

The
Queensland

RADIO NEWS



*Little
Miss Brisbane*

A MAGAZINE for the
SET CONSTRUCTOR &
BROADCAST LISTENER

6^p

MAY 1st 1928

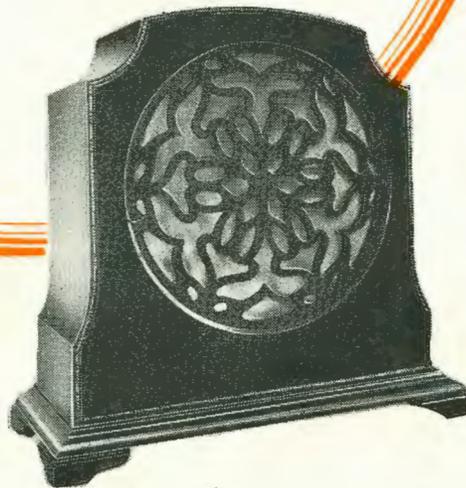
VOL. IV.

NO. 4

Natural Tone

Each musical instrument retains its characteristics, each voice its individuality. There is no unnatural accentuation of the treble, no deliberate emphasis of the bass, no artificial "sharpness" or "mellowness" in the new **AMPLION CONE SPEAKER**—just a natural rendering of notes and tones. ~ ~ ~

**CONE
AMPLION
SPEAKER**



An adjustable unit of improved type, remarkably sensitive and efficient, yet robust. A cone diaphragm made, not of paper, but of strong seamless material, acoustically correct, and entirely impervious to changes in temperature and climate—a vital point.

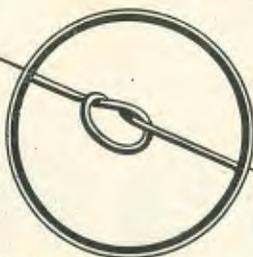
A system of construction which possesses all the qualities inherent to cone speakers without any of the common defects, thus affording extraordinarily lifelike and natural results.

A carefully considered and well-balanced design such as to eliminate the necessity for a special amplifier; in effect, the **AMPLION CONE** gives—on any ordinary receiving set—remarkable fidelity in reproduction.

"Chippendale Mahogany"
Model A.C.9 - £9/0/0
Other **AMPLION** Models
from 25/-

BRITISH AND BEST.

THE WONDERFUL P.M. FILAMENT



THE MASTER FILAMENT

UNBREAKABLE

The Mullard P.M. Filament, huge in proportions and gigantic in emission surface. . . . tough and always ductile so that it can be tied in knots. . . . proved by the British National Physical Laboratory Test to be constant and lasting. . . . gives majestic volume free from microphonic noise. . . . too economical even to glow. . . . The Filament in all Mullard P.M. Valves—the valves which serve you best.

Obtainable from Every Radio Dealer in Australia

For 2-volt accumulator

P.M.1 H.F. 0.1 amp. 13/6
 P.M.1 L.F. 0.1 amp. 13/6
 P.M.1 A. (Resist. Cap.) 0.1 amp. 13/6
 P.M.2 (Power) 0.1 amp. 13/6

For 4-volt accumulator or 3 dry cells

P.M.3 (General Purpose) 0.1 amp. 13/6
 P.M.3 A. (Resist. Cap.) 0.1 amp. 13/6
 P.M.4 (Power) 0.1 amp. 13/6

For 6-volt accumulator or 4 dry cells

P.M.5 (General Purpose) 0.1 amp. 13/6
 P.M.5B (Resist. Cap.) 0.1 amp. 13/6
 P.M.6 (Power) 0.1 amp. 13/6

Super power valves for last L.F. Stage

P.M.254 4 volts 0.25 amp. 15/-
 P.M.256 6 volts, 0.25 amp. 15/-

SAY P.M. AND YOU SAY PURE MUSIC

Mullard

THE MASTER VALVE

ARKS 11A

ADVT. THE MULLARD WIRELESS SERVICE CO., LTD., MULLARD HOUSE, DENMARK STREET, LONDON, W.C.2. ENG

Mullard P.M. Valves are British Made—BUY BRITISH

Wouldn't it be WONDERFUL ?



IF—The Radio Inspector, despite our entreaties, gently, but firmly, refused to accept our license fee.

* * * *

IF—Our "B" batteries were endowed with eternal youth.

* * * *

IF—The man down the road wouldn't oscillate his super-het quite so fiercely.

* * * *

IF—The static monster could be chained up and deported to some distant country.

* * * *

IF—The broadcasting stations would only satisfy every listener.

* * * *

IF—Wireless poles never needed re-painting.

IF—Valves never gave up the ghost.

* * * *

IF—Our Neutrodynes would always "neut."

* * * *

IF—Mothers-in-law, like modern radio sets, were batteryless. We refer, of course, to the eliminat-er.

* * * *

IF—Our wives would only cease talking whilst we tuned in DX.

* * * *

IF—Distant stations, like good serge, were guaranteed fadeless.

* * * *

IF—The bedtime stories would really send the kiddies to bed—and to sleep.

* * * *

IF—Our sets wouldn't make such big liars of us in front of our friends.



Ask your dealer for Diamond

DIAMOND Radio Batteries

Ask your dealer for Diamond

Diamond Radio Batteries are powerful, silent, and outlast any other make of Dry Cell. More than a million are manufactured in Australia annually. Every cell is guaranteed, and should a fault be found in any Diamond Dry



Cell it will immediately be replaced. Remember, a Radio Set is no better than its battery, therefore it is most essential to choose a battery that will give long and honest service. Such are Diamond Dry Cells.

RETAIL PRICE LIST

- "A" Buzzer Cells, 1.5 volt 2/9 each.
- "B" 60 volt Super B. Battery, 27/6 each.
- 45 volt Super B. Battery, 22/6 each.

- 60 volt Standard B. Battery, 18/ each.
- 45 volt Standard B. Battery, 15/ each.
- "C" 4.5 volt "Biaison" C. Battery, 3/3 each.

Wholesale only from:—
JOHN REID & NEPHEWS,
CHARLOTTE STREET,
BRISBANE.

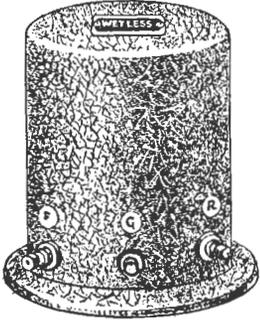
Manufactured by
WIDDIS DIAMOND DRY
CELL COY. LTD.
W. Melb., Vic.

SUPPLIED TO
ALL GOVERNMENT
DEPARTMENTS



"WETLESS"

GUARANTEED RADIO PRODUCTS



SOLODYNE SHIELDED COIL.

"Wetless" Solodyne Kit with two Neutralising Condensers. Price 70/- per kit.

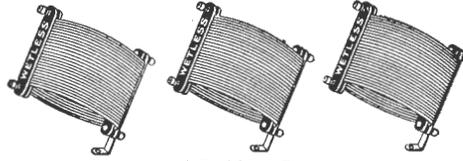


SINGLE ROTOR TUNER

"Wetless" Single Rotor Tuner. Price 13/- ea.

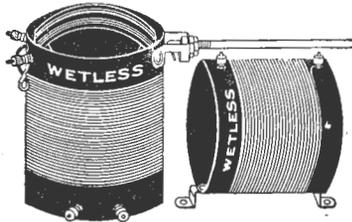


"A" TYPE.



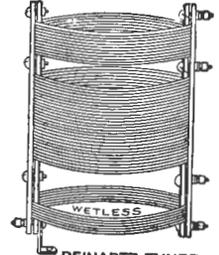
NEUT COIL KIT

"Wetless" Neut. Kit, with two neutralising condensers. Price 35/- per kit.
"Wetless" Radio Frequency Choke. Price 6/6 each.



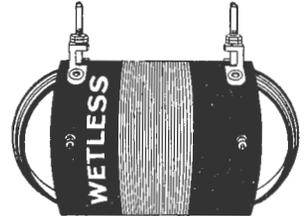
BROWNING DRAKE

"Wetless" Browning-Drake Kit with Neutralising Condenser. Price 38/6 per kit.



REINARTZ TUNER

"Wetless" Reinartz Tuner. Price 10/6 ea.



DOUBLE ROTOR TUNER

"Wetless" Double Rotor Tuner. Price 18/6 ea.



MIDGET CONDENSER

"Wetless" Midget Condensers, 3-plate, 4/3; 5-plate, 4/9; 7-plate, 5/3; 9-plate 5/6; 11-plate, 5/9; 13-plate, 6/3 each.



"B" TYPE.

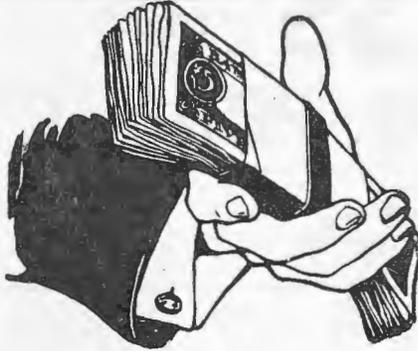
"WETLESS" MICA CONDENSERS

A. TYPE.	1/6 Each	B. TYPE.	2/- Each	B. TYPE	Each
.0001	}	.001	}	.003	2/6
.00015		.00015		.004	2/6
.0002		.0002		.005	3/-
.00025		.00025		.006	3/6
.0003		.0003		.0075	3/9
.0004		.0004		.01	5/-
.0005		.0005		.02	5/6
.001		.001		.00025 (with clips), 2/6 each.	
.002		.002			
.00025 (with clips), 1/9 each.					

Ask Your Dealer for "WETLESS" Guaranteed Radio Products

BRISBANE DISTRIBUTORS WANTED

Manufactured by — — **J. WETLESS, 28 King Street, ROCKDALE, N.S.W.**



Save Money

Buy Your Radio Requisites at---

Mick Simmons Ltd.

Don't pay fancy prices for your radio requisites. Purchase your requirements at Mick Simmons Ltd., and make your money go further. NOW is a good time to buy. We are stocktaking and are offering some really exceptional bargains.

A few STOCKTAKING BARGAINS

Coil Plugs	1/3
Condensers, Variable	5/-
Terminals, each	1d
Freshman Variable Gridleaks	4/-
"Jdealite" Crystals	1/9
"Effeil Tower" Crystals	7d
"New Era" Crystals	4d
Crystal Cups	3d
Manhattan Headphones	17/6
Porcelain Lead-in Tubes	4d
S.L.V. Var. Condensers, .00035, .0005	9/-
Aerovox Glass Enclosed Crystal Detector	2/6

NEW LINES

FLEWELLING STANDARD SOCKET—a new idea for gripping the valves; functions as efficiently as expensive makes 2/3
 "SORBO" EARPHONE PADS, made of rubber to fit over the earphones 2/-
 "Lion Micro" Crystal Detector 6/6

VOLTMETERS AND HYDROMETERS.

"Yankee" 0-50 volts 3/6
 "Beede" 0-50 volts 3/9
 "Beede" "A" and "B" Tester (double reading) 6/6
 "Testrite" Hydrometer 4/6

BUY YOUR RECORDS HERE.

When making your radio purchases take a few new records home. We carry full stocks of Columbia, His Master's Voice, Zonophone and Regal Records.

SERVICE.

Our reputation for Free Service is extending all over the State. Every morning brings an enquiry from some distant radio fan in trouble who seeks our advice. We're pleased to assist them—and we'd be pleased to be of help to you. Write.

See the 1928 MAGNAVOX Receivers—
they're wonderful!

Mick Simmons Ltd.

"The Home of Sport and Radio"

Queen Street, BRISBANE

ALFRED T. BARTLETT
Editor

LEIGHTON GIBSON
Technical Editor

The
QUEENSLAND
RADIO NEWS

TUESDAY, 1st MAY, 1928.

BROADCASTING ENTERPRISE

*A*S we go to press, a special announcement from 3LO Melbourne is received, containing a piece of news that will be read and appreciated by listeners residing in every nook and corner of Australia.

This progressive station has obtained an extended license from the P.M.G.'s Department, and is planning to arrange a satisfactory short-wave service that will serve the whole of Australia during the hours of daylight.

The first tests are to be carried out on Sunday, May 6th. Using a wavelength of 32 metres, 3LO will broadcast special programmes during the following hours on that day: 9.45 to 10.15 a.m., 12.45 to 1.45 p.m., and 4.45 to 5.45 p.m. The station is calling for reports of these transmissions from listeners throughout Australia and New Zealand.

Here is a piece of broadcasting enterprise that will evoke admiration from every keen Australian listener. Not content with providing Victorian listeners with an excellent 12-hours' service daily, 3LO now seeks to extend its field of usefulness to other States by inaugurating a modern short-wave broadcasting service.

What will be the effect of this innovation upon the listening public and radio trade of Australia? Two things are certain. A widespread interest in short-wave reception will be awakened among listeners generally, and it naturally follows that the radio trade may, through this stimulus, look forward with confidence to a keen demand for short-wave sets, adapters and components.

QUEENSLAND RADIO NEWS



4QG LISTENERS THINK THAT



— The Eisteddfod broadcasts during Easter were a rare treat. The station is to be complimented on the excellent services it rendered during the Easter holidays.



— "The Story of Faust," rendered by Miss Alice Raven's party, was enjoyed to the full on the night of April 17th.



— We wonder if the announcer who said "broadcasted" during a recent concert from 4QG could have bitten his tongue after the word went out.



— What has poor old St. George done to 4QG? The patron saint of England was sadly ignored on the night of 23rd April, no reference to the day being made right throughout the programme.



— "A Test of of Quick Wits" was rather a novel feature for April, although we think a better term would have been "A Test of General Knowledge."



— If Billy Maloney hasn't lost any of his old "Cremorne" pep, his series of entertainments which are due to begin on May 12th, should strike a happy note into 4QG programmes.



— The timing of each item on 4QG's published programmes is of great assistance to those of us who wish to tune-in to any particular items during an evening's entertainment. The idea, of course, is not a new one, most of the southern stations having followed this practise for quite a long time.

— Uncle Pete has proved himself a real entertainer to the children. His happy laugh and infectious humour are much enjoyed by the little ones.



— The Ithaca Orchestral Society is an "amateur" orchestral society—perhaps too much so. During a recent performance the strings were sadly out of tune with the woodwind on the upper register.



— The playing of the National Anthem at the opening of the night session at 4QG is a good idea, conforming as it does with the recent universal request made to all places of entertainment by the K.S.S.I.L.A.



— We know of a young Ascot enthusiast who switched on his two valves one recent evening at about 8 p.m. Without tuning the set, faintly, as if in the distance, came the strains of the National Anthem. The boy looked aghast. "Struth—it must be London closing down!" he cried. Straining his ears against the speaker, with eyes and mouth open, he awaited the announcement. Presently the announcer spoke: "4QG Brisbane. Our opening number will be—" "Aw!—it's only 4QG" was the disappointed interjection.



— The introduction of the Studio Orchestra and vocalists upon the afternoon sessions is a distinct improvement. The dealers also appreciate this change.



— We might appreciate the Studio Syncopators more if we heard them a little less often. A whole programme of jazz once a week relieved by an occasional vocal number is—judging by a general concensus of opinion—not too keenly appreciated.

