

"B" Eliminator Trouble.

I HAVE a "B" battery eliminator which has burned out several valves, writes "S.P." (Wellington). I returned it to the dealer and received another, which did the same thing.

A.: If your set worked all right with batteries you may take it for granted that you have either been very unfortunate in securing two defective units or are connecting it up wrongly. The next time take your amplifier to the dealer and get him to connect it up and get it working before you take the unit away.

Aerial Troubles.

"BROWNING-DRAKE" (Miramar) asks the following questions regarding aerials:—

1. Is there any advantage in having one end of the aerial lower than the other?

A.: No, it is the average height above the ground that counts.

2. Is it advisable to use insulated or plain wire?

A.: It is immaterial, though enamelled wire prevents corroding.

3. What should be the direction of the aerial for outside stations?

A.: It depends upon the stations to be received. For the Australian stations use an aerial running north-west to south-east; for the American stations use one running north-east to south-west.

4. I am troubled with tramcar interference, and although I have erected my aerial directly north and south and the lines run east and west I cannot lessen the noise.

A.: You should communicate with the Power Board, as it is clearly a case for them. If they cannot do anything for you, then use the usual remedies: a counterpoise earth, a shorter aerial, and even an indoor antenna. Lessening the coupling in the antenna circuit will quite frequently increase the selectivity, but will reduce the volume. A loosely-coupled aerial coil consists of a separate coil between the aerial and the earth, which is mechanically separated from the grid coil. Wind a piece of insulation tape around the existing aerial coil and wind as much 24 gauge D.C.C. wire on this as the width of the tape will permit. Secure the ends and carry one to the aerial and one to the earth. Leave the existing earth connection, but disregard the tapping for the aerial now provided.

5. I am using Mullard and Radiotron valves. Do you think Philips would improve the set?

A.: No. There is practically no difference between first-grade valves such as these.

6. We regret we cannot decipher your writing in this question. The wording appears somewhat vague.

Another Aerial Problem.

I HAVE a six-valve commercially-built set, writes "Dead-Spot" (Blenheim), and although I have a good aerial running north and south I cannot pick up the American stations.

A.: That is nothing unusual. The writer has a still better set, a still better aerial, and yet cannot pick up the American stations. Very much depends on your locality and your patience.

Useful Tips

ONE of the best methods of arranging a loudspeaker extension is by means of a plug and jack, the jack being of the type in which the circuit is closed when the loudspeaker plug is withdrawn from it.

KEEP a watch to see that sediment does not form at the bottom of your accumulator. (This is often a sign that it is being charged wrongly.)

An Electrical Mystery

Power from the Earth

PROGRESS in the scientific world has been made with almost unbelievable rapidity during the past 20 years, but occasionally natural phenomena, inexplicable even in the light of present-day knowledge, mystify scientists. Such an incident occurred recently when an American radio experimenter was attempting to connect a power speaker to an electric light socket.

The experimenter in some way while handling the wires mixed them and introduced a ground wire. He then turned off the chandelier switch for fear he would receive a shock, but instead of plunging the room into darkness it was left lighted as before. At first he thought the switch was not working, but tests proved that it was in perfect working order. Then he discovered that when he disconnected the ground wire the light went off.

He turned off the chandelier switch and even unscrewed a fuse from the fuse box, completely cutting the circuit. When he connected his ground wire the light flashed on as before. At first he thought he must be completing the circuit through the ground, but then he learned that alternating circuits from the power-house are not grounded. There is an outgoing wire from the power-house and a return wire to complete the circuit through the generator.

Then he discovered still another startling fact. When he connected a second light bulb in series with the ground wire it also glowed—and more brightly than the one in the chandelier above his head. He studied this out and came to the conclusion that "his" electricity was coming from the ground—which he knew would startle the world if it were true.

To make sure that he was not using current from the electric light company the experimenter watched the electric meter. The thin steel wheel that always turns slowly when current is being used was motionless. He took his wire to a college and demonstrated for a professor. It worked there as well as at home. The professor tested the current with fine instruments. He could see nothing wrong or explain where the current was coming from.

The experimenter demonstrated similarly for other professors, and all who saw the demonstration were puzzled, but they expressed the opinion that the phenomena could be explained by present electric laws.

Some of the demonstrations are as follows:—

A compass is held to the ground wire while the light in the chandelier is burning and the needle does not deflect towards the wire. Then he holds the compass near a circuit fed by a dry cell and the needle instantly turns at right angles to the wire.

A solenoid coil containing a 40-penny nail is connected in his circuit and demonstrates that it will not pick up the finest iron filings. Then he connects the same coil to the dry cell and it picks up a generous portion of the filings.

He holds two bare wires in his hands and connects them with impunity.

Sparks flash when the ends touch, but there is no appreciable heat, and only the slightest shock is experienced. This made Mr. Sherman realise that he has a form of electricity that will light a 110-watt lamp and yet would be harmless to people.

With the socket switch turned off and the fuse pulled from the box connected with the electric meter, he makes one, two, or three lamps glow with light strong enough to read by with comfort.

It is argued that the electricity is coming from the ground because the lamp nearest the ground in the circuit glows the brightest, the next one less brightly, and the upper one least of all.

Professors declare that the simple experiments are faulty; that the man is getting alternating current from that source. Still they have announced that they are planning exhaustive sets of the hookup to determine whether he has discovered a new principle, or if this is merely a freak performance.

Construction Hints

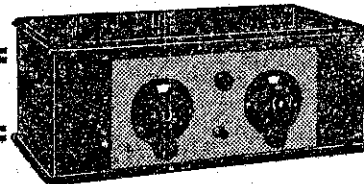
A Tapping Hint.

IF you have a considerable number of holes to tap in a piece of ebonite, don't bother about the ordinary tap holder. Drill all holes, first of all, to the proper size, then mount the tap in the chuck of the hand-drill. Don't try to drive the tap through "in one." Taking care to see that you are going straight, give it one turn or a little more, then turn backwards to allow the tap to clear itself of dust. Now go forwards again for a few turns, turn back to clear once more, and then drive straight through. With the hand-drill one can easily tap three or four 4 B.A. holes in a minute in $\frac{1}{4}$ in. ebonite.

A Useful Coil Rack.

EXPERIMENTERS who are constantly changing coils of the plug and socket variety will find it very convenient to buy from any hardware shop a cheap wooden towel airer of the kind which screws on the wall and has three or four pivoted arms. One of these arms can be used for carrying aerial coils, another for short-wave coils, and a third, coils for the long-wave band, while if there is a fourth, centre-tapped coils can be kept separately. Such a device, screwed to the wall above the experimenter's table, not only saves a great deal of room but greatly facilitates work.

Spans the Two Hemispheres



THE
LISSEN

Screen-Grid 3

The Lissen Screen-Grid-Three stands out for range, volume, completeness, and compactness among all kit-sets. With short wave coils it spans the world, on the broadcast band it gives a volume and clarity equal to the most expensive assembled set.

Price

£6

Short-Wave Coils and Accessories extra.

The Lissen Screen-Grid-Three stands out as a classic among home-constructed sets. It is easy to build and its cost is low. Build this receiver with your own hands. Send for free literature to-day!

Your local Radio Dealer can supply you with a Step-by-Step Chart and will help you with all details, although a person with no technical knowledge could build the set without any help whatever.

ABEL, SMEETON LIMITED
CUSTOMS STREET EAST :: :: AUCKLAND.