

Hints for Listeners

ELIMINATING NOISES

The following talk by Mr. Preston B. Billing, of the Wellington Amateur Radio Society, was delivered through Station 2YA recently:

Noises within your radio receiver are due to one or the other of the following causes: Crackling noises often mistaken for statics are due to defective or run-down B batteries. If any one of the 15 or 30 cells are run down or polarised, amplification of the resulting voltage fluctuations cause crackling in the loudspeaker. In order to determine if the batteries are really run down or defective, one can substitute another battery and note if there is any improvement in the reception. Batteries which show less than 75 per cent. of their initial voltage should be regarded as suspicious.

The next place to look is in the A battery. If dry batteries are in use in this part of the set, the remedy is fairly obvious they should be replaced. The accumulator type of A battery does not as a rule give any trouble if the battery is kept well charged, and it is not very old, there should be no trouble from this source. Very often noises will be encountered through a defective grid leak; try one or two leaks and see if there is any improvement. All wiring in the set should be rigid, and connections securely made; flux of any description should be cleaned away immediately the soldering of the joints has been effected. If plug in coils are in use make certain the plugs are clean, and make contact with their respective sockets. Very often these noises can be traced to bad contacts at the base of the tube sockets, or in the case of the later style of sockets on the side of the valve pins. Sometimes the withdrawal and reinsertion of the valves will clear away the obstruction. If this fails the valve prongs should be cleaned together with the springs of the valve sockets. Bad tubes are frequent offenders, and one would be well advised to make certain of this factor. The noises from this cause are usually more violent, exhibiting themselves as a violent break in the circuit. The trouble is usually due to leakage or to a poor connection between the pins in the base of the valve, and the elements to which they are connected, namely, the grid and the plate. The filament usually does not give any trouble, and if no flickering is observed they should be all right. Audio-frequency transformers with defective insulation, especially between the primary and frame, and between windings (the primary and secondary), cause noise. Microphonic noises are due to the valves themselves; firstly, the valve sockets should be sprung in order to eliminate noises arising from people walking about the room, and also to prevent noises, due to the operator of the set touching the dials in the tuning process.

If you are in doubt as to whether or not your receiver is the cause of the noise, remove the aerial terminal, the set should be perfectly quiet, and only a slight hiss should be heard from the valves themselves.

THE RADIATION TROUBLE.

Speaking of noises leads us to a further problem, and a very annoying one at that. I am speaking of radiation. This form of trouble seems to be on the increase, and before closing I would like to say a few words about it. If I have received one request to say something of this matter, I have received dozens, especially in the last few days. Now the atmospheric conditions have not been too good during the last week, and possibly there have been listeners straining their sets in order to hear distant stations. This in itself is bad enough, but listeners should realise that on nights when the static is bad there is no hope of receiving distant satisfactory reception. Why, then, all this straining to bring them in? All that is happening is that your set is adding to the din already manifest. Now, of course, there are some types of set which do not radiate, and it is high time some listeners gave their sets a look over so that their next door neighbour may enjoy the concerts also. In purchasing a set you should obtain an assurance that the receiver will not radiate. Dealers have been instructed that they are not to offer for sale receivers which offend in this respect. Most of the trouble from this cause is due to the constructor himself. He purchases a promising kit of parts, assembles and wires it himself, and then commences to drag in the stations without neutralising his set correctly. The net result is that he secures indifferent reception. What he does get is of a distorted nature, but right apart from this his fellow-listeners are compelled to listen to the awful squeals and howls which emanate from their loudspeakers and phones, and which finally compel them to close down altogether. On the other hand, there are some constructors (amateur) who can assemble and operate a receiver, taking care to adjust it so that it will cause no annoyance. It would be far better for the listener to have his set tested for radiation, and thereby eliminate a lot of unpleasant noises.

My next talk will have more to do with this matter, and I will endeavour to explain how you can ascertain for yourself whether or not your receiver is oscillating, and what is best to be done with it.

WEAK RECEPTION

Your ear is your best guide. The signals become weaker as the "B" battery voltage decreases. As long as the "B" battery contains useful energy the drop in voltage from day to day is so slight that it cannot be noticed. However, as the battery becomes exhausted its voltage begins to fall more rapidly and its effect is noticed in markedly weaker signals.

When you have increasing difficulty in getting distant stations, and when the local stations fail to come in as loud as usual, it is fair to assume that the B battery is exhausted and should be replaced.

It will be found in most cases that this occurs when each 24-volt unit has dropped to the neighbourhood of 17 volts. It is time then to throw them away.

Your A battery should be tested in this case, however, for the same effect of weakened signals is noticed when it, too, is becoming exhausted. Lacking a suitable hydrometer, or voltmeter the best guide to the condition of the A battery is the brilliancy of the filaments of the valves. If that is less than usual and does not increase perceptibly as you turn the rheostat the A battery is exhausted.