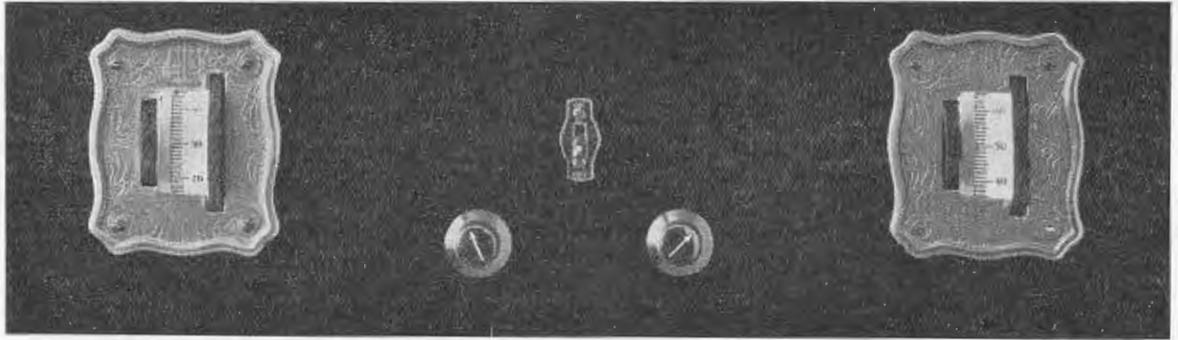
THE SPIRIT OF RADIO

(By "Rados.")

From the days when pioneers strained every effort to trap elusive wireless signals with all kinds of primitive contrivances, right down to the present period of modern apparatus, there has prevailed among all radio fans a spirit of optimism and hope. Many a patient experimenter has sat right through the night fiddling with dials and knobs and switches, only to be rewarded with a morse signal from a nearby ship at sea, but it has not damped his ardor. Night after night he has searched the ether until he has brought in a distant station and then another and another. Gradually his "Q.S.L." cards have grown in numbers and he felt that he has done his bit for the advancement of radio.

Hope springs eternal within the radio experimenter. That was the spirit which inspired Hertz Clerk-Maxwell, Lodge, Marconi and Fleming to forge ahead from one success to another, not resting content even when they had achieved unprecedented triumphs. On and on they and their followers advanced, and the populace now awaits with bated breath the next dramatic discovery with which the world will be startled.

And so it is with wireless broadcasting. 'Tis not for 3LO Melbourne to sit back in happy contentment with absolute supremacy of their services. They move with the times—ever onward. The hunt for new ideas and new artists for programmes is perpetual and extensive scientific research, both in the laboratory and in the field, is essential in order to keep pace with the rapid evolution of wireless broadcasting for public amusement, utility and service.



The AIR SCOUT Five

Here is something new. New, not insofar as the circuit is concerned, but in the manner in which it is built. A modern five-valve receiver with a commercially-built appearance, and not a soldered joint in the set! This is the set for the man who is not very good with his tools; there is nothing difficult about its construction, and it works very well indeed.

By the
TECHNICAL
EDITOR



RADIO receiver which can be completely assembled without the aid of a soldering iron should be of interest to a great many people, the more so when the set gives excellent results and is moderate in cost. Such a receiver is the Air Scout Five, the construction of which is the subject of this article.

The nucleus of this modern tuned-radio-frequency receiver is the new Pilot "Rediblox" unit. These units are supplied in several different types—radio-frequency, detector, and audio-frequency—the idea being to group on one moulded base those items which are associated with one another in nearly every circuit. Thus, the radio-frequency unit comprises a plug-in radio-frequency transformer wound on a bakelite tube of small diameter, a cushioned valve socket, a by-pass condenser, and the necessary terminals, all wired together under the base. When connected with a variable condenser and a suitable current supply, this forms a complete radio-frequency amplifying unit.

The detector Rediblox consists of an r.f. transformer as before, valve socket, grid condenser, grid-leak clips, and terminals. The audio-frequency unit has a large $3\frac{1}{2}$ to 1 audio transformer, valve socket, and terminals.

In the present set, we have used two r.f. units, a detector unit, and two a.f. units, and these are connected together and to the remainder of the parts by means of standard length pig-tails. As far as the wiring is concerned, the only tool needed is a pair of pliers for tightening the terminal nuts. No wires have to be cut, no joints soldered, nor is spaghetti tubing used at any point.

The Circuit.

There is nothing at all confusing about the circuit. Fig. 3 shows that it is a perfectly straightforward five-valve arrangement, simpler even than the well-known Neutrodyne. The first input circuit (L1) is tuned by the condenser C1, controlled by the left-hand drum dial. The remaining two input circuits, L2 and L3, are tuned by condensers C2 and C3, these two condensers being driven by the right-hand dial. In order to compensate for any slight difference which might exist between the two circuits, the small balancing condenser C4 is shunted across C2, this arrangement giving all the advantages as far as efficiency is concerned of the three-dial receiver, with the convenience of the two-dial set.

The r.f. stages are not neutralised, but oscillation is suppressed by the introduction of the

variable resistance R1, which regulates the voltage applied to the plates of the two r.f. valves. Separate "B" and "C" battery terminals are provided for the last audio stage, so that any type of power-valve may be used if desired with increased voltage. For the same reason, an output filter (X, O) is incorporated in the design.

Building the Set.

In drilling the panel and sub-panel, the drawings (Figs. 5 and 6) should be followed closely. A template supplied with the drum dials makes their mounting a simple matter. With these dials it is not necessary to cut a large hole in the panel. Guided by the template

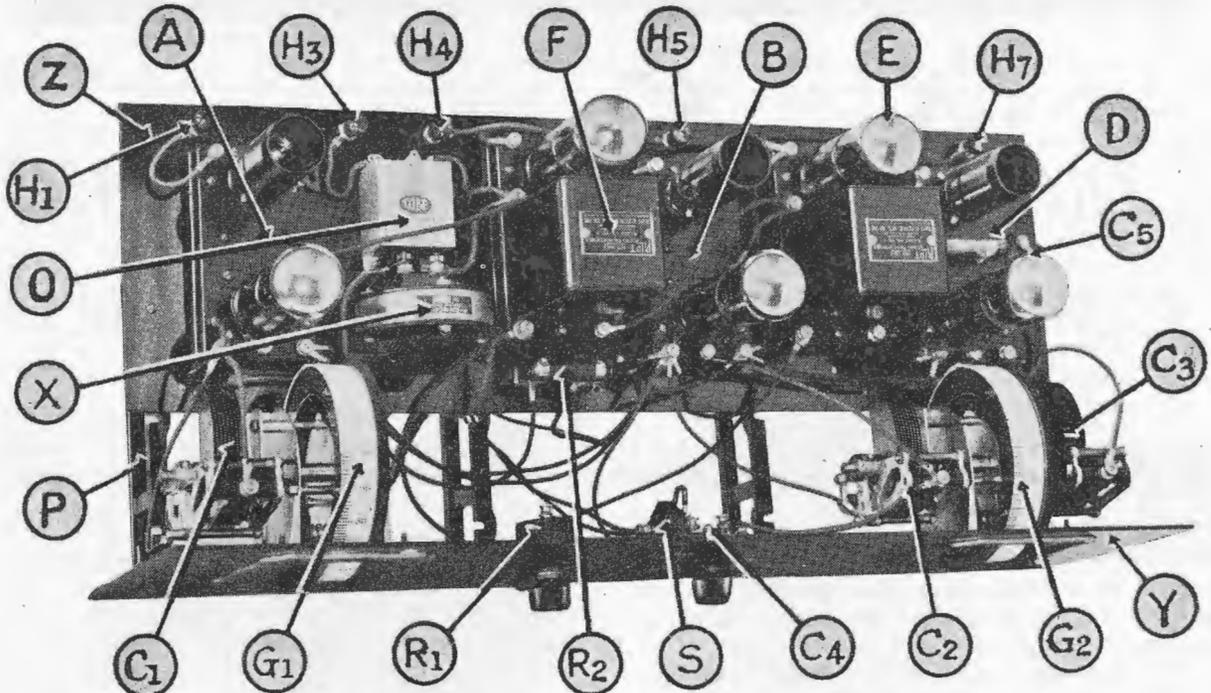


Fig. 2.—The indicating letters on this elevation correspond with those on all the illustrations, and in the list of parts. Note the small amount of wiring, carried out with flexible leads.

a series of small holes is drilled, and the unwanted piece is then easily knocked out with the help of a small chisel or screwdriver and hammer. The battery switch (S) calls for a 9/16-inch hole; if you have not a drill of this size, drill the largest hole you can, and widen it out with a small rat-tail file.

If you are not very particular about the appearance of the finished receiver, it is quite permissible to use a wooden baseboard in place of the bakelite sub-panel; in fact, the writer believes that, except in the matter of appearance, the sub-panel serves no useful purpose in this receiver, and it certainly gives one more work. You may decide this point for yourself, with the full assurance that the operation of the set will not be affected in the slightest, either way. If a wooden baseboard is used, it will need to be about 12 inches wide and 7/8-inch thick. In this case, the four sub-panel brackets will be dispensed with and the baseboard screwed direct to the bottom edge of the panel.

In the present model, notice that the sub-panel is spaced $3\frac{1}{2}$ inches back from the panel.

Fig. 6 will give all the dimensions necessary for mounting the parts on the sub-panel or baseboard. Only the centre-lines along which the bulk of the parts is aligned are shown, since the illustrations make the positions sufficiently clear. The panel, brackets, and sub-panel should be assembled first, after which the panel instruments are mounted, followed by the sub-panel components.

Before mounting the two drum dials, their attendant condensers should be permanently attached. This operation calls for some care, but it will be sim-

plified by constant reference to the leaflet of instructions supplied with the dials.

There is one item which the illustrations do not show; that is, the .01-mfd. fixed condenser (C6) shunted across the loudspeaker connections. This condenser is attached to the two speaker binding-posts **underneath** the sub-panel, and, apart from the battery cable, is the only part which is not "on deck."

Wiring the Receiver.

When all the parts are securely mounted, and the whole assembly is a rigid unit, it is time to put in the various connecting leads. Using the flexible pig-tails and following Fig. 7 closely, wire the filament circuits first, and then proceed with the remainder of the wiring. Select the **shortest** wire always that will stretch between the two points which must be connected, and check each connection as you make it. When all the wires have been placed correctly, tighten up the terminal nuts with your pliers, and the wiring

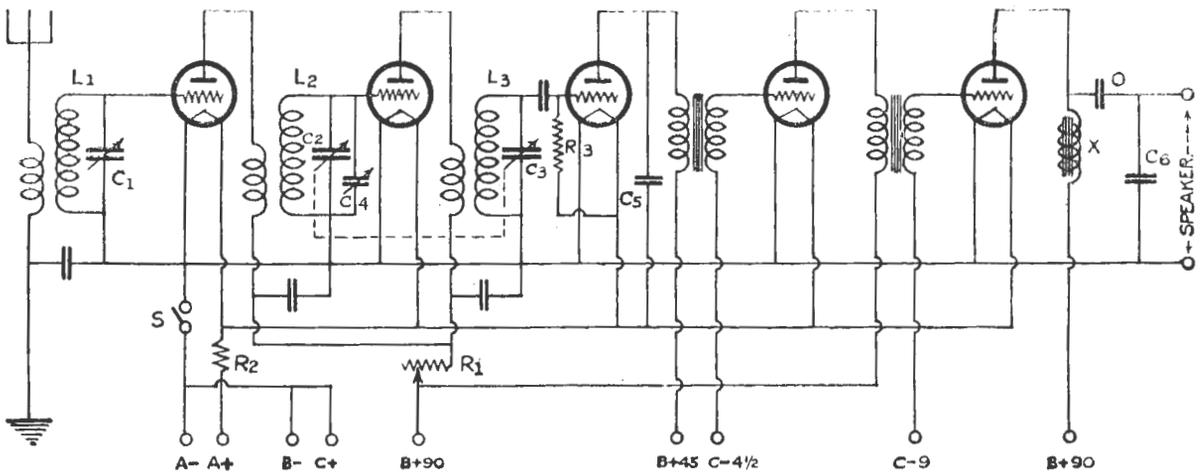


Fig. 3—The Circuit, drawn in the conventional manner.

is complete. A word here about the flexible pig-tails: These **must** be of the soldered type; the kind with lugs squeezed on to each end of a piece of tinsel are useless for our purpose. The type with soldered lugs are made of heavy stranded wire with rubber and braid insulation, and are a first-rate proposition for radio work.

For the reason that its inclusion would have interfered with the clarity of the drawing, the battery cable is not shown in Fig. 7. However, the points to which the six battery wires are connected are indicated, and this is explained in the caption. It is very important that these connections be made correctly, for obvious reasons.

Operation.

The three plug-in coils supplied with the Rediblox units are inserted in the sockets marked "Coil Socket" on the R.F. and Detector Rediblox units. These coils are exactly similar, so their respective positions are immaterial. If Philips valves are used, a B.605 should

be inserted in each of the R.F. units (A and B), and one also in the last A.F. unit (F). In the detector (D) and first A.F. (E) units, B.609 valves are used. The use of B.605 valves in the R.F. stages may be questioned, since this type is intended primarily for last-stage audio operation, but their inclusion is justified here on account of the fact that the primaries of the coils are designed for 201A-type valves, and it was found necessary to use valves having a high mutual conductance in order to give sufficient amplification, particularly at the higher wavelengths. The combination specified works excellently, and there is no occasion to deviate from it in any particular.

The batteries are connected as indicated—45 volts to the detector, 90 to R.F. and first audio stages, and unless a special power-valve is used in the last stage, 90 volts to the last audio stage also. A 6-volt battery supplies filament current, which, in this set, is remarkably light. The 'C' battery should on no account be omitted; 4½ volts to the first audio, and 9 volts to the second audio valve is correct for the valves and "B" voltages specified, but a little experimenting will do no harm at this point.

