

An Experience with Lightning.

WOULD you be good enough to explain the reason for the following, which I experienced on the 13th inst. At about 5.30 p.m. I noticed a dark ominous looking cloud not far distant and having my set dismantled at the time I thought it advisable to connect my aerial to earth in case of lightning. When connecting these leads together a spark occurred. I repeated the performance and found my aerial was alive, and threw a spark of 1-8 inch. When the leads were from 6 to 8 inches apart a distinct hissing sound could be heard.

Becoming alarmed, I disconnected A and B batteries to make sure there was no contact there. I then suspected a contact with the house wiring, so switched off the meter, but still the current came through. I then inspected the lead-in through the ceiling and found everything O.K. It was not until this cloud drifted well away that the aerial lost its current. I have never experienced this before nor since, and can only suspect the aerial of picking up a current from an electrically charged cloud. Perhaps you can enlighten me.—"SPARK" (Taradale).

This is one of the rare occasions when an aerial has become charged from a passing charged cloud. This cloud, a mass of static electricity, was passing through an insulator—the air. When it reached the aerial it found a means of getting to earth, especially if there was a lightning arrester in the circuit. The spark indicated that the high voltage from the cloud was rapidly passing to earth.

This is a case which points the urgent necessity of installing a lightning arrester, which would prevent the high tension current reaching the set. The spark spoken of merely arcs across the spark gap and passes harmlessly to earth.

Long and Short Aerial Combined.

IT may interest some of your readers if I describe shortly what I have found to be a particularly effective though quite simple aerial.

I have two poles about 45ft. high situated about 160ft. apart, one pole being about 120ft. distant from the house, the other about 40ft., each pole being on opposite sides of the building. A single wire stretches from each and is joined by about six feet of wire with insulators at each end, thus forming two separate aerials of about 110 and 35 feet respectively. Each of these aerials has a separate lead-in, either of which can be attached to the aerial terminal of the receiving set.

By this simple means either a long or a short aerial can be used, the form-

er giving greater volume, the latter greater selectivity.

I have found also that this aerial system is of great use in reducing static. When static is bad I disconnect the earth wire from the set and attach the short aerial to the earth terminal of the receiving set, keeping the long aerial attached to the aerial terminal in the usual way. This certainly reduces volume somewhat, but it also

pathetically resonating at its own frequency every now and then. There are all sorts of objects in a room (and not necessarily very close to the set) which might vibrate at certain frequencies from time to time. As a matter of fact, it is highly possible that there will be dozens of articles, large and small, vibrating, although it is only in exceptional cases that these vibrations will be great enough to be really noticeable.

Warning to Constructors

IN last week's issue of the "Radio Record" there appeared an article under the title: "An Addition to the Trickle Charger," contributed by W. Winten, which deals with a switch not in accordance with the regulations. In point of actual fact, this switch constitutes a danger, and listeners are warned not to construct the apparatus. The article, as contributed by our reader, Mr. Winten, was submitted to our technical adviser and duly passed by him. This, however, was an oversight contributed to by Christmas pressure, and we take the earliest opportunity of advising listeners as to the actual position: namely, that the switch described is illegal and constitutes a danger in operation.

has a most marked effect in reducing static. — PHILIP WILLIAMSON (Whangamata).

Vibrating Objects Cause Distortion.

A SHORT time back a correspondent complained of harshness and rattle on certain notes. Among the causes was suggested loose parts. The following, is a development of that idea.

IF you have a powerful receiver and operate a large loudspeaker, you may have been troubled from time to time by slight harshness creeping into the reproduction. Perhaps you have put this down to overloading the valve or to some other trouble in the set itself. At the same time it is quite possible that resonance in some article in the room may have caused it.

A cigarette-box may be standing on the top of the set and may be sym-

Vases and other mantel-piece objects are prone to sympathetic resonance, as also are fire-irons, and small panes of glass in book-cases or china cabinets. If you have fairly sensitive fingers such vibrations can easily be discerned by lightly touching suspected objects. In some cases the only cure may be to remove the object entirely from the room. To obtain perfection of results, many more points besides this one of resonating objects would have to be attended to in the acoustics of the room, and although many amateurs may not feel inclined to go to the trouble of a patient investigation of all such effects, they will find it of interest to feel some of the objects immediately adjacent to the loudspeaker. They will be surprised to find how much resonating energy can be developed.

The Lightning Arrester.

A SHORT time ago a correspondent wrote stating that his arrester had been cracked whilst he was screwing it to the aerial wire. He asked whether it would be rendered useless by this break.

The query brings up an important point regarding lightning arresters. Underlying the red sealing cement lies a piece of cardboard protecting the spark gap which breaks down if struck by lightning. If by any chance this happens to become damp it acts as an admirable conductor and passes the aerial current to earth. This would render the signals faint, if not inaudible, so that if signals become unaccountably faint try removing the

lightning arrester, and if that is the cause, replace it by another—don't leave the set without one, it may be unwise.

To return to the query. If this arrester was to be used outside, then the result would certainly be evident as soon as dampness fell. Even if the broken arrester were to be used inside it would be advisable to replace it, as damage may have been done that may cause the correspondent more trouble and cost than the replacement of the lightning arrester.

Noises in the Speaker.

A CORRESPONDENT has been troubled with noises, intermittent crashes like mild static, at times rising to sufficient intensity to distort the notes, especially those on the lower registers.

There are several probable causes, the most common being the following:

Power line leakages: To test for this, disconnect the aerial. If the noise ceases it is mostly surely power-line interference or static. Examine the aerial to make certain that it is at right angles to any power lines. This will minimise noises from induction. If the noise is disturbing to many in the neighbourhood it should be reported to the District Telegraph Engineer.

Batteries.

IF on disconnecting the aerial it is found that the noise continues, then a systematic search must be made through the set. First test the batteries with a voltmeter. A faulty battery can cause a multiplicity of troubles, so that it is wise to blame first the battery. This can be very easily tested, and, if too low, discarded.

Faulty Sockets.

IF a good contact is not being made, the result will be intermittent and distorted reception. The valve with the defective socket will not give satisfactory results, and each following valve will amplify this defect so that by the time it reaches the speaker there is a rare old noise.

A simple test is to tap each valve tightly. A clear ring should be heard in the speaker. If one valve causes an undue noise then that should be the suspect.

Examine carefully the socket, especially the grid and plate contacts, but a word of warning, disconnect all battery leads—short circuits are then impossible. Examine the joints for defective soldering, and force the contacts, if at the side of the socket, a little closer. If the socket is one of the large type with the contacts on the base, bend these slightly upwards. Clean all the contacts, including the prongs of the valves, and, if possible, pry open the slit. This should eradicate the trouble.

In Windy Weather.

IN windy weather faulty joins in the wires in the aerial sometimes give rise to receiver noises. If the aerial wires are soldered this trouble is avoided, but twisted joins become corroded, and when the wires are subject to movement they cause annoying variable contacts.

Swinging of the lead-in wire which brings it into contact with spouts or other conductors or semi-conductors in electrical connection with the earth will also set up noises in the loudspeaker.

Wellington owners who are troubled to make this the first line of investigation with constant noises would do well to

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