However, there are by no means the only causes of a weakening in signals. The weather has a great deal to do with distant radio reception. Electrical storms usually make distant reception difficult or impossible and cut down the volume of distant and even local stations. Fog, rain, sleet or snow may cover your aerial insulators and allow the signals to leak away to the ground before they reach your set. Sometimes there even may be no appreciable change in the weather, yet atmospheric conditions may be such as to interfere with reception.

Still another cause of weak signals is the exhaustion of tube filaments. The WD-11 and WD-12, UX-199 and C-203, and the UX-201A and C-301A valves have a special filament whose life is generally ended not by burning out but by exhaustion of certain active materials. If your valves have been in use for a long period a weakening in signals is perhaps a sign that new ones are needed.

If your set is suddenly unsatisfactory, your valves are new and your batteries seem all right on test, call up a neighbour or two and ask if they also are having difficulty. If they are, the trouble lies in conditions no one can remedy, and in a day or so when the weather clears up your set will be working as perfectly as ever.

Often a distant station will vary greatly in intensity from time to time, being alternately strong and weak. This is known as "fading," and likewise is due to atmospheric conditions beyond anyone's control.

POSITION OF RHEOSTAT

There are many radio diagrams that are practically identical except for the method in which the rheostats are connected. In some cases the rheostat is connected in the negative lead of the A battery, and in other diagrams it is shown in the positive lead.

In some receivers the rheostat may be connected in either lead of the battery and equal results will be had; however, in audio amplifiers it is very important that the rheostat be in the negative lead, and it is equally important that the grid return from the amplifying transformers be connected directly to the negative of the A battery, rather than the filament of the valve. This is so that a negative voltage will be applied to the grid of the audio amplifier valve.

Soft and Hard Valves.

In the detector circuit when a soft valve is used best results will usually be had when the rheostat is connected in the positive lead of the battery, and then the grid return should be connected direct to the filament of the valve. When a hard amplifier valve is used as detector the rheostat should be in the negative lead and the grid return should be connected to the negative of the battery.

The radio frequency amplifier valves in neutrodyne receivers are usually operated at zero grid voltage, and, therefore, if the radio and audio frequency valves are operated from separate rheostats, the rheostat controlling the filament current of the radio frequency valves may be in either side of the line

OUTDOOR AERIAL BEST

There is no doubt whatever but what an outdoor aerial is by all odds and under all conditions far superior as a collector to anything else. If you have or can get an outside aerial do so, by all means, regardless of what set you have. Even an earth wire to the indoor loop helps tremendously in volume. You can attach it to negative A battery or to the centre of the loop winding. The earth connection may be to any cold-water pipe, hot-water pipe, radiator, through one of these lamp socket gadgets to the electric line, to the bell wiring, to the telephone instrument or what not. Even to a fire escape or kitchen stove it will help some. Try it if you have a loop set of any kind.

Often times when a set is built for an indoor loop alone and there is no room for more instruments on the panel or in the cabinet you can attach an aerial to the grid side of the loop and ground to filament side. This the loop will be your tuning inductance. One make of set in particular is an example of a good commercial receiver specifically arranged this way, but any set can be so connected. If you are troubled with so-called body capacity when using a loop a single wire run to ground connection will clear this up.

The Children's Corner

By "ARIEL"

MY DEAR RADIO FAMILY,—

There were such lots of pretty pictures this time, and many of them so beautifully painted, that it was harder than ever to choose a winner. I was ever so pleased with the beautiful smooth walls some of you got, and the patchwork quilts were real "colour schemes"!

Quite a number of new artists have come into our Corner. I hope these won't feel too disheartened at not having won the prize. They will all have more chances later on. As Big Brother Bill said to his boys and girls in Melbourne, "We can't always win, and we can't all win. Every win means a loss to the other fellow, so we've just got to learn how to lose well and how to win well."

Several children have asked me for crossword puzzles. Now, I thought they were all "dead as the dodo" long ago, but if a sufficient number of you really want them, why, of course, you shall have them. So, hands up for crossword puzzles! Just say if you like them when you write. Cheerio,—ARIEL.

COMPETITION RESULTS

PAINTING.

Prize-winners.

Hazel Howard (10 years), A.25, Railway Terrace, Kaiwarra, Wellington.

HIGHLY COMMENDED.

Irene Fleming, Hataitai.
Bruce Jones, Musselburgh.
Mervyn Jillings, Hastings.
Patricia Thorley, Kamo.
Thora Rodden, Palmerston North.
Mary Steele, Oamaru.
Anna Williamson, Portland.

COMMENDED.

