

comparison with some of the big outside logs of northern listeners, my results are not what I think satisfactory. I have the Pierce earth system.

Congratulations on the very fine information contained in the "Record." (Bluff).

ANSWER.—When "Switch" spoke of a four-valve in the radio frequency stage of the Browning Drake, a valve of the UX199 type was meant.

Numerous correspondents have written in stating that they have had difficulty to neutralise their Browning Drake receivers, particularly in the case of the 2RF Browning Drake. A case of this was cited last week. The UX199 type of valve, i.e., the type having a high impedance, is most suitable for the first stage, because it may be easily neutralised, and will not spoil reception of a distant station by oscillation. By UX199, a type of valve

#### FOUR GOLDEN RULES.

1. The cheapest way is to use specified components, and no others.
2. Never buy spare parts from a friend. Friendship is too valuable to risk on the difference between a cheap and a new article.
3. Read all the information you can before beginning to build.
4. Avoid second-hand batteries like the plague.

is meant, and not one particular make.

All good valve makers turn out valves of this type, and the correspondent could ascertain from any reliable dealer the type of valve in the particular make he fancies that approaches nearest to UX199. It is not because the valve is four-voits that it is more sensitive; it is implied that the UX199 happens to be a four-volt valve, but other valves of this type need not necessarily be four-voits, i.e., Osram DEH810 is a six-volt valve, but equally suitable for the position.

Of course if a four-volt valve is to be used with a six-volt battery, a resistance should be placed in the circuit. This need not necessarily be a variable rheostat. The resistance of the Ampertite type is suitable.

Judging from the correspondent's log his receiver is in very good order.

PM5 is a high impedance valve, with a high amplification factor, and is therefore suitable for a H.F. stage.

GALVANISED iron wire as sold for clothes-lines makes an excellent stay for masts. Rope should never be used.

## A Corner for Beginners

By Observer

#### A Washing Copper as Earth.

SOME time ago you were good enough to advise me in regard to the use of an old copper as an earth, at the same time expressing a wish to know the result.

I am now able to advise you that it is a complete success and I am

A few particulars of the installation may be of interest to you. The aerial is a single 1/14 wire 136ft. effective length, about 16ft. above the instrument where it is fixed to the house and about 2 to 3ft. higher, where it is carried by a tall gum tree. To get over the difficulty of sudden gusts of wind snap-

### Important Notice Regarding Enquiries

AS our service is now being fully availed of and as almost every mail brings in a large number of enquiries on various topics, it has become necessary to adopt some system of uniformity. Correspondents are therefore requested to observe carefully the following points. Failure to observe these may mean delay in answering and even the loss of the letter.

1. Addresses.—All technical correspondence, whether inviting reply or not, must, in future, be addressed: "The Technical Editor," "N.Z. Radio Record," Box 1032, Wellington. This includes letters to "Pentode," "Galena," and "Observer," as well as those that have in the past been erroneously addressed the Editor.
2. Each letter to bear (inside) the department to which it refers:—Construction, Crystal Corner, Questions and Answers, or General.
3. Letters inviting reply must be accompanied by a stamped and addressed envelope, but the right to answer any letter through the columns is reserved. Correspondents should watch the columns carefully as one letter may be answered in more than one section.
4. Advice requiring discrimination between factory-made sets or between makes of components cannot be given.
5. All letters to be signed, but a nom-de-plume may be added.

getting wonderful results. The volume has greatly increased and the tone is much clearer. I can now hear every word of a speaker quite distinctly 7ft. away from the small loudspeaker operating direct off the crystal without any amplification.

I have had four headphones and a bar amplifier working the one loudspeaker simultaneously, and the speaker volume appeared little less than when working alone off the set when earthed to the water pipe.

ping the aerial—which happened twice—I have fitted strong springs at each end, as well as a counter-weight at the tree, and now find that there is no whipping of the aerial. I should have mentioned that the ground falls rapidly towards the tree which is about 50ft. high to the aerial pulley. My lead-in is 7/20 soldered in a special copper clip which I made to serve as a connection between the 1/14, 7/20, and lightning arrester. My earth wire is about 11ft. long from instrument to old copper, and is 7/16 cable. The detector is a permanent crystal. When cutting holes in the old copper I cut three rows staggered around it, each containing seven V cuts about 1 1/2 in. on the side. The top and bottom rows are bent out at right angles and the centre row bent in. The copper is filled with coke layers and fine earth alternately and a space of about 4 to 6 in. around the outside is similarly treated. The amount of water absorbed by this filling surprised me.

As wireless is no longer a luxury, in my opinion, I have wired an outlet to every bedroom, the breakfast room and living room, and a set of 'phones hangs at the head of each bed, so my household makes good use of 2YA and gets a good 30s. worth. Thanking you for

your advice.—JOHN T. MUIR (Khandallah).

#### Mr. Muir's Earth.

MR. MUIR'S earth was described in our special issue of December 14. The salient points in the installation are as follow:—

An old washing copper was taken and perforated with holes as described in the recent letter above. To the copper was soldered seven strands of 7/18 cable. This was sunk several feet in the ground, the copper being first filled with clinkers, and kept upright in the ground. Leading to this is a down pipe by which the copper and its contents can be continually moist.

The earth has no doubt proved very effective, and as in certain places in Khandallah it is particularly difficult to get a good earth, this system should prove admirable for anyone who has such a difficulty, and should be worth while installing by those who have facilities to do so.

INSTEAD of having an open tin of flux upon the work-bench it is a good plan to cut a hole through the lid into which a match-stick or other convenient gadget may be inserted when using the flux.

IF a loud-speaker is connected to the input of an L.F. amplifier the output of this will reproduce speech from the input end even though fairly long wires are used to connect the input and its "microphone."

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