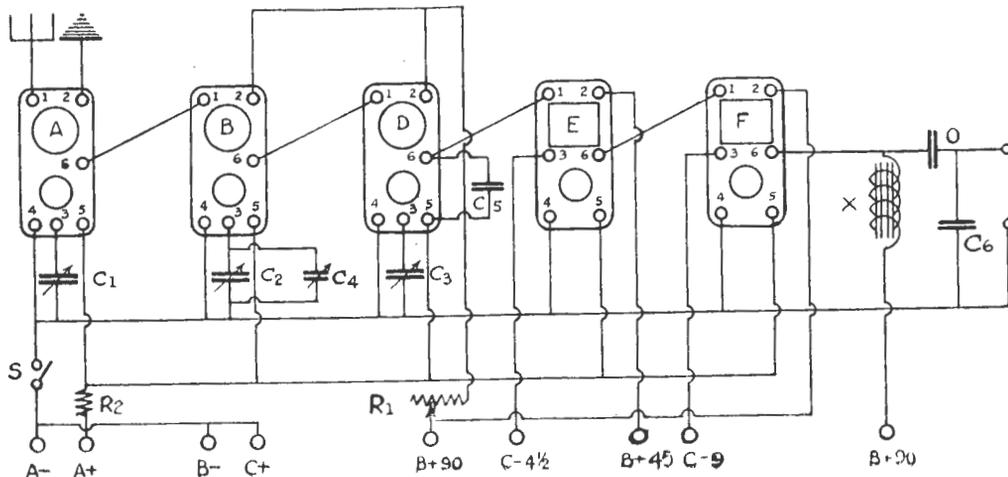
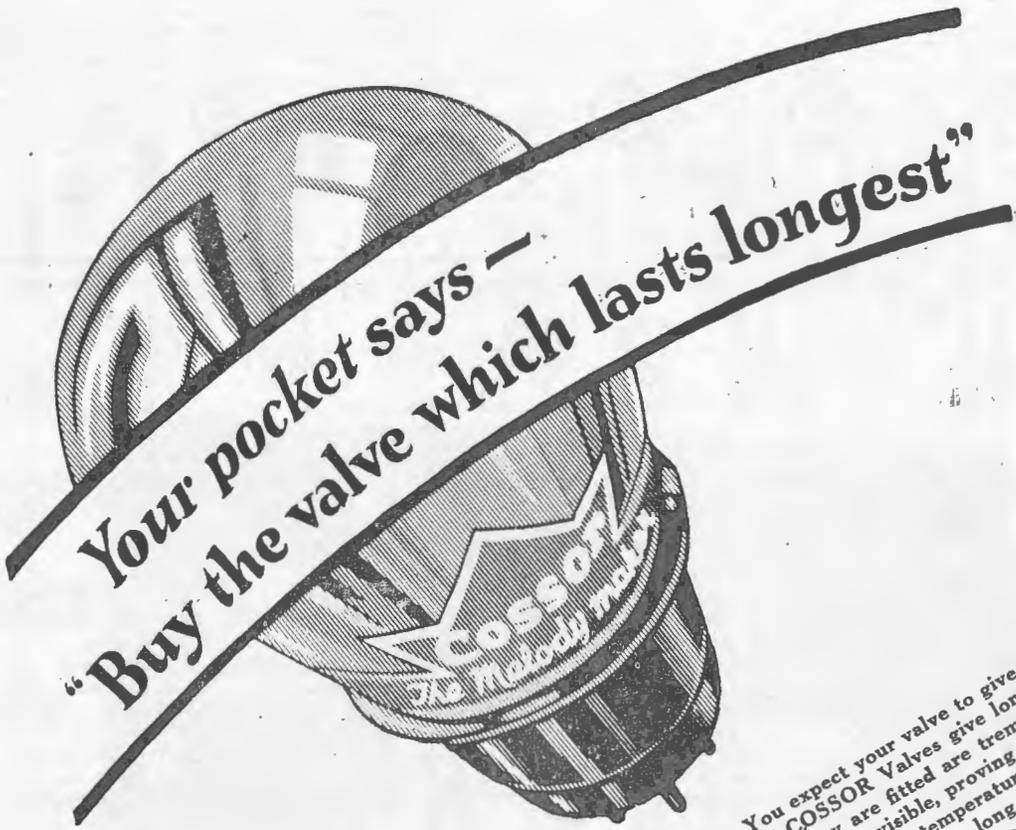


Fig. 4—This Circuit Diagram is identical with Fig. 3, except that the Rediblox Units are shown. Notice how the wiring is simplified.



You want value for your money—everyone does. You expect your valve to give you long service—it should. If it is a COSSOR, it will. All COSSOR Valves give long service because the special Kalenised Filaments with which they are fitted are tremendously tough. When a COSSOR Valve is working no glow is visible, proving that the Kalenised Filament is never subjected to any excessive temperature which might ultimately cause it to become brittle. But besides long service, every COSSOR user gets a much higher standard of reproduction, and with absolute truthfulness. Every note in the harmonic scale is recreated with perfect clarity.

From High Class Radio Dealers Everywhere

Fit
COSSOR
 —the long-life
 valve

Queensland Distributors:
 J. B. CHANDLER & CO.,
 UNITED DISTRIBUTORS LTD.,
 HARRINGTONS LTD.

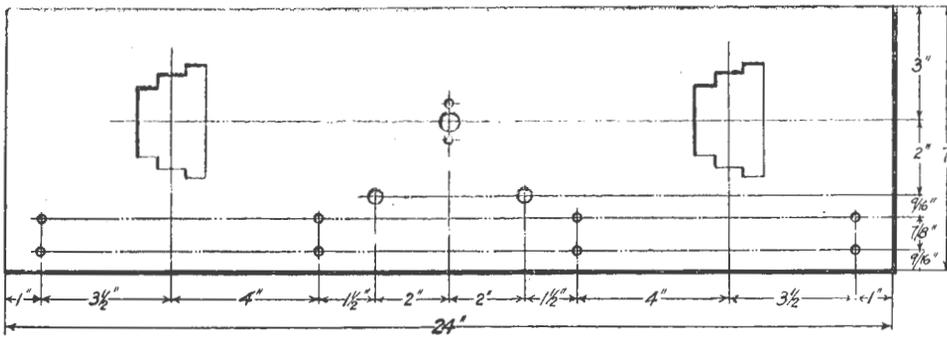


Fig. 5—Dimensions between centres are indicated in this Panel Drilling Diagram.

As no special effort has been made in that direction, the Air Scout Five is not as selective as some advanced five-valve receivers—the Solodyne for example. The main point for which the set is designed is simplicity of construction and operation, together with good distance-getting qualities, and these objectives have been attained to a surprising degree. Selectivity, however, is another matter, but not a very important one. In conjunction with our model, we used a 'Q.R.N.' wave-trap, the construction of which was described some little time ago in these pages, and, at a distance of two miles, no trouble was experienced in completely eliminating the local station and bringing in DX.

The last items to be connected are the loudspeaker (which may be connected either way round), and the aerial and earth. The wavetrap, if one is used, is connected between the aerial itself and the aerial terminal of the receiver in the usual way.

It should be noted here that the size of aerial employed should be decided by the existing physical conditions. A single wire 60 to 80 feet in length, and about 40 feet from the ground is all that is needed, but the Air Scout will give a good account of itself on an indoor aerial of the flexible tape variety.

In operating the set, first set the small balancing condenser (C4) so that its plates are out of mesh—that is, at zero capacity. Screw the knob of the Resistograd (R1) up as hard to the right as it will go, and turn on the battery switch. The two drum dials should be rotated slowly "in step" with one another until a station is heard. If the carrier-wave, or "whistle," is present, turn the Resistograd slowly to the left until reception is clear. Each dial should now be tuned individually, and the balancing condenser varied until the positions for maximum results are found, when the dial readings are noted. When once this

procedure has been carried out on every station heard, it is only necessary thereafter to return to the dial settings noted, vary the balancing condenser for greatest volume, and adjust the Resistograd for clarity, and to reduce the volume when desired.

It will be found that, on the higher waves (for instance, with 2FC and 3AR), the Resistograd will need to be screwed

up hard, while on the wavelengths under 40Q, it will have to be released in order to suppress oscillation.

Good Distance Getter.

On our model of the Air Scout, practically all the Australian stations (including the small "B" class stations), and two New Zealand stations were tuned in repeatedly on the loudspeaker, with the greatest of ease. As mentioned before, a wavetrap was used, and the aerial may be described as an average outdoor affair. The tuning range covered by the Air Scout is approximately 200 to 550 metres.

Although Philips valves have been used in this set, and are giving every satisfaction, the constructor will be quite safe in using any of the well-known makes advertised in this issue, so long as valves of the same general type as the ones specified are chosen.

If desired, valves belonging to the 4-volt class may be utilised, and your radio dealer no doubt will be able to supply you with correct types. If a power-valve of larger dimensions than the B.605 is used, both plate and grid-bias voltages should be increased in accordance with the makers' instructions.

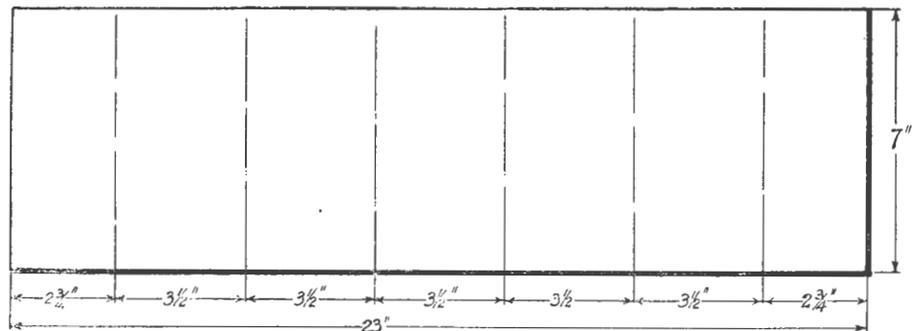


Fig. 6—This drawing gives the measurements between the centre-lines on which most of the parts are mounted.

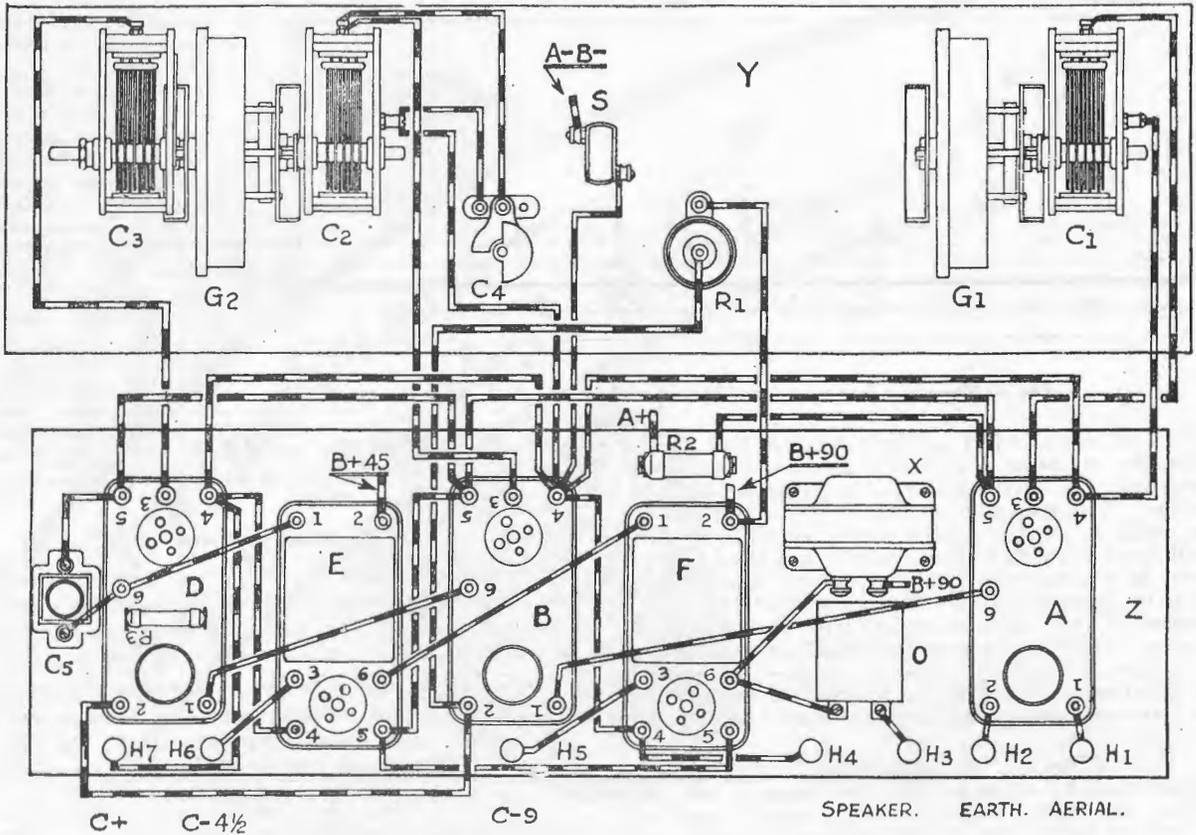


Fig.7—A Pictorial Wiring Diagram. The various wires have been drawn so that they will show clearly, and the exact positions shown need not necessarily be followed. Only the ends of the six battery wires are drawn, but these are indicated clearly by the letters and numerals.

Parts used in our own Model

- A, B—Pilot No. 300 R.F. Rediblox.
- C1, C2, C3—Pilot .00035-mfd. Centraline Condensers.
- C4—Pilot 7-plate midget condenser.
- C5—Pilot .001-mfd. fixed condenser.
- C6—Muter .01-mfd. fixed condenser.
- D—Pilot No. 301 Detector Rediblox.
- E, F—Pilot No. 302 A.F. Rediblox.
- G1, G2—Pilot single drum vernier dials.
- H1, H2, H3, H4, H5, H6, H7—Pilot moulded binding posts.
- J—7-wire battery cable (only 6 wires used).
- O—Tobe 2-mfd fixed condenser.
- P—4 Pilot bakelite sub-panel brackets.
- R1—Pilot Resistograd.

- R2—Cyldon Tempryte automatic filament control, 3-ohms with valves specified and 6-volt battery.
- R3—Eagle 2-meg grid leak.
- S—Pilot toggle battery switch.
- X—Emmco 50-henry A.F. choke.
- Y—Bakelite panel, 24 x 7 x 1/8th inches.
- Z—Bakelite sub-panel, 23 x 7 x 1/8th inches.
- 11 3-inch Pig-tails with soldered lugs.
- 13 6-inch Pig-tails.
- 8 8-inch Pig-tails.
- 3 12-inch Pig-tails.
- 40 1 x 1/8-inch round-head N/P. bolts with nuts.

ACCESSORIES

- 3 Philips B.605 valves, Cap G.
- 2 Philips B.609 valves, Cap G.
- 2 4 1/2-volt "C" batteries.

- 2 45-volt heavy-duty "B" batteries.
- 1 6-volt storage battery, 40 ampere-hours or over.
- 1 Loudspeaker.

The Distortion Problem

The Director of 4QG in Reply

In our last issue we published an article and an editorial upon the Distortion Problem as it affects listeners to 4QG in the country centres of Queensland.

Our article comprised extracts from the official statement on "Distortion and Fading" as issued by 4QG, with our comments thereon, whilst our editorial reviewed the problem and made reference to the apparent apathy of the authorities in dealing with the matter.

Mr. J. W. Robinson, Director of Station 4QG, has taken exception to some of our published remarks, and has penned the following letter to the editor in reply.

4th April, 1928.

Dear Sir,—

"The Queensland Radio News" of Monday, April 2nd, contains two articles in which I am vitally interested. One of these is a leader which deals with the problem of distortion, and the other is an article which comprises a statement on the same subject (issued from 4QG) with certain comments of the Editor's attached to it.

The leading article deals with distortion generally, sets out a number of views, and then concludes by referring the reader to the article which is published in another portion of the issue.

The publication of the leader and the statement in the same issue, the dealing of the question of distortion as a whole in both leader and article, and the cross-reference in the leader to the statement has seemed to quite cloud the whole issue, and I will be glad, therefore, if you will grant me space in your next issue to set out the position clearly.

To begin with, a certain amount of very bad distortion is noticeable on 4QG's transmission in certain districts, and this has been the subject of very careful consideration on the part of quite a number of people for some time past. To group the whole of Queensland under one heading when distortion is considered, such as you have done in your April issue, is, however, not giving accurate information to your readers, nor is it stating the position fairly.

I hope to be able to give some clear information on the subject, information which will clear up any misconception which may have been created in the minds of the public.

To begin with, let me, for the time being, neglect any distortion which occurs in centres more than, say, 150 miles distant from 4QG. Distortion does occur at present at areas a greater distance than 150 miles away.

