valve short-wave set? If so, how many turns would be required?

A.: It could be used quite well, and the number of turns should not be altered, if the wire is well spaced; it must occupy the same length as the 18.

Short-Wave Coils.

"F. C." (Auckland) asks for the details of short-wave coils for a factory-made 3-valve receiver.

A.: Those described in the Listeners' Guide should be all right, with slight adaptation, but the capacity of the condenser must be reduced by means of a .0008 condenser in series. .0008 is not easily obtained, so use a .0005 and a .0003 or .00025 in parallel. We should advise you, however, to obtain the commercial coil, for these are designed for your circuit.

2: Would I improve matters if I used copper shielding?

A.: Here again we advise you not to tamper with a commercial product. The only way we advise amateurs to interfere with commercial receivers is on the audio side, where they can frequently adapt the wiring to provide different voltages for the anode and grid bias.

Rheostats.

WHAT is the difference between a 30 ohm filament rheostat and a 6 ohm one? asks "G.S." (Wellington).

A.: A 30 ohm rheostat will break down the voltage of the current it passes much more than will the 6 ohm one. Usually a 6 ohm rheostat is made of heavier material and will pass greater current. It is used when there are several valves consuming a large amount of filament current, and when it is necessary to break down the voltage supplied to them by a volt or two. The greater the current that flows the less in ohms is the resistance that must be used in the circuit. This explains why a single valve or two valves using low filament consumption require a 30 ohm rheostat while five or six valves require a 6 ohm one.

2: Does the rheostat act as a switch for both "A" and "B" batteries?

A.: Almost without exception, yes.

Set Oscillates Too Freely.

I HAVE a 3-valve all-wave set and cannot stop it oscillating, states "E.A." (Waimauku).

A.: You have probably too many turns on the tickler coil; try reducing them. Reverse the turns to the tickler if it is separate or to the condenser if the tickler coil is continuous with the secondary. See that the filament negative is earthed, and test your grid condenser. Put the detector voltage on a separate tapping, say 22½.

2: When I put my finger on the grid leak the set squeals.

A.: This indicates that the audio side of the set is intact.

A.C. "Round-the-World" Three.

IS it possible to use an ordinary bell-ringing transformer to light the filaments in "Round-the-World" Three? asks "L.W." (Auckland).

A.: A full explanation of why A.C. cannot be used in D.C. valves appears in the 1930 "Radio Listeners' Guide," and in "All About the All-Electric." If you wished, you could use A.C. valves in "Round-the-World"Two, though a little hum may be introduced when dealing with the high frequencies. In this case, a bell ringing transformer if it would pass the requisite amount of current, would be all right.

2. Where can I obtain details for building a B eliminator?

A.: One was described in last year's "Listener's Guide"; a super power pack was described in the "Radio Record" at the end of last year, and the subject will receive attention in the 1930 "Radio Listener's Guide." If you have not had previous experience, follow the description in the 1929 "Guide." We do not agree with you when you say it would be better to buy one. Those who can afford the time to make one can usually turn out a better article than the commercial one at the price.

Valve Base Coils.

WOULD coils wound on valve base coils be suitable for "Round-the-World" Two? asks "B.E.J." (Nelson). If so, what size must I use?

A.: The question was very fully dealt with in "QST" for February, 1930, and if you can get a copy of this magazine you can work this out for yourself. If you cannot locate a copy we shall lend you ours.

2. Would I use the same size choke for both long and short wave?

A.: The choke is more important on the short-waves, so use the short-wave specifications.

3. How many turns would I put on a test tube for this choke?

A.: About 150.

Wavelengths of Short-wave Coils.

"R. D." (Te Kuiti) asks the following questions concerning this subject:

1: What are the wavelengths covered by the Aerola short-wave coils? They are ?? inches in diameter and bound with 18 swg. wire, I think. The secondaries are 3, 7 and 18 turns respectively. They are used with a .001 mfd. condenser.

A.: The details are fairly vague. The omission before the word inches prevents us from giving an accurate answer, for we do not know the coils in particular, and consequently can only approximate. If the diameter is 3 inches, the gauge of the wire 18 sgw. spaced, then the bands are most likely 15 to 30 mteres, 30 to 45, and 45 to 60.

2. I wish to construct a short-wave adapter using a stage of untuned S.G. R.F. amplification. Is the enclosed circuit all right?

A.: Yes, but you would do better to make up the R.F. and detector stages of the scheen-grid three-valve set described in last year's "Radio Listeners' Guide."

Aerial Wire.

WHAT is the best material to use for spaces on a double wire cage aerial? asks "R.E.T." (Whangarei).

A.: Strong bamboo or cane makes excellent spaces, but the ends must be well bound to prevent splitting. Any hard timber well seasoned and painted will be all right.

2. Should the leads-in be kept at a distance until they reach the aerial terminal?

A.: Keep them at a distance for so long as it is convenient.

Audio Transformer Question.

I AM building a short-wave set, states "Shorty" (Stratford), and the specifications state that an audio transformer is to be used. I have a low frequency transformer marked P, G, + B, — C. Can this be used instead of the audio transformer?

A.: Yes, they are identical. If the specifications show the transformer marked IP IS, OP OS, then IP=+B,, OP=P, -C=IS, OS=G. If it is designated in the usual American fashion, the markings will be the same on both transformers.

2. Can a valve base be wound for a coil former for "Round-the-Word" Two? How will this affect the wiring?

A.: Slight adaptions should be in the aerial circuit; the tappings would present a little trouble, though it could be overcome.