Edna Hill, Khandallah; Dorothy Jourdain, Kilbirnie; Joan Adams, Northland; Rita Jarlov, Motuhora; Joan Hounsell, Napier; Derek Cochrane, Lyall Bay; Edna Sadler, Kilbirnie; Shirley Hopkins, Wellington; I. D. McLean, Milton; Nancy Robins, Devonport; Betty D. McLaren, Hataitai; Phyllis McCabe, New Plymouth; Doris Golding, Wadestown; Lesley Cossgrave, New Brighton, Christchurch.

COMPETITIONS

1. Our Wireless Zoo. "Surprise" and verse; closing date October 19. Prize 5s.
2. The Best Story; closing date October 12. Prize, a book.
3. The Best Poem; closing date October 19. Prize, a book.

In case you have forgotten, the story is to be written about any pretty advertisement from any paper. The poem is to be about any pets you may have, or anything you use every day, such as a thimble, or a comb, or a fork or anything you like to choose.

ANSWERS TO PUZZLES

MISSING E's.

Persevere, ye perfect men; even keep these precepts ten.

MISSING WORDS.

A vile old woman on evil bent,
Put on her veil and away she went;
"Ah," said she, as she walked away,
"How am I going to live to-day?"

DOUBLE ACROSTIC.

N	aple	S
R	lb	A
W	ashinto	N
C	incinnatt	I
A	msterda	M
S	tambon	L
T	orne	A
L	epant	O
R	clipti	C

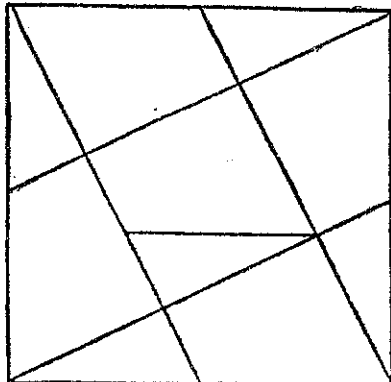
Newcastle—Coalmines.

BURIED TOWNS.

1. Bly, Lyons.
2. Bruges.
3. Perth, Rome.
4. Tenby, Cork.
5. Crewe, Berne, Rye.

PERFECT SQUARE.

These are the solutions of the "Perfect Square" and "Crossing out the Dots" in last week's corner.



A small girl was on a visit to her aunt and grandmother. "Grannie," she said, when her aunt had left the room, "How old is Auntie Agatha?" "I couldn't tell you, dear," answered Grannie, "without looking it up in the family Bible." "Goodness me," gasped the child, "is she old enough to be mentioned in the Bible?"

WHAT AM I?

My head and tail both equal are
My middle-slender as a bee
Whether I stand on head or heel
Is quite the same to you or me.
But if my head should be cut off,
The matter's true, though passing strange,
Directly I to nothing change.
Answer: The figure 8

A WONDERFUL CAT—CH!

"Mother," said little Joan, "I know a girl who has got a cherry-coloured cat with rose-coloured spots. It's such a beauty!"
"My dear," exclaimed her mother, "you really must not tell such stories. There couldn't be such a cat."
"But, mother, it's quite true," Joan persisted. "Surely you have heard of black cherries and white roses!"

What islanders are represented by these letters: E, B, F?
The islanders are Cingalese (single E's) of course!

How could I say to you in one word that you had some refreshment between nine and eleven?
AT-TEN-U-ATE. (Attenuate).

HINTS FOR STAMP COLLECTORS

Who collects postage stamps? Boys—and girls, too—of Australia are lucky enough to have someone to tell them all about stamps. They are having a series of talks on stamp collecting during the Children's Hour, from 8.10 Melbourne. An expert is telling them all about their origin, values, watermarks; how to start a collection, how to classify specimens, and a thousand and one other things connected with this fascinating and absorbing hobby. It is making every boy long to possess a stamp album of his own.

Do any of you collect stamps? If so, you know for yourselves how fascinating it is. To get the best out of it you have to make a really serious study of postage stamps, and learn the different value of the rarer kinds. By this means you will be able to make careful exchanges, and you will always enjoy the thrill and excitement of hoping to possess a valuable stamp!

Most children, because they don't know, ruin their specimens by sticking them down with gum, so that they can never be taken off without cutting the paper.

The correct way to stick them down is to use proper mounts. This will protect your collection from damage. It is as well to remember that it is not only very old stamps that are most valuable—it is the fact that there are not many of them that make some specimens worth so much. Then, again, their condition alters their value—sometimes the post-mark nearly ruins them, or they may be nearly defaced. The perforations (round the edge) count for a lot, and the kind of paper they are made from; but you really need an expert philatelist (the proper name for a stamp collector!) to tell you all these things. Who knows? We may find one to talk to you before long! I expect you know that a number of stamps were issued during the war, and they will never be issued again; these, of course, will in time become valuable, so if you have any be sure to keep them.