It is a well-known fact the whole world over that all broadcasting stations which operate on a wavelength similar to that of 4QG experience fading and distortion within a radio of from, say, 80 to 150 miles away from the station. Transmissions may be quite

perfect at the station and receivers may be quite perfect in the affected areas, and yet the distortion takes place during periods of darkness.

Now this curious problem has exercised the minds of radio engineers for a number of years. In other parts of the world most exhaustive inquiries have taken place, and yet the problem remains unsolved. A theory which embraces the existence of the Heaviside Layer has been advanced to explain the unaccountable fading, and all known facts seem to support this theory.

The manner in which your leading article is worded gives the public the impression that up to the present in Australia this fading has occurred, but everybody has either been too busy, too tired, or too careless to worry about it.

Such an impression is most decidedly wrong.

All stations experience the distortion effect within the areas I have mentioned, and I venture to state that there is not a single station, the staff of which has not given long, deep and serious consideration to the question. As a matter of fact, in Victoria, 3LO and the Postmaster-General's Department co-operated and despatched expeditions to various parts of the country. The members of these expeditions made careful observations, and details of their reports were published in your own paper, and if you will take the trouble to refer to your own files you will learn quite a lot from them. In addition, the Royal Commission which recently inquired into wireless in Australia, carefully considered the matter, and reports of its observations were included in its report, portions of which were published in your own and other papers.

As a matter of fact, the fading problem over the areas in question is older than 4QG itself. I remember, prior to the establishment of 4QG, having an informal chat with an important Federal Wireless Official, and during the conversation he remarked: "Well, you are building another high-power station in another part of Australia. I wonder whether your experience in regard to fading will bear out the already establish-

(Continued on Page 16.)



CABINET MODEL.

108 Stations on the Speaker

Arcoona Station, Via Pimba,
12th January, 1928.

Messrs. United Distributors Ltd.,
Dear Sirs,

I have now had the "Udisco" 8-Valve Super-Neut. for some time, and I would like you to know how immensely pleased I am with it.

The set is extremely selective, and I have had no trouble at all in separating stations, even those as close together as 3BY, 3BU and 3EF, and I can also get the Japanese stations without any interference from 2BL, 3LO and 4QG. I would like to say here that the amateur stations mentioned come in with the most surprising strength, and can be heard 200 yards away from the speaker.

Since Xmas I have had 108 stations of which 62 are outside Australia. I can log the American stations KTAB, KPO, KYA, KNX and KFRC every night between 12.30 and 1.30 a.m., when the static is not too exceptionally bad, and on one occasion I also had KFI and KFSG.

The following are some of the stations which I hear regularly:—KZRM, KZKZ, KPM, and KZIB in the Philippines; 7CA, 7BY, and four other stations in India; several in Java and neighbouring countries (which are difficult to identify as all announcing, etc., is in the vernacular); 1YA, 2YA, 3YA and 4YA, New Zealand; 5 and sometimes 6 Japanese; one Chinese, Durban and Johannesburg, South Africa.

I have also heard a number of European stations, but conditions have been too bad to identify any station where a foreign language is used, although I am sure of one Italian, one French and one Austrian or Russian. All these stations were tuned in on the speaker, as the headphones are quite unnecessary. KZRM, the four big Japanese stations, and three of the Indian stations, can be heard 150 to 200 yards away from the speaker, and KTAB 100 yards away.

I can get 2FC, 2BL, 3LO, 3AR, 4QG, 5CL and 5DN at very great strength at any time during the day—in fact, I have had all of them on an indoor aerial consisting of 50 yards of "talking" tape at good strength, and can also get them on the outdoor aerial on six valves quite well. I can also get 3UZ, 3DB, 2GB and 2KY in daylight, but of course not so strongly as the "A" stations. At night I have had KZRM, the Japanese stations, and 7CA and 7BY India on the indoor aerial with good strength.

(Signed) K. L. WILLIAMS.

The
UDISCO L8
EIGHT VALVES—ONE CONTROL

The UDISCO L8—a supreme eight-valve model—is selling itself wherever it is demonstrated. Here is a magnificent set that yields phenomenal results—that is easier to operate than a crystal set—that is more economical on battery consumption than some THREE-valve receivers. Skilled radio engineering and perfect cabinet work combine to make this the most remarkable receiver in Australia to-day. Ask your dealer to demonstrate.

CABINET MODEL

Beautiful two-tone maple cabinet and stand. Ample space for housing batteries.

£84 Complete

CONSOLE MODEL

A De Luxe Model with built-in Rola Speaker; handsomely inlaid and beautifully finished.

£95 Complete

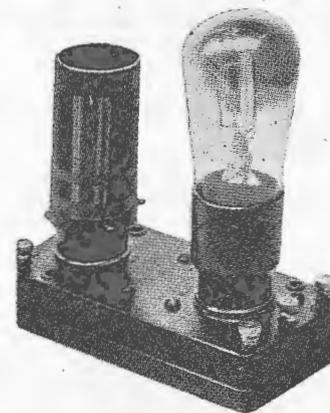


CONSOLE MODEL.

UNITED DISTRIBUTORS

LIMITED

343 QUEEN STREET BRISBANE



Above: R.F. Redi-blox, a completely wired unit which with .00035 mfd. condenser makes a stage of tuned R.F.
PRICE 17/6
Not illustrated: Redi-blox Detector Unit is fitted with a flexible lead under the base, by means of which either positive or negative grid return can be obtained.
PRICE 17/6



PRICE
45/-

Redi-blox Audio Frequency Unit for high quality amplification. A precision A.F. "Pilot" Transformer is mounted in the steel case. The regular battery valves can be used, or the 171 or 210 power amplifiers.

Again Leading the Way in
Radio Progress

"PILOT"
REDI-BLOX
Wired Radio Units—

With characteristic leadership, "PILOT" introduces a new and easier method of radio set construction by the advent of Pilot REDI-BLOX Wired Radio Units.

No soldering! Construct your new set by simply connecting the Redi-blox Units as you'd hook-up a couple of dry cells.

Redi-blox offers the key to countless circuit arrangements. Set building is now a matter of minutes—not hours.

They Cost No More than
the Bare Parts!

The wonderful thing about these Redi-blox Units is that they cost no more—if anything, less—than what you would have to pay for the bare parts of equal quality!! See them used in the "Air Scout Five" described in this issue of "The Queensland Radio News," and decide to build your next set the modern way—the Redi-blox way.

Ask your Dealer to show you
"Pilot" Redi-Blox

UNITED DISTRIBUTORS

LIMITED

343 QUEEN STREET, BRISBANE

THE DISTORTION PROBLEM—Continued from Page 13.

ed theories and will coincide with already known facts." I quote this to show you that even before 4QG was built, the fading question was given consideration.

Your comments regarding the matter give the impression that up to the present nobody has worried. From the above statements you will see that every consideration has been given to the matter.

As a matter of fact, the question of whether 4QG would despatch an expedition to affected areas in Queensland similar to the one despatched by 3LO was at one time considered. In discussing the matter I said that I was quite willing to provide facilities for an expedition, but pointed out that I would guarantee to write its report before it left Brisbane. I was able to make this statement because I had had so many comments from reliable sources in the affected areas.

When 4QG was first tested, the installing engineer, Mr. J. Reed, of Sydney and Melbourne, contributed a very fine, very accurate, and yet fairly simple article to your own paper. If you will again take the trouble to turn up your own files you will be able to read his views and will thus learn that even two and a half years ago keen minds were considering the question.

Now to come to the point. Knowing the fading area to exist and having given careful thought to it for a long period, we at 4QG prepared in a simple form a statement which we had printed and decided to send to all listeners in the affected area. The statement, which dealt with distortion, did not for one moment refer to the State as a whole. It was compiled purely for listeners within a radius of, say, 80 to 150 miles from the station.

You received a copy of it. You have published portions of it, have added your own comments to it, and then have referred to it in a leading article as if it were a statement referring to the whole of Queensland. I want to take this opportunity of saying quite definitely that when the statement you published was issued from 4QG it did not refer to all parts of the State. It was drafted simply for the information of listeners within the recognised fading area, and copies of it have been sent to those listeners and to no others.

Now for the fading and distortion in other areas. Up to a few months ago, 4QG was quite clear of distortion in distant centres. Occasionally local atmospheric conditions caused a slight fading, but generally speaking, the transmission was clear. Then fading set in. This fading still continues and is causing listeners a good deal of concern. It is causing even more concern to us at 4QG.

Many people attribute the distortion to the use of higher power, and to an altered method of transmission. I want to say quite definitely that since fading has been reported, the power used at the station has been exactly the same as the power used when transmission was quite clear.

I want to hammer this statement well home. A higher power was used for a little while, and when reports of fading reached the station, we naturally wondered if the use of high power had anything to do with it. The ordinary power was then reverted to and has been used ever since. Consequently, I can safely state that during the whole of the time the distortion has been reported every meter reading in 4QG has been the same as when reception was quite clear.

The method of transmission has also remained entirely unaltered.

To put the matter in a nutshell, without a single change at the station, with the same system of transmission, and with exactly the same meter readings, distortion has crept in.

What is the cause of this distortion?

This is a question which has occupied our minds for quite a long time, and regarding which (no matter what your leader infers) much careful research work has been done.

Some people claim that high power is responsible. Such a theory does not hold water for an instant. If high power were the cause, then the worst form of distortion would be within the metropolitan area. Listeners within a short radius of Brisbane know that the station is crystal like in clarity. Theory of power is, therefore, completely shattered.

In considering any question, one must be logical. One must be, therefore, logical in considering this question. Here is one important point which must at all times be remembered in connection with wireless transmission and reception. One good reception completely discounts one thousand bad reports.

To make myself clear, I mean that if one set reproduces a station clearly, then the transmission must be in order. There is not a set in existence which has the power to make bad transmission good. If, therefore, only one set gives crystal-like reception, then the transmission must be of a high standard.

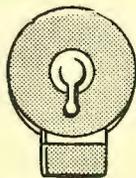
Every transmission is carefully checked and measured at 4QG, and listeners in Brisbane know that during the time bad distortion has been reported in the country, their reception in Brisbane has been "bell-like" in clarity.

This indicates then that the transmission is quite in order. At the same time, bad distortion is occurring in country centres. There must be some cause, and we all have concentrated on the problem for some time past. Your leader states that "unless the authorities take some action to alleviate the trouble, etc., etc. . . ."

I take strong exception to this statement. For weeks past quite a number of very important tests have been made in regard to the matter. In fact, on one occasion, the staff at the station worked right through the night and also worked in conjunction with other stations, and with the Postmaster-General's Department, which made available practically the whole of the trunk lines of the Commonwealth. Wave-meters have been shipped inter-State and recalibrated, careful comparisons have been made, and hours and hours of patient work have been put in on the problem.

For obvious reasons I do not consider it my duty to consult the editor of a wireless journal whenever I carry out a test from 4QG, nor do I deem it my duty to make a detailed report to any journal when that test is completed. At the same time, had you requested me to give you any information regarding the matter, I would have been very pleased to have done so, and would also have been pleased to have told you just exactly what had been done in regard to the matter. Prior to the issue of your April journal you did not, however, refer the question to me in any shape or form, but you merely used a statement which was intended for a certain area only, made it appear as

An **ELECTRIC LIGHT SOCKET—** *An* **ACCUMULATOR ?**



Then you need a **PHILIPS BATTERY CHARGER**

WHETHER they be on a car or Radio, accumulators are most inconvenient when it comes to having them constantly recharged.

Providing you have an electric light socket, much trouble, expense and inconvenience may be done away with by using the type of Philips Charger suitable to your needs—and it's surprising the number of cells, rates and accumulators for which you may purchase a Philips Charger.

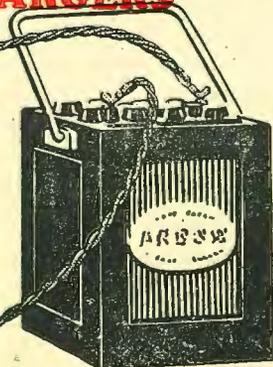
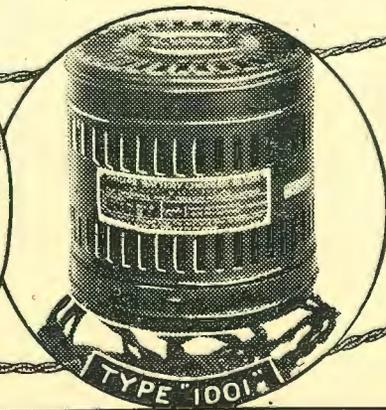
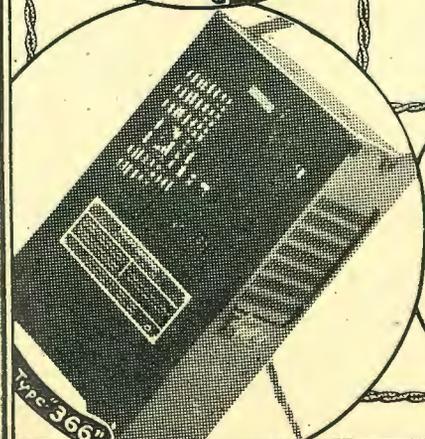
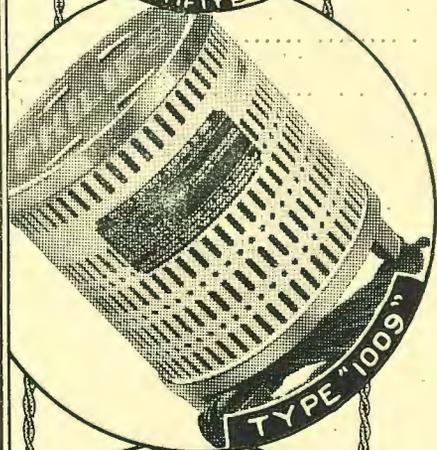
Ask your dealer for particulars and folders.

Type "Four-Fifty"—Charges "A" Accumulators	£4/15/-
Type "1009"—Charges "A" and "B" Accumulators	£7/15/-
Type "366"—For Heavy Duty Accumulators	£8/10/-
Type "1001"—Charges "B" Accumulators	£5/5/-

SOLD BY EVERY RADIO DEALER

PHILIPS

BATTERY CHARGERS



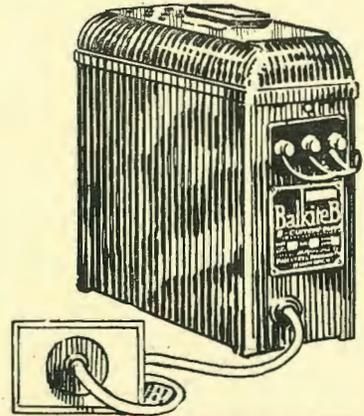
8R17

BALKITE RADIO POWER



BALKITE TRICKLE CHARGER

*Direct
from
the
Light
Socket*



The New BALKITE "B" ELIMINATOR

Over 750,000 in use. Charging rate about $\frac{1}{2}$ ampere. As a trickle charger automatically keeps your "A" battery fully charged.

NEW PRICE £3/10/

The noiseless, tubeless, permanent, light socket "B" power supply.

