The Full Wave Crystal Set.

"B.P.S." (Devonport) has constructed the full-wave crystal set, and states that it is a big improvement on the ordinary crystal, inasmuch as it brings in 1ZB quite clearly, also 2YA and the Australian stations faintly. He observes that signal strength from 1YA is greatest when the condensers are closed right up, and that disconnecting either crystal does not lessen the signal strength in the slightest.

A.: It appears that the coils are too small; add the same number of turns on to each, so that 1YA will be brought in further up the dial. If the two dials are not perfectly matched, a few more turns should be added to the coil, the dial of which reads the greatest.

(The full-wave crystal set was described in our issue, December 14, and also on page 23 of the "Radio Listeners' Guide.")

Plate Melted Off.

"S.B." (Palmerston North) states that the plate in the rectifying valve in his charger has melted off, despite the fact that there were only three blocks of 20 volts each being charged. Particulars as to the type of valve were not given, so that it is very difficult to say what the cause might have been. Certainly a short-circuit is suggested, and the correspondent should examine his circuit very carefully for this. At the same time, he should see if his valve is not being overloaded.

What is the purpose of a resistance lamp, and which requires a bigger resistance—40 watts or 60 watts?

A.: A resistance lamp is a safety device to prevent the high-tension current from the mains damaging the charger. A 60-watt lamp has a less resistance than a 40-watt one.

Questions and Answers

Varied Set Ailments.

"H.E.C." (Wellington) asks the following questions:—

1. How to test a Siftron?

A.: A siftron is an output filter comprising an iron-cored choke and a by-pass condenser. The test can be made by the phones and cell method. Connect these across the two input terminals. A click will indicate that the choke is OK. Connect one of the input with the output opposite. There should be either a click or a silence. Now test the other pair. If a click was heard on the first test of these two opposites there should be a silence or at the most an initial click followed by silence. One pair should give a click at every application of the testing apparatus. One at the most—one, and then silence.

2. How to add a further audio stage to "Round the World Two."

A.: Disconnect the connection between the plate of the last valve and the jack. Introduce another audio transformer, placing it at right angles to the existing transformer. Connect "P" so disconnection to "P" of the transformer. Disconnect "B plus" from the jack, and connect this to "B plus" of the audio transformer. Introduce another valve socket connecting "G" of this to "G" of the transformer. "GB" of the transformer is connected to the negative of a grid bias battery of about 4½ volts, depending on the valve to be used in the last stage. The postiive of this battery is connected with the "A minus." Connect the plate of this last valve socket to the jack as before, and the other leg of the jack to the highest "B" voltage available. It remains now to connect up the filaments. Connect one of these plus to an amperite, then to the filament connection of the first audio transformer as shown in the original diagram. The other goes to "A plus."

3. Can I connect a dry battery with a wet "B" battery to increase its voltage?—Yes.

4. Since inserting three new English valves in my American set, I have found the set very unstable on the lower wavelengths. I am now using an American detector with English radio and audio. The use of a Continental detector makes things worse. Would the addition of Phasatrol stabilise the set.

A.: This is to be expected when English or Continental valves are used to replace American valves in an American circuit. The whole neutralisation apparatus of these sets is adjusted for American valves, either 201A or 199. If English valves are to be used they should be as nearly as possible matched to the American valves, that is, PM6 would give better results than the PM5's now used, but the correspondent would be advised to return to the American valves. A Phasatrol would certainly add greatly to the stability.

5. Where may I obtain particulars of the Australian broadcast programmes?

A.: The difficulty here is that the Australian mail comes in just a day too late to enable the programmes to be published. Where possible, we publish extracts from future programmes. It is doubtful if any daily paper would undertake to publish the full Australian programmes.

A Neutralising Device.

"C.C.H." (North Auckland) states that he has noticed an arrangement similar to the regulator of a clock on the back of his American-made receiver. The letters "D" and "S" indicate the extremities. On altering the regulators, he notices that the tuning becomes sharp and howling commences. He seeks an explanation.

A.: This is the neutralising condenser, the letters standing for "dry" and "storage" batteries according to whether 199 or 201A type of valve is used.

2. What grid bias would be needed if I increased the voltage on the power valve B605 from 90 to 135?

A.: About 12 volts.

Introducing an Eliminator.

"A.Z." (Dunedin) wishes to change from dry batteries to an eliminator, and asks if these are a success, and if any change in the set is necessary. He asks also if a power valve could be used with an eliminator?

A.: Where the mains current is reasonably steady, as it is in all but a very few districts, an eliminator can replace a battery with every satisfaction. The great advantage of an eliminator is that a power valve can be used with excellent results. Voltage that is economically unobtainable through batteries, is quite possible with an eliminator. Many of these instruments have grid bias tappings going up to about 50 volts negative, thus enabling a power valve to be used with 180 volts on the plate and 50 volts grid bias, e.g., the 171A type.

The correspondent asks the amount of grid bias he would have to use, but that would depend entirely on the valve in the last stage. See "Listeners' Guide."

Concerning a Super-Hetrodyne.

WISHING to construct the last word in short-wave receivers, "W.J.W."