A Corner for Beginners

By Observer

Trouble with Crystal Sets.

THE following interesting letter dealing with trouble finding, has been received from A. C. Loach (Christchurch):—

"I notice that in the "Record" you repeatedly impress on owners of small sets the need of an efficient aerial and earth system, but apparently with some people it does not sink in very far. Friends often bring crystal sets along for me to overhaul, and as a rule when I hook the sets to my aerial they are quite efficient. So then I return the set to the owner with some free advice on the care of the aerial. **In nine cases out of ten lightning conductors are the cause of the trouble due to corrosion at the terminals. Other causes are leads-in unsoldered, and ground wires unsoldered.**

The most striking case I dealt with was that of a fellow who moved out our way from the city. He brought his set along to me with the usual tale of woe, "It won't go!" Hooked it up at my place one evening and the result was terrific 3YA came in with a great rattle, and was quite audible on the speaker direct, and from the crystal whilst on a two-stage amplifier it was beautiful. 2YA was clear and distinct on the crystal alone. I began to get interested in this set, so when 2YA closed down their news session I connected the amplifier up and landed 2FC on news. Waited till 3YA closed down for the night and then bagged the following:—2FC, 2BL, 3AR, 3LO, 4QG, 2GB all at good 'phone strength, except 2GB.

I wrote out the list of stations heard also names of various items announced from same and handed it to the set owner with some more advice on aerials, etc. His aerial comprised a 100ft. length of wire from the top of a 30ft. pole on to a chimney, lead-in twisted round aerial wire, **not soldered!** The earth was a 2ft. of galvanised pipe driven into stony soil.

My own aerial is as follows:—A single pole, height 56ft., with an ordinary telephone pattern insulator at the top. The aerial wires radiate out in four directions from the insulator, acting as the top stays for the pole, the lead-in being taken from the lead nearest the set. This type of aerial should be ideal in cities where enthusiasts are cramped for room. The earth used is 4ft. of copper piping buried in cinders.

The method of erecting is to place a 15ft. length of oregon, 6in. x 3in. with its two hardwood legs 18in. to 2ft. in the ground and then to place the 40ft. pole 3in. x 3in. alongside, and secure with the clamps. Secure the stays and slide pole straight up through clamps slackening stays as required. The aerial wires are carefully insulated to prevent contact with the lower portion which acts as stay wires. The whole is like an umbrella.

I hope this will be of some interest to you, and wishing you the best of luck in your good work." This is certainly of interest, and the letter is passed on to listeners with the writer's commendation. The aerial should be very useful in congested areas.

Undesirable Conductors.

A CORRESPONDENT writes of a peculiar source of trouble which caused him great expenditure and much delay.

At the end of the usual programme the station closed down and his receiver was perfectly in order, but on attempting to tune in the following day it was found that the signals were painfully weak, too weak to satisfy the loudspeaker. The usual channels were searched without avail. An expert was summoned, components replaced, yet no improvement.

Finally a most inoffensive-looking spider-web was discovered between the lead-in and the ground connection, both of which were bare. On sweeping this away the set went as though nothing had happened.

Spider webs have extraordinary conductivity and should be kept clear of all wireless apparatus.

WHILE as a rule rain makes not one iota of difference to a properly insulated aerial, it sometimes happens that during a rain storm (or even only part of the ' ..e) a loud noise, fierce and crackling, will accompany the rain. On such occasions it may be taken for granted that there is a certain amount of suspended electricity leaking to earth through the rain. Dirty, ineffective insulators have been known to cause a similar effect.

Electrical Measurement.

A WORKING knowledge of the fundamental relation between volts, amperes, and ohms, the three basic units of electrical measurement, will prove useful to the radio beginner. The volt is the unit of electrical pressure; the ampere, of volume; and the ohm, of resistance. In any electrical circuit, the voltage or pressure is what forces the amperes or volume through the ohms or resistance. It takes one volt to force one ampere of current through a resistance of one ohm; hence you can figure the current or amperes in any circuit by dividing the voltage or pressure by the ohms or resistance. Similarly, you can figure out the resistance of any circuit by dividing the number of volts by the number of amperes. And if you wish to know how many volts would be required to force a certain number of amperes through a specified resistance, multiply the number of amperes by the number of ohms.

Positive and Negative.

ELECTRICITY as we understand it is of two kinds, positive and negative. The positive tends to flow to the negative and the negative to the positive. The attraction of the positive pole is strong enough to entice the negative electricity through the entire radio set. The positive flows to the negative through the battery, which is composed of little cylinders of zinc (—), a paste and a central rod of carbon (+).

If the + pole, which is usually coloured red on accumulators, marked + on dry blocks, or in the centre of 1½ volt cells, is connected to the negative pole by a low resistance, comparable to connecting an empty tank to a full one by a wide pipe, the electricity will rush from one pole to the other at such a rate that before long the power will be lost.

If connected through the set, or through the high resistance filament of the valve, the flow is slow and the cells last longer. The flow is caused by a chemical reaction being set up in the zinc, paste and carbon. A battery is in no sense a store of electricity, it is a manufacturer. When the manufacturing elements become worked out the battery does not function. To renew it the elements, zinc and paste, for carbon does not rapidly deteriorate, would have to be replaced. This is virtually a new cell.

Testing Polarity.

IN view that electricity flows from the negative to the positive, outside the cell, it is necessary, then, that the positive be connected on to the + terminals of the set, those designated by the designers as being the most appropriate for receiving the current.

This usually presents no difficulty, as the batteries, accumulators or eliminators, are always clearly marked, while terminals on the set are always marked and wires usually coloured and labelled.

One word of warning—don't connect up batteries in a dark cupboard by