MODEL BW for set with 5 valves (201A type) or less **£8-19-6**

MODEL B135 for sets with 8 valves and up to 135 volts **£13-10-0**

Trickle Charging Began With Balkite

and Balkite still leads in popularity, service and number in use

Trickle charging, now the most convenient and most popular of all means of charging your radio "A" battery, was not possible until the development of the Balkite Trickle Charger. For Balkite was the first charger that could be connected permanently to your "A" battery and the light socket. It was the first charger that kept the battery always fully charged. And Balkite was the first charger that converted your battery into a complete power unit supplying "A" current from the light socket.

To-day there are over 750,000 Balkite Trickle Chargers in use. Just as it was first in making trickle charging possible, Balkite has always been first in popularity and number in use. Balkite is the standard trickle charger, tried and proved by use in the hands of its thousands of owners.

Like all Balkite Radio Power Units, this charger is a permanent piece of equipment. It has no tubes and nothing to replace or renew. It is noiseless in operation and can usually be used during reception. It is very compact and small, and its current consumption is very low.

The Balkite Trickle Charger can be used as a trickle charger with any 6-volt radio "A" battery. Thus used, it keeps your battery always at full power and in effect converts it into a light socket "A" power supply. With 4-volt batteries, it can be used as an intermittent charger of the usual type. Or as a trickle charger if a resistance is added. Charging rate is approximately $\frac{1}{2}$ ampere.

Add a Balkite Trickle Charger to your "A" battery. Know the convenience of permanent silent "A" power from the light socket always.

Wholesale Only

O. .H O'BRIEN [Sydney]

37-39 Pitt Street, SYDNEY

654-664 Bourke Street, MELBOURNE

if that statement referred to the whole of Queensland, and then published a leader which inferred that all the authorities who control broadcasting are asleep and have done nothing.

My object in supplying you with this matter is to show that you are quite wrong in your statements.

Should you consider that your readers in country districts are desirous of knowing something about the the bad distortion problem, should you consider that

I, as Director of the Station, can give you any information, and should you care to know just what I think of the matter and just what steps I have had taken to fully investigate the problem, I will be very pleased to supply you with the information if you ask for it.—Your faithfully,

J. W. ROBINSON,

Director, Queensland Radio Service.

“The Queensland Radio News” in Answer to 4QG

Before replying to any of the statements contained in Mr. Robinson's letter, we want to make it clear to our readers that the relationships between this paper and Station 4QG have ever been most cordial. We have practised and preached the policy of “boost your own station” through our columns ever since the inception of broadcasting in Queensland. Although the Distortion Question was discussed freely in our last issue, in not one instance did we infer that 4QG was at fault, nor did we attack the station or any of its officials. In view of this, the bitter note that has crept into portions of the Director's reply is to be regretted.

Mr. Robinson's letter really condenses itself into five salient points. These are:—

- (1) **“Q.R.N.” has not stated the position fairly in grouping all affected districts under one heading.**
- (2) **The leader inferred that to date nobody in Australia has really worried about distortion.**
- (3) **The official statement on “Distortion and Fading” was not intended to cover all affected portions of the State.**
- (4) **The statement that the authorities are apathetic in the matter is entirely wrong. 4QG has carried out several tests in conjunction with the P.M.G.'s Dept.**
- (5) **Had “Q.R.N.” approached the Director, full details concerning these secret tests would have made available.**

We would like to deal with Number 3 first, as this affects several of the remaining points.

The Director states that the statement on “Fading and Distortion” as issued by 4QG was intended to apply to listeners residing within the 80-150 mile radius only, which is generally conceded to be the recognised area of distortion. The copy of the statement received by this paper carried the heading, “Fading and Distortion—What are the Causes?” We accepted the statement at its face value, naturally regarding it as the station's official views on the general distortion problem, and published it accordingly. We therefore can hardly be held responsible for not including something that was not contained in the official statement. Had the statement been covered by a memo stating that it applied and was being issued to listeners in certain districts only, we would have made this point clear to our readers.

To get back to point number 1. Here Mr. Robinson affirms that we have not stated the position fairly by grouping all the affected areas under one heading. Our reply to point number 3 covers this to a certain extent, although under the present conditions

we thing little or nothing, can be gained by dissecting the affected areas and treating them individually.

The type of distortion in evidence within the 80-150 mile radius does not differ to that experienced outside of that area. Comparison between reports furnished by readers living inside, within and beyond the 80-150 mile radius, shows that the nature of the distortion experienced to be identical in each case. The three reports referred to come from Benowa, via Southport (30 miles); Murgon (120 miles), and Mossman, N.Q. (1000 miles).

In point number 2 we have to face the charge of inferring that “everybody in Australia has either been too busy, too tired or too careless to worry about the Distortion Problem.” Now this is entirely wrong. No such thing was ever suggested, and no right-thinking person could draw such an inference from our editorial. What was said and what was meant was this: “Distortion was becoming so widespread in our State that unless the authorities took some steps to alleviate the trouble, broadcasting in Queensland was going to suffer.”

In making this statement we did not refer to the recognised distortion area; we referred to the existence of distortion where distortion should not be. We are quite aware that keen minds, not only in Australia, but in all parts of the world, are engaged upon the problem of penetrating the narrow 80-150 mile distortion area, and we said so in our last issue. But in Queensland the position is abnormal, and cannot be compared to that experienced in other parts of Australia. The position here calls for special investigation, and in reading through our leader, we cannot see how Mr. Robinson has drawn any other inference.

In replying to point number 4 we are pleased to know that the authorities are carrying out tests in an effort to unfathom the problem, but we think it a pity that such information has not been made public before. Mr. Robinson in one part of his letter refers to the tests that were carried out some time ago by 3LO and the P.M.G. Department. We well remember those tests. Prior to, during, and subsequent to these tests, Station 3LO kept the wireless press of Australia fully posted with all information concerning the experiments. These reports were eagerly read, particularly by listeners who resided in the affected areas. Mr. Robinson states:

“I do not consider it my duty to consult the editor of a wireless journal whenever I carry out a test from 4QG, nor do I deem it my duty to make a detailed report to any journal when that test is completed.”

We will accept the first part of that statement as one of Mr. Robinson's little jokes. The latter half really interests us, for we hold entirely opposite views. **We hold that when a broadcasting station like 4QG carries out important tests in an effort to solve a problem which vitally concerns every country listener, full details should be given to the press.** Listeners have been told often enough by the Director that 4QG belongs to the people. Surely then, as shareholders in their own Government-controlled station, listeners have every right to know of any important tests that have been carried out in attempting to solve a difficulty which so vitally concerns them. Besides this, we feel that the knowledge that 4QG has been doing all in its power to overcome the trouble would create

a more kindly feeling towards the station in the minds of country listeners.

The fifth and last point raised by Mr. Robinson is that, had we asked for his views on the subject, this paper would have been given full details of the secret tests. Having received what was, to all intents and purposes, an official statement from 4QG on the general Distortion Problem, we did not consider it necessary to approach the Director for any further statement. As the tests were carried out in strict secrecy, it was not possible for us to publish any details concerning them, although we would have been very pleased to have done so had details been made available to the press.

4QG's Statement on the General Distortion Problem

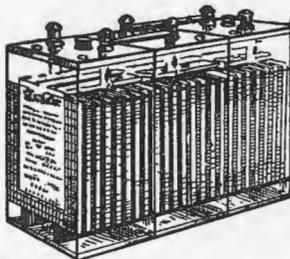
The day following the receipt of our letter, Mr. Robinson left Brisbane for Sydney, and we were unable to interview him before his departure. As he had not returned up to the time of going to press, we have taken the liberty of publishing a statement made by him to "The Broadcast Bulletin" prior to his departure for Sydney. This statement covers the general Distortion Problem:—

"Affected" Areas.

"In the first place," the Director of 4QG said, "it is very important that listeners should not confuse the recent distortion of signals in country districts with the distortion experienced in the already recognised 'fading areas.' Like every other station, 4QG experiences fading and distortion at night time in nearby country districts—districts within a distance of, say, from 80 to 150 miles from it. Every other station ex-

periences distortion within the same area. Expeditions have collected valuable data in certain parts of Australia, and in the United States of America the leading radio and electric companies have joined forces with the Government and have carried out tests and observations over a period of two years. The problem remains unsolved, and is likely to be so until methods of reception and transmission are completely revolutionised. A theory has been advanced to account for the fading, but nothing to prevent it has yet been devised. An explanation of the theory was issued from 4QG some little time ago and has been published.

"Lately, however, a form of distortion has been reported from many country centres outside of the fading area, and it is in regard to this distortion that I desire to speak. I want to quite clearly stress the



EXIDE Low Tension Wireless Battery, Type CZ

Made up and sold in separate 2-volt units in numerous capacities, the Exide Type C.Z. Low Tension Wireless Batteries are suitable for use with any type of Wireless Valve. Ask for them by name.

Remember that every EXIDE Battery sold has EXIDE SERVICE behind it!

Better Construction means Better Service

FROM plates to vent plugs, EXIDE Wireless Batteries represent the last word in battery construction. EXIDE boxes and cell lids are made from Celluloid because it is light, strong, serviceable, and may be readily repaired.

On this point alone EXIDE Batteries establish their superiority.



Exide

WIRELESS BATTERY

At all Radio Stores and Exide Dealers.

New Address:

Adelaide Street (opposite St. John's Cathedral), BRISBANE. Also at Stanley Street, Sth. Brisbane.

fact that distortion within the already recognised affected area must not under any circumstances be confused with recent distortion in further centres. I want it to be quite clearly understood that the recent statement issued from the station explained the cause of fading in the affected areas alone and did not refer to any other part of the State. None of your readers should under any circumstances whatever apply the statement explaining fading in an affected area to the distortion trouble in distant centres.

"I hope I have made this point very clear.

Use of Power.

"During recent months many listeners in distant country centres have reported that reception from 4QG has been very blurred. It is curious to note that some time ago a slight increase in power was made at the station, and naturally most people who have lately experienced distortion are inclined to attribute it to the use of this extra power. 'The station is too strong,' is an expression which quite a number of people have used in discussing the matter.

"This explanation is, however, quite incorrect. As a matter of fact, when the first reports of distortion were received, the power was immediately reduced to its former level, and has remained at that level ever since. Furthermore, the increase in power which was made in the first place, amounted to only a matter of about 200 watts on the input side of the transmitter, and when it is remembered that the total input is in the vicinity of 25,000 watts, it will readily be seen that the increase was fractionally very small.

"The use of power therefore has nothing whatever to do with any distortion, and I would like this fact to be clearly recognised. If the use of power caused distortion, then the worst centres of distortion would be in the districts nearest to the station. The fact that 4QG is bell-like in clarity in the metropolitan area effectively disposes of the widely believed theory that power causes distortion.

"It is interesting to note in this connection that in the United States, a committee of scientists, acting in conjunction with the Government, carried out some very interesting tests over a lengthy period. The world's best equipped laboratories were at the disposal of the authorities, and the whole of the observations were effected under the auspices of the Department of Commerce. The findings of this committee were recently published, and one of them comprised a definite statement to the effect that an increase or a decrease in power in no way affects distortion.

Listeners' Comments.

"What then, is the cause of the distortion which has been noted lately?

"The problem is a very acute one, and has been the subject of much careful yet quiet research during the past few weeks. Quite a number of correspondents to newspapers have discussed the matter, and one or two very kind anonymous writers have insinuated that nothing at all has been done by 4QG in connection with the trouble.

"Such an insinuation is not only unfair, but is quite incorrect. From the very earliest time that reports come to hand, the matter has received the closest at-

ention of the staff, and much has been done to try and remove the trouble.

"Some listeners and writers have suggested that when tests are being made, listeners should co-operate with the station and supply reports. Whilst the station deeply appreciates the fact that every listener would be delighted to issue comments if asked, it is not able to adopt this scheme. Obviously there are few listeners upon whom the station can rely for information. By this I do not mean that listeners are untruthful or unable to express an opinion, but the station itself, not know that conditions of the receivers, and the conditions of the atmosphere at various centres, could not rely on listeners reports to any serious extent. As a matter of fact, while all comments are highly valued, very little has been learned from them owing to the fact that they are so varied.

"Some few days ago certain tests were made, and two listeners in the one district commented on the quality of their reception. Their reports reached the Chief Engineer, and I can still remember his worried look as he threw them on to my table with the remark, 'What can you do in the face of this?' I picked up both reports and read them. They were, as I said, from two listeners in the same district, and both referred to the same transmission on the same night. One said that it was distorted beyond measure and quite unintelligible. The other said that it was a splendid transmission, quite clear and sharp, with bell-like clarity and with every word and note perfect.

What Has Been Done?

"Now for a word regarding what has been done. When it became quite certain that distortion was occurring in some country centres, immediate careful tests were made to determine whether the trouble lay with the transmission.

"At the present time every circuit which is in use at 4QG is exactly the same as at the time when distant and inter-State centres reported clear reception, and every meter reading at the station is the same as those when never a complaint came to hand. On top of this, the reception within the metropolitan areas is perfect.

"Now, if one receiver gives it owner perfect reproduction, then the transmission must be in order. In other words, one report of excellent reception (provided, of course, that it be correct) completely discounts one hundred reports of bad reception. If one receiver gives good results, the transmission must be in order. There is no receiver on earth that will make bad transmission good. If the transmission is faulty, then every set will receive it faulty. Similarly, if one set gives good reproduction, then the quality must be there at the transmitter.

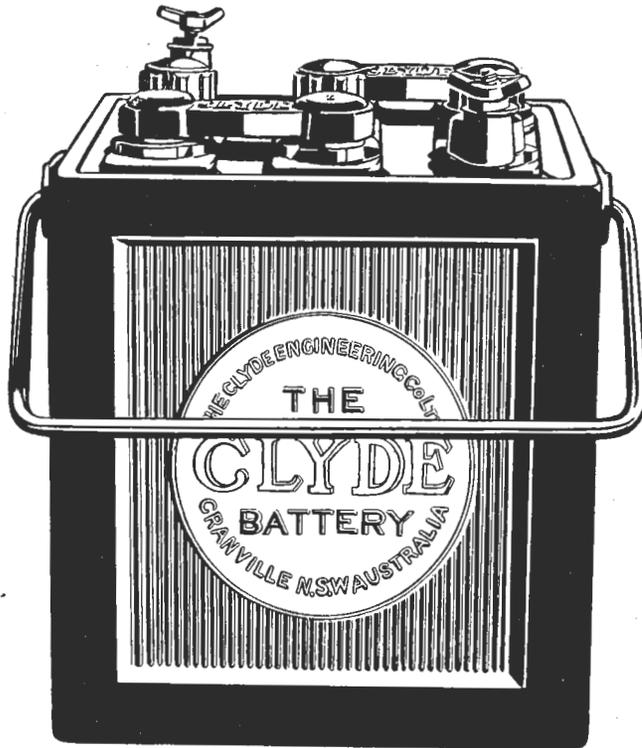
"To-day, then, reception is perfect in many centres and is distorted in others.

"We at 4QG are perfectly convinced (and have been convinced for some time) that the distortion in distant centres is caused by some interference quite outside 4QG.

Inter-Station Interference.

"The type of distortion which is reported points in all cases distinctly to interference with reception from 4QG by some other station.

CLYDE



*Clyde for Cars
Radio and
Home Lighting*

It hardly needs our continued assurance to convince you that Clyde is a good battery.