MARBLES ON TREES

Do you know what makes marbles and apples grow on oak trees, and pinecones on wild rose bushes? Early in the spring, a gossamer-winged insect, called a gall-wasp, alights on an oak twig, and piercing a hole in the bud with her long probe, places an egg inside it. Then a wonderful thing happens. Instead of the bud withering and dying away, it grows quickly round the egg, putting on a round tough covering. Soon the egg hatches, and the baby insect finds itself inside a growing nursery, with plenty of food all round it. When it is full-grown, it bores its way out of the marble "gall," and is ready to start life. So you see, when you find an oak-apple, if it has a little round hole anywhere, you may be sure the baby gall-wasp has flown; but if it is intact the baby is still in its nursery.

THE NEW PLAYTHINGS

"Humph!" growled the elephant, "Squeak!" cried the Teddy-bear, Thrown down together Beside the armchair, "Things in the nursery Won't be the same again!" Puffed out indignantly The clockwork train. Great consternation Among all the toys, Now that their master, Like other little boys, Plays with the wireless, The silly old wireless! "I call it unfair!" Wailed the Teddy-bear. "Humph!" growled the elephant, "Puff!" said the train. —Rachel Macandrew.

Mother had been annoyed by the noise of the dust-bin being rolled round and round the yard by her young son. "John, you really must stop making such a noise," she said at last. "But I'm amusing baby for you," protested the small boy in an injured tone. "But I don't see baby," said his mother. "Oh, he's inside the dust-bin!" was the reply.

A WORD SQUARE

Can you complete this word square by inserting a letter in each of the places indicated by a dot? No. 1 across is the same as No. 1 down, and the same thing applies to Nos. 2, 3, 4, and 5.

- Here are the clues:—
1. Very wise people.
2. A truthful saying
3. A measure.
4. Urged.
5. To be in poor health.

S				S
	D			
		U		
			R	
S				Y

QUEER THINGS

The following sentences can be read the proper way from left to right, or Chinese fashion, from right to left. Try for yourself and see:

- "Was it a rat I saw?"
"Rise to vote, sir."
"Madam, I'm Adam."
"Able was I ere I saw Elba."

In this little story each left out word can be spelt forwards or backwards. For instance, the first sentence is:—"It was a lovely day between noon and eve when Bob, his sister Hannah, and their father decided to pop down to the meadow to have a peep at their pet ewe." See if you can find out the rest. It's rather good fun.

The Excursion.

It was a lovely day, between — and —, when —, and his sister —, and their father decided to — down to the meadow to have a — at their pet —. "Look," said the children, "there is a blue — in the tree —! If it — us, it will fly away, for it will soon have its — on us." They called at a cottage to fetch a wee — that their father had bought as a pet, and had a — at the baby girl, whose mother was just tying on her — before giving her some —. The children just loved watching the little — have her tea. The mother gave — an orange to eat, and he allowed a — to fly in the — of a demure — who was paying an afternoon visit. Her face grew — and —, and she said:—"But I am sure you — it by accident." "I am very sorry —," he replied. "Of course, it was not an intentional —." The good lady was kind enough not to — any further to the matter. They then walked along the — seashore to — out their time, and saw a ship in the distance with the captain on the — and the boatswain in the —. " —!" they shouted merrily, waving their hands. Before returning home the children, who were a little tired, had a bathe, and found it an excellent —.

TWO CLEVER SNAILS

Snails do not look to us to be very clever. And yet they can find their way home. Here is a true story of two snails who helped one another. One snail was strong and sturdy, and the other was frail and delicate; and they both lived in a garden where there wasn't much to eat. So the strong snail climbed patiently up the garden wall and down the other side, to see what things were like next door! He found there was plenty to eat over there, so after being away about a day, he came climbing back again to fetch his delicate friend. Somehow or other — we are not clever enough to know how — he told his good news; and the two snails set off together and made their new home in the next door garden.

Now that the weather is getting milder, snails will be beginning to come out of their winter houses. They creep into holes in walls and under rubbish last autumn, and sealed up their shells with a thin coating of lime to keep out the cold. Soon they will be opening their front doors to come out again and look for food. Who will be the first to meet a snail out for the summer season?

SPARKS

A Bright Answer.

It was a Terminal Music Examination at school, and Smith, minor, was asked, "What is a Fugue?" He thought hard for a few minutes, and then replied brightly, "A fugue is what happens in a room when you have all the windows shut."

Quite Cured.

Brown: "The doctor said he would put me on my feet again in six weeks." Smith: "And did he?" Brown: "Yes, I had to sell my car to pay his bill!"