?

A.: Ordinary electric light fuse with a carrying capacity of three amps.

## Eliminator Output.

A CORRESPONDENT from Reefton, "A.E.E.", has an eliminator deriving its power from an input of 230 volts D.C. He cannot test the output voltage except by a milliammeter, which reads 12. He asks if he can calculate from this the proper voltage output.

A.: It would be possible, only if the resistance of the circuit were known, and this would be very difficult to obtain. The only possibility of measuring the output is by a voltmeter.

## Oscillation Troubles.

"PUZZLED" (Auckland), who is operating a two-valve set, is wondering why, when the dials reach a certain point oscillation starts. When the reaction plates are full in the stations come in distorted. As soon as they are turned out a little the reaction goes out with a plop.

A.: This is no more than to be expected. When the plates are turned beyond a certain point, oscillation starts, and a receiver in this state will give distant stations, but they are so distorted that they are almost indistinguishable. Furthermore, when a receiver is in this state it is annoying neighbours. The trouble appears to be that the correspondent is trying to bring in more stations than his set is capable. He should read our article on oscillation control in an issue or so back.

## The 2-R.F. Browning-Drake.

"BUG," of Wanganui, asks if it would be possible to publish a circuit of the 2-R.F. Browning-Drake, using two only variable condensers and rheostats. He wants, at least, a diagram using as few dials as possible.

A.: It would be almost impossible to reduce the 2-R.F. Browning-Drake to a two-dial control receiver without losing some of its efficiency, that is, if by dials, is understood dials and condensers. The three condensers could

be ganged as suggested in the description of the adapted screen grid Browning-Drake, but it is feared that by doing this some of the efficiency would be lost. This would be the only way possible to reduce the number of dials, unless rheostats were replaced by fixed resistances, e.g., amperites.

## License Restrictions.

"F.R.B." (Petone) writes: "We have two radio sets, and we desire to work both from separate places in the house. Can we use two leads-in from the same aerial, which method I believe is not very good? Could you suggest any other method?"

A.: So long as both sets are owned by the same family there is no restriction on the number that any one family may own and operate for the one license. It seems in this case that the only possible solution, unless of course another aerial some considerable distance from the existing aerial can be erected, is to run two leads.

## The Adapted S. G. Browning-Drake.

A CORRESPONDENT, "R.F." (Te Kuiti) writes concerning the adapted screen-grid Browning-Drake described in the "Listeners' Guide." He asks if a factory-made set of Browning-Drake coils can be used.

A.: It was because of this that the S.G. set received the name, "adapted Browning-Drake." These coils, whether factory or home-made, can be used for the screen-grid set by disregarding the slot wound primary.

## Obtaining Stalloy.

"A.F.B." (Wellington), asks where stalloy steel cut to strips can be obtained in Wellington. He should try the National Electric Engineering Co., Ltd., Customhouse Quay, Wellington. If difficulty is encountered, Johns Limited, Auckland, will be able to supply it.

## The Pentode Valve.

THE following questions relative to the pentode are asked by "Pentode" (Havelock North):

1. Which is the better power valve: UX 171A or UX 171?

A.: UX 171A is the later type and has replaced the 171 valve. In referring to valves we quote frequently state 171, inferring 171A.

2.: Could a "Cossor" Pentode as mentioned in the "Listeners' Guide" be used as a power valve? If so, what resistance would I have to use, the other filaments being lit by a 6-volt accumulator? This valve requires 2 volts on the filament and consumes .3 of an ampere.

A.: It can be quite well used as a power valve with the 20 ohm rheostat controlling the filament. This is possible because of the high filament consumption, but great care must be taken

not to advance the rheostat far, because the voltage rises rapidly. The best plan would be to put a fixed resistance of 15 ohms in series with the filament negative. This would prevent any chance of such an occurrence happening.

3. I use 150 volts "B" battery. Would this be quite sufficient if using the pentode.

A.: Yes, but the filament consumption is rather high for anything but super-size dry batteries.

4. Would the change to the pentode be any advantage in regard to tone and volume?

A.: It is claimed that the pentode increases tone and volume remarkably, but we have not tested one, so that we are not in a position to state the case authoritatively.

## The Size of a Coil.

"C.C." (Wellington) states that he is using a crystal set and amplifier, the coil of which comprises 90 turns of 22 gauge wire, but the strongest signals are heard when the condenser plates are full out. He concludes he would require more turns, and proposes rewiring with 24 gauge wire, and wants to know the number of turns.

A.: The correspondent is wrong in his conclusion. He requires less turns. He would find by reducing his coil that his signals would come in stronger. Sufficient turns should be taken off to bring in the loud signals at about 50 on the dial. The optimum number is considered to be about 40 turns of 22 gauge or 37 turns of 24 gauge on a 3-inch former, though the writer has found that 33 turns of 22 gauge close-wound cotton-covered on a 3-inch former brings in 2YA from the centre of the dial. A conversion wire table is found in the reference section of "Guide." This would have answered the question.

2. Would putting an additional 45 volts on the plate of the amplifier (UX 199) increase volume?

A.: It should do if the circuit is O.K.

## "Guide" Crystal Circuit.

"M.P.S." (Auckland) asks regarding the crystal circuits in the "Listeners' Guide":—

1. Will any variable condenser do for the crystal circuits on page 22?

A.: .0005 or .00035 would be quite satisfactory, though smaller capacity variable condensers could be used if only one station was to be tuned and some experimenting as to the length of the coil were done.

2. Regarding the circuit on page 23 (the full-wave), must the condensers be .0005 and would not one detector do in place of two?

A.: .00035 could be used, but to obtain the full-wave effect two detectors must be used in a suitable circuit such as that described.

3. On page 171 of the "Guide" is a circuit of a combined wave-trap, crystal set and detector for multi-valve set. Would a slider do to replace the tapped coil?—Yes.

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