If you want more, just ask the man who has been using a Clyde Radio Battery for twelve months or more.

Provided he has given it decent, ordinary atten-

tion, he will tell you that it is as good to-day as the day he bought it.

He will tell you that it has given him—right through—steady, silent service, without trouble or worry—that it has stood up to its work as a good battery should.

Depend upon it. You're quite safe in buying a Clyde

Made by the CLYDE ENGINEERING CO. LTD., GRANVILLE

Battery Sales Dept., MAIN SERVICE STATION, 106-110 Goulburn Street, SYDNEY



"Just assume for a moment that this theory is correct. Reception in the metropolitan area is quite perfect and clear because 4QG field is so strong as to prevent reception of any distant station's signals. In the country districts, however, it becomes possible to receive 4QG and other stations and some other station's carrier wave is so close to 4QG's as to cause interference.

"It is well known that all Australian stations are very close to each other in wavelengths, and it was at first suspected that there was inter-station interference between 4QG and 5CL. In an endeavour to solve the problem the engineer at 4QG co-operated with the Postmaster-General's Department, and a series of very, very careful tests were made. All wavemeters were recalled to Melbourne and were compared and calibrated in the research laboratory of the department. The trunk lines of the Commonwealth were brought into operation during the early hours of a recent morning, and frequency measurements of various stations were made. Wavemeters were then returned. When Adelaide and Brisbane stations were carefully measured, it was found that the interference did not come from 5CL.

"During the past few days certain adjustments have been made at 4QG, and these have resulted in a slight change of wavelength. Already many reports have come from centres stating that reception is quite clear and other reports are now being awaited.

"I trust that from what I have said your readers will realise that the problem is an acute one, is one which cannot be solved by the wave of a hand, and that the station is doing everything within its power to locate the trouble."



Broadcasting Literally

3LO Melbourne still pursues the policy of practical education that has dominated that station from its earliest youth. The word "broadcasting" took on its more literal and primary guise recently again when it occurred to the management that in the loquent words of whoever it was: "He who makes two blades of grass grow where but one grew before deserves well of his country." Accordingly, 3LO Melbourne's busy mind decided that it would go one better and substitute garden seeds for grass and the number thousands for merely two. The outcome is a copious distribution of fertile seeds to all who apply for them, and in every programme 3LO Melbourne tells you all about the beauty and mode of growth and time to plant some pretty flower or succulent vegetable. Thus broadcasting journeys not only to the stars, but to our very feet, and 3LO Melbourne is justified of all its children.

In this connection it has been suggested that 3LO Melbourne should hold a flower show and donate prizes for the best bunch of flowers grown from the seeds thus distributed. But 3LO Melbourne, while considering the idea very favourably, greatly fear that its staff would be overwhelmed with work, as well as flowers. Victoria this year is enjoying a second spring, when autumn really should be on the carpet, and already amateur gardeners are watching the mystery of green shoots appearing from the little seeds supplied, for every packet is a winner, and the glory of the garden is being broadcast over all the land.



Let's Bind 'em up!

The February issue of "The Queensland Radio News" commenced the fourth volume of this journal.

Readers who have copies of Vol. III. intact (Feb., 1927 to Jan. 1928 inclusive) should have them bound into volume form for safe keeping and easy reference.

Bound Volumes of the Queensland Radio News [Vol. III]

Complete Bound Volumes

containing 12 issue of "Queensland Radio News" from February 1927 to January 1928, nicely bound in full cloth, stiff covers, with titling and **your own initials** lettered in gold leaf.

POST 9/6 FREE

Binding Own Volumes

Bring or post your back numbers to us (Vols. I., II., or III.) and we will bind them in the same style as detailed above for

POST 6/6 FREE

GET YOUR COPIES BOUND NOW. YOU WILL ALWAYS FIND THEM USEFUL FOR REFERENCE.

QUEENSLAND RADIO NEWS
Box 1095N, G.P.O., BRISBANE.

THE READ PRESS LTD
Douglas Chambers, Adelaide St., BRISBANE.



The Name "EVER-READY"
and THIS TRADE MARK

ARE YOUR GUARANTEE
of the BRITISH PRODUCT

A MESSAGE— *about better radio reception*

Below are shown three of the EVER-READY types, particulars of which are here given:—

EVER-READY STANDARD DRY CELL.

Built on the sturdy British method of construction, for the economical operation of all dry cell radio valves, bells, telephone, signalling and electro-medical apparatus.

Price 3/3

EVER-READY "B" BATTERIES.

The complete range of "B" batteries is listed below—ask your dealer for the type best suited for your needs.

- Small size, type W.P., 31.5v. 9/6
- Small size, type W.P., 42v. 12/6
- Small size, type W.P., 63v. 18/
- Type H.D., 45v. 23/6
- Type S.S. 45v. 27/6

EVER-READY No. 126 BIAS or "C" BATTERIES.

Greatly improved reception is obtained, both as regards volume and tonal qualities, when an EVER-READY No. 126 is used, and, moreover, the life of "B" batteries is considerably prolonged.

Price 3/3

Years ago thousands of wireless enthusiasts delved into the question as to which of the many "B" Batteries then on the market offered the most in reliability, long life and true value-for-money power.

A consideration of price, quality of materials, craftsmanship in the making, and the time the battery was in transit from the manufacturer to the user, invariably led to "EVER-READY" Radio Batteries being selected to help them gain better reception.

If you are an "EVER-READY" user, we congratulate you on your choice, for our faith in their worth is due to an honesty of purpose in manufacture to which we have held unvaryingly since the first "EVER-READY" was built.

"EVER-READY" "B" Batteries are made in a complete range of types to suit all requirements, including the two new 45-volt "B" batteries, known as Heavy Duty and Super Service, and are obtainable from all good radio dealers.

Queensland Distributors:

Edison Swan Electric Co. Ltd.

156 Creek Street, BRISBANE



This Much Discussed SELECTIVITY

A simple explanation of the meaning of this much-used word, written in popular language that everyone may understand

By THE TECHNICAL EDITOR

Selectivity is a term anent which a great deal of misunderstanding exists. Very frequently it is misapplied and used wholly incorrectly, not only in the everyday "shop talk" of radio enthusiasts, but quite often in the course of magazine articles. Perhaps the worst offenders in this respect are advertisers of variable condensers, though it is only fair to say that, in most cases, the erroneous statements are made in all good faith, with no intention of misleading the public.

This article is not intended to show how a receiver may be made selective, but simply to attempt to dispel some, at least, of the mist of doubt which appears to surround this interesting subject.

First of all, what is "selectivity"? Briefly, it is that property which allows a radio receiver to discriminate between signals of different wavelengths.

A very illuminating comparison may be made between a radio receiver and our sense of hearing. You may think that the human ear is quite unselective, but, nevertheless, it has this property to a certain extent, as we shall see. In the human auditory system, apparently the brain does the "tuning." If we hear a certain sound and listen very intently for it to be repeated, it frequently happens that we fail to hear another sound of a different nature from the one for which we are listening. Perhaps it would be more correct to say that this sound was received by the ear, but made no impression on the brain.

Since different sounds have different wavelengths, we may assume that the brain automatically "tuned" our hearing system to respond to the wavelength of the particular sound for which we were listening, to the exclusion of all others.

Something of the sort happens in a radio receiver although, in this case, the phenomena, being under more positive control, is less indefinite.

When a receiver is tuned to respond to a certain wavelength, theoretically only impulses of that particular wavelength, and no other, should operate the set. However, selectivity of this order is just another impossibility, such as perpetual motion or a perfect vacuum, and is never likely to be attained. It is just as well that this is so, for the signal from the present-day broadcast transmitter is not concentrated on one exact point in the wavelength spectrum, but covers a band a small part of a metre in width—seemingly an insignificant space, but in reality quite appreciable.

In spite of what was said, however, about the impracticability of infinite selectivity, nevertheless it is

within the bounds of possibility for a receiver to be **too** selective, although in actual practice this is very rarely the case. We have just explained that the signal from a broadcast station is a few tenths of a metre in width, so it will be seen that a receiver which will not respond equally to this small band of wavelengths, **even though it is tuned nominally for a certain definite wavelength**, will not give satisfactory service. Actually, such a set will deliver poor audio quality, because it will be receiving only part of the wave carrying the musical vibrations.

Reverting to our previous analogy of the human ear: Suppose that, while we are listening intently for that expected sound, another sound, of totally different character, **but of great intensity**, strikes the ear. Undoubtedly we shall hear this sound, because the delicate "tuning system" will not be proof against the shock occasioned by that extremely strong vibration.

In a radio set, a very similar happening occurs, and, appropriately enough, it is known as "shock excitation." Even though the receiver be tuned to respond to the wavelength of a distant station, it often happens that it will respond—to a greater or lesser degree, depending on the design of the tuning system—to very strong impulses from a nearby station, even though that station is transmitting on a wavelength fairly widely separated from the one to which the set is tuned. To use language a little more technical, the actual effect is that the strong local signal "shocks" the receiver circuit into producing oscillations at whatever wavelength it is tuned to, with the result which we know as interference.

Removing a Misunderstanding.

Now, apropos this matter of selectivity, a very widely prevalent misconception is to the effect that the **type** of variable tuning condenser used has a direct effect, one way or the other, on the selectivity of a receiver.

This is an absolute fallacy. Provided the two instruments are equal in quality—that is, as regards insulation, etc.—a receiver fitted with condensers having the old style semi-circular plates will be every bit as selective as another, similar in other respects, but fitted with the modern "straight-line frequency" or "corrected straight-line" types.

Let us see why this is so. The function of a tuning condenser is simply to provide a convenient means of altering the electrical characteristics of a circuit so that it will respond to impulses of various wavelengths, as required.

Assume that our receiver is equipped with an old-type semi-circular plate condenser of good quality. We receive 4QG, let us say, at 50 on the tuning dial, and 3LO at 47, but a trace of 4QG is also present on 3LO—that is, at 47 on the dial.

4QG's wavelength is 385 metres, 3LO's 371; therefore it is apparent that our receiver still is responding to a 385-metre signal, even though it is tuned to 371 metres.

Now let us remove the old condenser, replacing it with one of modern design—say a "straight-line-frequency" (S.L.F.).

It is a fact that, due to the design of the plates, an S.L.F. condenser gives wider spacing on the dial between stations, particularly at the upper end of the scale. Greater selectivity, you say? Wait a little before you decide.

With our new condenser, we find that, while we still receive 3LO at 47 on the dial, 4QG comes in at 53 instead of 50, as previously. But neither station has changed its wavelength, therefore the wider separation is one of dial readings only—no more than that. As the remainder of our set is unchanged, and a 385-metre signal which interfered before at 371 metres will still interfere at that wavelength, we find that there is still a trace of 4QG mingled with 3LO, even though their apparent separation now is 6 "degrees" instead of 3.

So you see an S.L.F., or indeed any other type of condenser, cannot affect selectivity, either for better or worse. It is quite true that it spreads the stations more evenly over the dial than its predecessor, and, for this reason, it is a valuable aid to easy tuning; but do not expect it to convert a flat-tuning receiver into a selective one, and don't be misled by advertisements which claim this physically impossible achievement.



A.W.A. SHORT WAVE STATION.

View at Radio-Centre, Pentant Hills, Sydney, showing short-wave transmitter designed and manufactured by A.W.A. engineers, utilised in the Empire broadcasting transmissions.

Notice the centralisation of control. The operator on duty sits at his control table, and has before him various "telltale" instruments, by means of which he is enabled to keep his fingers on the pulse of the whole station.

Ranged round him is the powerful transmitting equipment, constructed in separate island units.

NEW FERRANTI PRODUCTS.

Radio has come to play a great part in the life of the world to-day, and the pessimistic one, who was wont to say and think that wireless was only a passing fad and would die out as quickly as it came in, is no longer heard in the land. Rather the speculation is where will the next development take us?

No stronger evidence of the solid position that radio has attained can be given than the fact that so many large and world-wide known manufacturers with already huge business, have entered and extended strongly into the radio field.

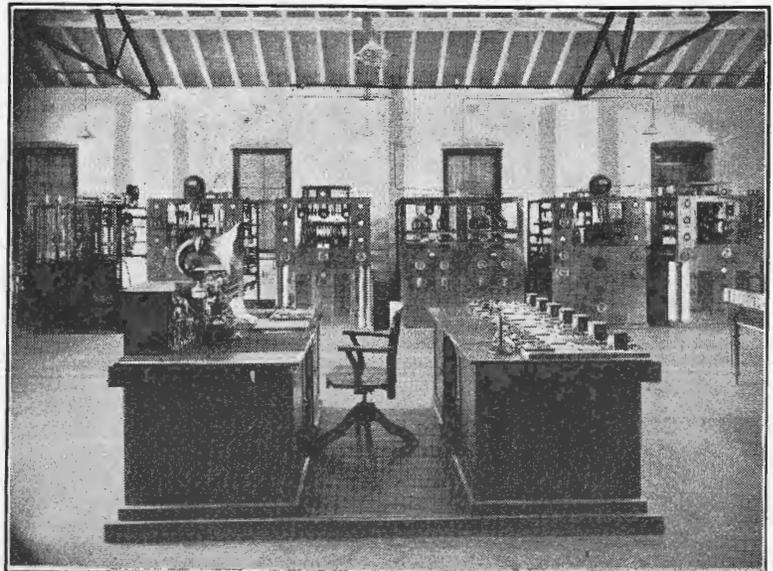
One noted example is Ferranti Ltd., of Hollinwood, Lancashire, England, probably the best known electrical manufacturers in England. Perhaps a natural development was for this firm, whose electrical transformers from small to huge sizes are of exceedingly high repute, to branch into radio transformers, first with two models. The wonderful success achieved has led to now, no less than twelve models being produced and marketed.

The next development was the trickle battery charger, again a natural step forward, because the charger consists of a transformer and the wonderful Saxby Signal or Westinghouse Cuprous Oxide Metal Disc Rectifier. The very latest announcement is that a high tension current supply on the same principle has been developed and will be marketed shortly.

Ferranti Ltd. have always been electrical meter manufacturers, so that the wide range of radio volt, ampere, and milliampere meters just about arriving in Australia will be certain to be in solid demand.

Perhaps the widest departure from existing manufactures by Ferranti is the production of the Exponential horn loudspeaker, which is said to give the finest reproduction yet devised. Models of this Ferranti speaker have just arrived, the first of the type to come to Australia, and are causing intense interest.

Ferranti representation in Queensland is in the hands of Edgar V. Hudson, and practically every radio dealer in the State carries Ferranti lines on the shelves.



What The QUESTIONNAIRE

Revealed

The following article sets out in summarised form the information gleaned from our Distortion Questionnaire, replies to which are still coming in.

We have endeavoured throughout to review the subject from a wholly impartial standpoint, basing our assumptions solely upon the data received from our readers.

THE response to the Questionnaire upon the subject of 4QG distortion, published in our last issue, was rather overwhelming, proving the intense interest it aroused among country readers.

We desire to thank every reader who was good enough to send along his answer to the Questionnaire. There were, of course, far too many reports forwarded to permit of a letter of thanks being sent to each, but we wish to place our sincere appreciation on record here, and to assure the senders that their co-operation is of very real value.

In glancing through the reports, the aspect which strikes one most forcibly is their almost complete agreement in nearly every particular. Although these reports came from places as far apart as Laidley and Cairns (N.Q.), Cunnamulla and Sydney, Beerburum and Port Douglas, yet, save for minor differences in wording, they might almost have been written by the same listener.

This affords convincing proof of the disturbing fact that the trouble is of a very widespread and general nature, and is by no means confined to the generally recognised night-distortion area of something under 200 miles from the station. It is rather staggering to reflect that a station such as 4QG, equipped with the best of modern apparatus, has a scope of usefulness no wider in area than the boundaries of the Capital City; yet that appears to be the position at the present time.

It will be of interest at this point to run through the Questionnaire, treating each question in turn, and basing our assumptions on the average answers received.

Disregarding Question 1, which refers to distance, Question 2 asks: "Do you receive 4QG in daylight; if so, with what quality?"

The answers to the latter part of this question vary from "very good" to "fair," with in one or two instances a "very bad." Probably a fairly representative reply would be "fair," and this opinion agrees in general with the views of city listeners.

Taking into consideration the fact that some of the daytime distortion quite possibly is caused by the use of too much reaction in the case of one or two more distant listeners, still we take the view that this general consensus of opinion may be regarded as a fairly accurate indication that the transmission from the station is not by any means faultless. This conclu-

sion is based upon the fact that the Heaviside layer theory cannot be applied during the hours of daylight, and atmospheric conditions, so far as we are able to discover, have not up to the present been known to interfere with the quality of daylight reception in other parts of the world, so it would seem to be conclusive.

Question 3: "At approximately what hour does distortion make itself evident?"

The answer to this was unanimous. Serious distortion appears with the setting-in of darkness, and it is most important to note that, as winter advances and the days are contracting, **the hour at which this distortion commences is becoming earlier.**

This has a most important bearing on the subject, since it is not reasonable to assume that any alteration is made at the station just at dusk every day, and we cannot agree with the theory of one earnest complainer, who thought that the switching-on of the lights in the State Insurance Building might be the cause of the trouble!

Added to the fact that City listeners notice no difference in the quality of reception as darkness approaches, it is apparent that **the bulk of the distortion about which country listeners complain is not attributable to the station, but to some outside factor at present not wholly understood.**

The trouble could well be accounted for by the "Night-Distortion Theory," discussed in another part of this issue, but for one baffling point.

The distortion is not restricted to an area in which the "ground wave" would be expected to be strong enough to interfere with the reflected wave, and so cause trouble.

At distances greater than about 200 miles, it is generally assumed that the ground wave from a station operating under similar conditions to those of 4QG would be so greatly attenuated that its effect would be practically negligible. Even allowing for an abnormally strong ground-wave, it is scarcely feasible that it would be present at distances in the neighbourhood of one thousand miles, at which distance distortion is present. The fact that, at this distance, daylight reception is non-existent, would seem to be ample proof that the ground-wave may be left out of the argument.

Yet another puzzling angle of the matter is that, while reception in Brisbane of the Sydney stations is almost invariably good, the same cannot be said, according to reports, of the reception of the Brisbane

station in Sydney, although it is fairly safe to assume that the route traversed by the signals is substantially the same.

The answer to Question 4—"Since what date has this distortion been noticed?"—is very decided. Almost everyone fixed the time as being during the month of October last. Whether the fact that the appearance of serious distortion coincided with the announcement that 4QG was increasing power is purely a coincidence or not is open to question. We must recognise the possibility of a change in atmospheric conditions occurring about this time. As to the nature of such a possible change, we can only guess, but it occurs to us that the effect of sun-spot activity upon radio waves is a matter which will bear further investigation.

Question 5 asks: "Does reception from any other station (particularly 5CL) suffer distortion?"

The answer was emphatically in the negative, with the exception, of course, of the familiar fading-with-distortion which occurs at times on all stations. Our reason for mentioning the Adelaide station in particular may have seemed obscure, but it was done in order to test the correctness or otherwise of a suggestion that the trouble may have been caused by heterodyning between 5CL and 4QG. Since heterodyning (or interference due to the waves overlapping) is a "two-party" affair, it follows that, if this were the case, reception from both stations would suffer to some extent. The answer, of course, entirely discountenances the theory mentioned.

Question 6: "Are you consistently troubled with distortion, or do you find some nights better than others?"

Without exception, the reports say that the night-time distortion is consistent in character, and only on rare occasions is it possible to listen with anything approaching enjoyment to a complete item. Many go so far as to say that only an occasional word in an announcement is understandable.

To sum up, it would appear that the chief cause of the trouble lies outside the province of the station, but at the same time matters are in no wise improved by the quality of the transmission itself, which apparently falls short of the high standard it reached some time ago.

The whole subject is a most complex one, presenting many very baffling problems; but we are hopeful that the time is not far distant when some light will be shed on the nature of the trouble, and steps taken to remedy it. In the meantime, readers may rest assured that no stone will be left unturned, either by the station personnel, the Commonwealth Department, or by this journal, in an effort to bring about this highly desirable end.

In conclusion, we feel we must mention one thing. That is, that we were very glad to note the splendid spirit of co-operation evinced by those who took the trouble to answer our Questionnaire. The replies were in all cases prompted by a genuine desire to be of assistance, and only in one instance did any trace of bitterness creep into an answer.

No reasonable person can object to fair-minded and constructive criticism, and it is good to see that so many listeners realise this fact.

THE SYDNEY RADIO AND ELECTRICAL EXHIBITION.

To the careful observer, two important facts were brought out by the exhibits, viz., the growing popularity of the socket-operated radio set, and the widely growing range of cone type speakers. There is no doubt that cones possess attributes which are absent in other types or present only in a lesser degree. There are several inherent defects, however, notably "woolliness" and "drumming" on certain frequencies and a variation in performance consequent upon atmospheric changes.

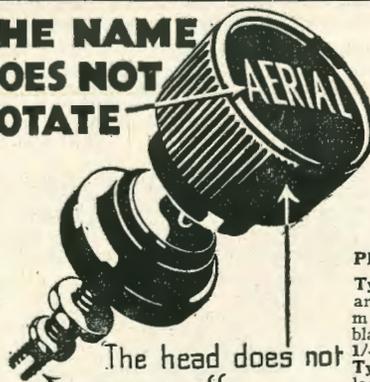
In the new Amplion series of cone speakers, these defects have been completely eliminated, whilst the art and craftsmanship have been pressed into service to make the resulting speakers pleasing to the eye as well as the ear. Eleven different types of finish are available and the speakers are available in two sizes—"junior" and "senior." Every one is fully backed by the famous Amplion guarantee of performance and service.

AMATEURS

We must offer an apology to the Transmitting Amateurs for the unavoidable omission of their page this month. This was occasioned by great pressure on our space, brought about by the publication of other very pressing matter.

In our next issue, "Lambda" will have a page of interesting material for our "ham" friends.

THE NAME DOES NOT ROTATE



The head does not come off.

The slot and nur eliminate soldering

Belling-Lee Terminals are the best in the world, and will give real finish and distinction to your receiver. Made in 20 different engravings. Illustrated Catalogue free on request

PRICES—

Type "B" standard large insulated model (polished black bakelite), 1/- ea.

Type "M" Popular model, as type "B" but not insulated. 9d. ea.

Type "R." Cheap model with rotating name. 6d. ea.

All Types Guaranteed

Patents applied for.

THE FINISH IS PERFECT THROUGHOUT

Factory representative for Australia:—

W. G. WATSON & CO. LTD.

55 Charlotte St., Brisbane

And all States

**BELLING-LEE
TERMINALS**

New PHILIPS Radio Apparatus for 1928

PHILIPS AUDIO TRANSFORMER

The overall dimensions of the Transformer are small, and the design compact. Practically the whole weight of the Transformer is in the special alloy of which the core is composed, and so careful has been the design that not only is even amplification obtained from 200 to 10,000 cycles, but there is absolutely no possibility of saturation. Ratio is 3 to 1, and if preceded by the Philips "FOUR FIFTEEN" valve, the average "step up" is 45 per stage.

PRICE 27/6

PHILIPS Power Plus 'B' Eliminators

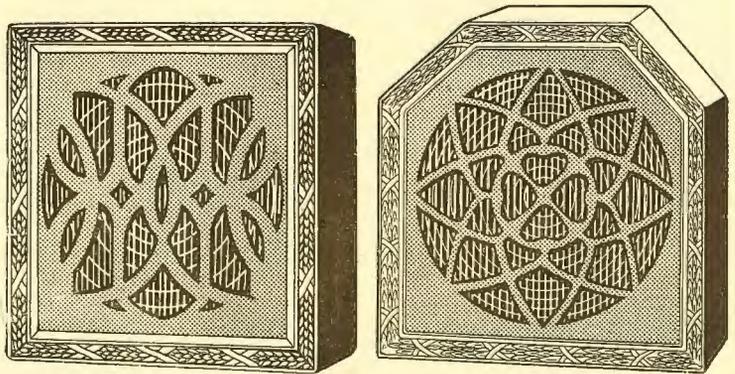
It is equipped with the Philips full wave 60 mA. Rectifying Valve. Six fixed "Positive" taps, in to which substantial bakelite plugs can be inserted, give practically unlimited choice of voltage between 22½ and 200. The whole unit is completely encased in a stout metal cover of handsome crystalline finish, and both the connections to the A.C., Rectifying Valve and the earthing terminal are housed under a detachable cover plate. The output is sufficient for the largest of radio sets—it is free from "hum," economical, efficient, sealed and guaranteed.

PRICE £9/15/

The Loud Speaker that Recreates the Original

The natural tones of the organ, the sweet notes of the soprano, and the vibrating chords of the bass are re-created through this speaker in true record.

The "CELESTION" is the result of four years' persistent effort—new design—new in its high pinnacle of production excellence. An ornament—a luxury—in a class by itself.



MODEL A.2. Price £9.

Model A.3. Price £10/10

Model A.1. Price £7/10/.

Model C.10, Mahogany Finish. PRICE £8 0 0

Model C.12, Mahogany Finish. PRICE 10 10 0

Model C.14, Mahogany Finish. PRICE 20 0 0

Large Floor Cabinet Type, suitable for dance halls, theatres, cafes, etc.

CELESTION LOUD SPEAKERS

The Very Soul of Music!

CALL AND HAVE US DEMONSTRATE

J. B. CHANDLER & CO.

Queensland's Largest Radio Store

45 ADELAIDE ST. [Next Allan & Stark's] BRISBANE



**The same high quality
at an even lower price**

B.T.H. C.2. Loudspeaker



Agents for that remarkable Loudspeaker, the B.T.H. C.2, we are glad to be able to announce a substantial reduction in its price.

Both in England and Australia the demand for the C.2 has multiplied year by year, bringing increased production with lowered manufacturing cost and making possible a lower retail selling price.

The unchallengeable quality of the C.2, however, remains unaltered. In pure, sweet clarity of reproduction, the C.2 dominates the low-priced loudspeaker field, and indeed compares more than favourably with speakers of practically double its price.

Hear it. Compare it. You'll agree that at its price it offers the greatest loudspeaker value to-day.

AUSTRALIAN
GENERAL ELECTRIC
Australian General Electric Company, Ltd

Atcherley House, Corner Queen and Adelaide Streets, BRISBANE
AND AT FLINDERS STREET EAST, TOWNSVILLE.

MUSIC
from your
light
socket

The Simplified Light Socket Radio electrical engineers have dreamed of

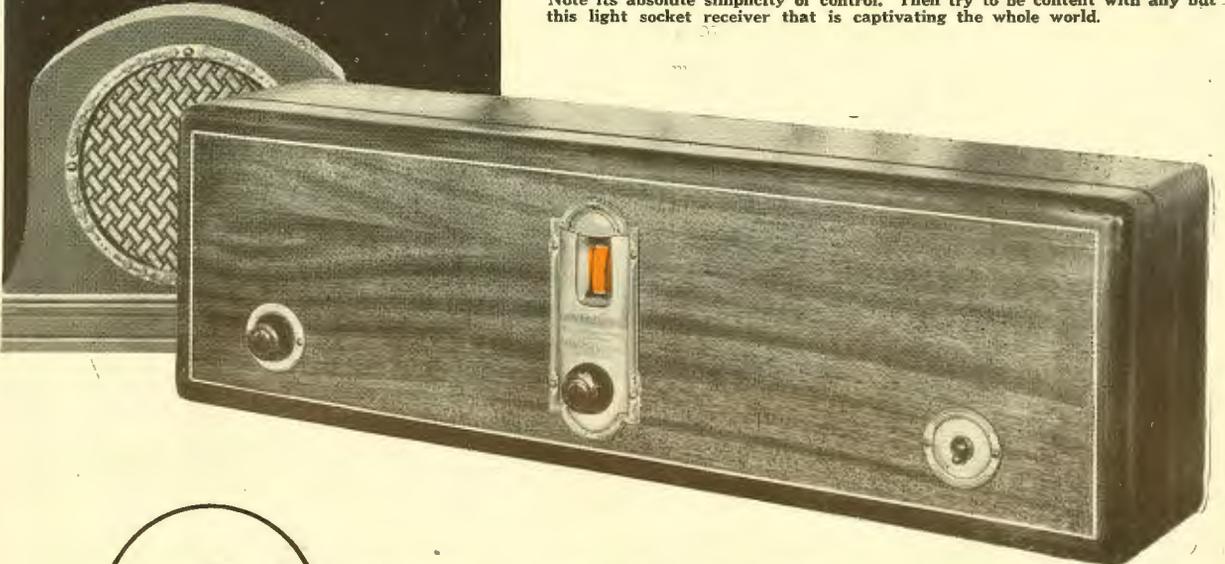
No batteries—no battery eliminators—
 This 6 Valve R.C.A. Receiver Model 17
 works direct from an ordinary light socket or power point like an electric fan.

THREE years ago the Radio Corporation of America announced the development of the first A.C. operated receiver. Radio that worked without batteries direct from a light socket!—the whole world applauded. But alas!—the cost of this new, most luxurious development of radio made it prohibitive to the majority of people.

Now R.C.A. announces a light socket receiver of the same luxurious convenience, but at a price that brings it within the reach of thousands.

At £75 (complete with the heavy dull bronze R.C.A. Loudspeaker 100A), this new Model 17 Receiver offers remarkable value. Think of its practical economy; no more batteries to buy and keep charged; no expensive additional equipment; practically negligible upkeep.

Hear it! Listen to the rich, full, clarity of its tone. Tune it in yourself. Note its absolute simplicity of control. Then try to be content with any but this light socket receiver that is captivating the whole world.



RECEIVER MODEL 17

AUSTRALIAN

GENERAL ELECTRIC
Australian General Electric Company, Ltd

Atcherley House, Queen and Adelaide Sts, BRISBANE
 AND AT FLINDERS STREET EAST, TOWNSVILLE.

First Shipment arrives in May. Be the fortunate owner of one of these fine receivers this season.

ATWATER KENT Radio Receivers

Send for Literature. Profusely illustrated literature depicting all models mailed free on request.

The Atwater-Kent Radio Corporation of America are the recognised leaders in Radio Receivers in U.S.A.—BECAUSE—Their Receivers are

Compact in Design Sensitive — Selective
Neat in Appearance Built by skilled labour only

The Model 35—6-Valve Receiver, complete is .. £ 43/10/-
The Model 33—6-Valve Receiver, complete is .. £ 49/10/-
The Model 32—7-Valve Receiver, complete is .. £ 54/10/-

BIG REDUCTIONS IN PRICE.

Dulcephone Receivers

1, 2 and 3 VALVES

1-Valve Set, complete with H.4 Brown Speaker ..	£ 9	7	6
2-Valve Set, complete with Amplion Cabinette Speaker ..	12	0	0
3-Valve Set, complete with Amplion Cabinette Speaker ..	15	0	0

These reductions have been made possible by the reduction in the prices of component parts. The high standard of efficiency still remains.

Accessories of Note

Viking 5-1 and 3½-1 ratio Transformers, ea.	10/6
Jefferson Type 41 3.75-1 ratio Transformers each ..	15/
Viking Art Vernier Dial ..	5/
Philips Trickle Charger ..	£3/10/
Amplion Cabinet Speaker ..	£2/10/
No. 2 Crystal Set (bare) ..	£1/2/6
Ericsson Crystal Set (bare) ..	£1/5/
Colvern Bakelite Former and Base ..	8/6
D.E.2, D.E.8, D.E.5, D.E.5B. Osram Valves —a few left at only (each) ..	4/6

Where English Base Osram Valves only are available, we supply socket free.

Wireless House Limited

Queensland's Oldest Radio Supply House

City Buildings Edward Street BRISBANE

Brisbane and Southern Queensland Distributors for Atwater Kent Receivers and Speakers.

News from 3LO

POPULAR BANJOISTE AT 3LO.

We are always glad to welcome Thelma Ready and her banjo at 3LO where, with her wide range of melodies, ranging from the operatic to the strictly popular, she makes a wide appeal to listeners.

"THE GIRL FROM JO'BURG."

A newcomer to 3LO is Meta Rodney, known throughout South Africa as "The Girl fro Jo'burg," and who has been successfully touring this country with her banjo ukulele.

GYPSY PLAYERS AT 3LO.

The Gypsy Players—a string quartette—will be appearing frequently on 3LO programmes during the week ending Saturday, May 5th.

THE FAMOUS LAMBERTS AT 3LO.

Music lovers were pleased to hear the distinguished Lambert Trio again included in the programme from 3LO on April 29th. These three fine artists are too well known to listeners to need any further praise in these columns, but, for the benefit of newcomers, we might mention that Madame Lambert is a distinguished soprano who, after having carried off many scholarships at the Brussels Conservatorium, appeared successfully in the great musical centres of Europe. Monsieur Lambert is a violinist, and recognised throughout the musical world as an artist of much distinction, and their gifted son, Raymond, who came to Australia a little more than two years ago, and was a pupil of De Greef, has won for himself an enviable place in musical Melbourne.



Squadron-Leader Hinkler broadcasts to the children from 3LO.



Mr. P. W. Pearce, physical culture expert at 3LO, opens his huge mail.

EVENSONG.

Perhaps there is no item in the broadcasting programmes from 3LO Melbourne with a wider appeal than the beautiful evensng service transmitted from St. Paul's Cathedral, Melbourne on Thursday evenings at 4.45 p.m. Listeners throughout Australia, New and the Pacific Islands enjoy with equal zest the music from the famous St. Paul's organ and the signing of the wonderfully trained choristers.

3LO BANDS IN FAVOUR.

With the approach of winter, and with it, dancing and indoor amusements, 3LO two big bands—the Vagabonds and the Station Orchestra—are becoming increasingly necessary parts of the programmes. 3LO promises listeners that these two bands will cater fully for all musical requirements this winter. Dancers especially can rely on the Vagabonds to keep them stepping.

OLD DANCE NIGHT AT 3LO.

It is but characteristic of 3LO that in catering for the tastes of to-day it does not forget those who live in the memories of yesterday. Evidence of this is found in the old-time dance nights which are periodical features of 3LO programmes.



How some of the 6000 children were entertained at the big 3LO Garden Party.

Billy Maloney at 4QG

POPULAR COMEDIAN TO ENTERTAIN LISTENERS.

Listeners who remember Billy Maloney and the wonderful popularity he enjoyed at Cremorne Theatre four or five years ago, will be interested to learn that 4QG has made arrangements with this popular comedian to make a series of appearances from that station.

"Billy," as he is popularly known, is accompanied by his sister, Dulcie, and his accompaniste, Miss Eileen Cusack. Together the party will provide 30 minutes of bright entertainment upon each appearance.

Few artists can sing a popular song as can Billy Maloney, and although we shall miss his silver walking stick and the tall silk hat as we listen-in, we will let our imagination carry us far enough to visualise him performing before the mike in his old familiar attitudes. In fact, we honestly believe Billy couldn't sing a song without the companionship of his silver stick and top hat.

Since his last visit to Brisbane some three years ago, Billy Maloney has appeared throughout the Commonwealth cities, topping the vaudeville bills and also managing his own shows with great success.

During his stay in Adelaide he broadcast extensively from 5CL and received the biggest mail ever known to the station.



Sisterly love is a wonderful thing—but Oh, boy! What a wonderful sister! Dulcie tells Billy a bedtime story and sends him off to bye-bye.



Billy and his accompaniste, Eileen Cusack, "run over" a new number.

At the Diggers welcome to Bert Hinkler in the Theatre Royal, Brisbane, some few weeks ago, Billy gave a few numbers and was accorded a wonderful ovation. He states that on this occasion he received quite a large mail from old friends and admirers who chanced to be listening-in on that night.

As a composer of popular songs, Billy Maloney has made quite a reputation. His first old favourite, "Indooroopilly," will be remembered by many. His latest number is "What's Wrong with Heeney." During a visit to New Zealand, Billy met Heeney—now the first British contender for the world's heavyweight boxing championship. This song is written around Heeney—the hope of Australasia—and will be included in his repertoire from 4QG.

With his sister, Dulcie, and Miss Cusack, Billy intends to put over a bright 30 minutes' programme, comprising songs, sketches, etc. He states that he will be pleased to sing any request numbers, provided due notice be given him. Letters should be addressed c/o 4QG, Brisbane.

The party's first appearance is May 12th. Other appearances will follow on the 18th, 26th and 29th of May.



(By Robert Ware.)

A thrilling series of Secret Service yarns—built around actual incidents during the Great World War—and told in a manner that grips your interest.

Episode No. 2—“THE LEAKAGE”

Continued from last Month's Issue.

VIII.

The dash from Doncar to Montrose was wild and perilous. With masked headlights which barely showed the road, Hilton drove recklessly southward, determined to reach the Flying Base before daylight.

He hated the thought of telling his half-completed story. There would have to be “miles” of explanations, he reflected, and the most patient persuasion brought to bear before he could even expect sanction to follow the plan he had mapped out.

Suddenly, a staggering thought sprang into his brain. What if the American Embassy refused to allow the British Navy to search American waters for the spy?

America, though Britain's staunch ally, sheltered thousands who, in their hearts, owed allegiance to the Fatherland and the Kaiser, and it was only reasonable to suppose that the leakage regarding the sailings of transports was due to the activities of these pseudo American citizens. It was really a problem affecting American domestic affairs, and therefore a matter for the U.S. Naval Board to settle.

The mere thought of “interference” by Washington, however, filled Hilton with bitter dismay, and, as he crouched over the wheel with eyes straining to pierce the darkness ahead of him, he gave vent to his exasperation with an emphatic, “To hell with diplomatic relations!”

By good fortune, Air Force Commander Donald was an old friend of Hilton, and within the hour the Naval Intelligence Chief was speeding towards Whitehall at slightly under a hundred miles an hour.

IX.

The two white-haired men sat in silence, gazing at the excited and impatient Hilton, as he dramatically recited the circumstances which led to his rather unusual request.

When he finished his explanations, Lord X, the British Prime Minister, turned to the American Ambassador with a plea for mutual understanding in his face. He had unbounded confidence in Hilton, and felt sure that the Naval Intelligence Chief had a carefully prepared plan to root out this menace to the Allies' supremacy at sea.

The American Ambassador studied Hilton for some minutes before speaking. Intensely loyal to the Allied cause, and fervent admirer of the British Navy that he was, approval of the young Britisher's request to be allowed enter American waters, and, perhaps, fire on American citizens involved a momentous decision which might produce consequences of a far-reaching nature.

From under his heavy eyebrows, the American stole a covert glance at the grave face of the British statesman, and, leaning back in his chair, began to speak in slow, well-measured sentences.

“The American Navy must handle this affair,” was his verdict. “A secret patrol will be instituted, and every suspicious craft will be minutely searched. If the British Admiralty desire, they may assist the American Navy in this patrol. Such assistance must serve the true interests of America. The ships of the United States will patrol from Cape Hatteras northward to Delaware Bay and the British ships will operate between Delaware Bay and Cape Cod.”

The silence which followed this solemn pronouncement was rudely broken by the young Britisher. Leaping to his feet, his eyes shining with excitement, Hilton eagerly held out his hand to the American Ambassador.

“Thank you, sir,” he said, “your generosity will not be abused. That's the promise of the N.I.D.”

Turning to Lord X, Hilton saluted and said, “Sir, our objective lies practically mid-way between Cape Cod and Delaware Bay.”

X.

H.M.S. “Leicester”—one of the very latest light cruiser additions to the Imperial Navy—steamed down the Firth of Clyde at a great deal over the usual speed. Like an arrow in flight, she slid down the murky river, flinging aside a bow-wave which stretched even to the shore and died against the concrete quays of Greenock.

Down past Ailsa Craig and out into the open, she flung the miles behind with amazing ease. Out into the North Atlantic she raced, seeming to realise in her heart of steel that Britain called for her utmost and that highly important work was ahead.

The Reasons Why ELECTRON WIRE

Popularised Broadcasting

Its simplicity enabled everybody to erect an efficient aerial in a few minutes.

It is the best and cheapest aerial in the world.

It abolishes insulators, masts and separate lead-in tubes.

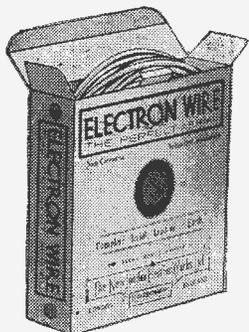
ELECTRON AERIALS ARE USED BY MILLIONS all over the world, giving better results, purer reception, clearer tone, and what is most important, greater selectivity.

ELECTRON WIRE Stands for
SIMPLICITY
ECONOMY
EFFICIENCY



ELECTRON WIRE
THE PERFECT AERIAL

THE PERFECT INDOOR AERIAL—it can be hung carelessly around the room, behind the pictures, or along the picture rail. It gives perfect results under the most difficult conditions and brings in programmes from all over the world. It is a complete aerial and lead-in all in one continuous length.



Price

2/6

Coil of 100 feet

SUPERIAL
THE KING OF AERIALS

FOR LONG DISTANCE RECEPTION—extra heavy insulation **SUPERIAL** is the aerial for long distance work. The extra heavy, vulcanised rubber insulation is a perfect protection against leakage which therefore minimises any loss of all incoming signals.



4/6

Coil of 100 feet.

Sole Distributors for Queensland:

CANADA CYCLE & MOTOR AGENCY, LTD.
CORNER CREEK and ADELAIDE STREETS, BRISBANE.

Hilton sat in the ward-room studying a chart of New York Harbour. Captain King, R.N., D.S.O., Commander of the "Leicester," patiently waited until his colleague had finished his problem.

"Well, old chap," commenced Hilton as he stretch ed his long legs under the table and reached for his pipe, "a few more days should settle the question."

"What makes you think the messages are coming from a ship?" queried King.

"Haven't the foggiest notion why I think so. Pre-sume it is what I anticipate a tortuous minded German spy would consider the least risky method. If the transmitter were ashore, it would most certainly 'throw down' its wave onto one of the thousands of aerials which are clustered within a mile or two of New York—and to have it in the country would invite suspicion, and, possibly, investigation."

"We mustn't forget, though, that America is one of the Allies. You mustn't do anything to complicate diplomatic relations, you know," hazarded King in a thoughtful—even apprehensive—voice.

"Don't let that worry you, old man," burst out Hilton, with a laugh. "For my own satisfaction, I must actually catch my rabbit. If he gets wind of my interest in his doings, I'll lose him, perhaps, for good."

"Well, we are all at your disposal, whatever the dirty work is," laughed King in response to Hilton's remarks. "Lord X thinks you're infallible—so what you say goes, as far as 'Leicester' is concerned."

"Thanks, old man."

XI.

H.M.S. "Leicester" had a commodious wireless cabin—but the presence of Hilton and King seemed to fill it to overflowing. When these two long-legged sons of England were together, ordinary chairs and tables were grotesquely insufficient.

With a carefully smoothed, large-scale chart on the table before him, Hilton marked off position after position with meticulous accuracy. As fast as the Petty Officer took a message, his Commander seized it and turned eagerly to his brother officer.

H.M.S. "Medea" was steaming a straight course about fifty miles due north of "Leicester," while H.M.S. "Bolingbroke" was a similar distance due south. Each flanking cruiser had been equipped with an improved wireless compass and was reporting to the senior vessel every minute, alternately.

Such feverish "position-finding" had now become vitally necessary, for, the shrill "Telefunken" note was actually moving right across "Leicester's" bows, and not more than five miles ahead. At 10 p.m. he had been "spotted" just off Miola Point at the northern end of Long Island, but, after a short preliminary call for adjustment purposes, had remained silent until his usual hour—midnight.

Careful observations during the two previous nights had enabled King to gauge his speed with such accuracy that he was now within striking distance of his objective who had just commenced his regular nightly programme.

Judging by cross-bearings from "Medea" and "Bolingbroke," the informer was travelling at a very high speed—almost thirty knots—a truly amazing and daring act considering everything afloat was "dark ship"—not even a single navigation light being exposed to view.

"Now for our interview," said Hilton grimly. "Is everyone at his station?" King nodded affirmatively, and they both went out on deck.

Feeling their way past obstacles, they at length reached the bridge, when Hilton laconically remarked: "You can let her go now, old chap." Ordering a course which would converge with that of their quarry, Captain King called for "full ahead."

"Leicester" leaped forward like a living thing and tore through the water at increasing speed.

"Turn 'em on now," the Intelligence Chief tersely commanded—and almost immediately, two blinding shafts of light clove the air and slowly swept the dark, sullen waters.

Suddenly, they both halted and remained steadily fixed on a swiftly moving object dashing headlong through the choppy head-sea—a tiny craft which turned each wave into a smother of spray and foam as she viciously flung them from her bows.

"Look astern of her, Captain," Hilton grimly remarked to King.

The Commander of H.M.S. "Leicester" obeyed his—for the time being—senior's command, and, with eyes wide open with wonder and amazement, saw that the madly racing boat was towing a kite-balloon.

The small white object, which seemed to be flying, sparkled and glistened in the blinding glare of the searchlight, seeming, indeed, to be a thing apart from the scarcely distinguishable speed-boat to which it was attached.

"Precisely what I expected," grunted Hilton, as he lowered his glasses. "Send him a gentlemanly request to 'heave to,' will you, please, Captain? I don't ex-

Look to Your Battery —

if you would have perfect reception—

Scratching and sizzling noises which are so familiarly put down to "static," have been proved over and over again to the result of faulty, inefficient battery power. Get the most out of your set—instal a C.A.V. Battery, and notice the difference.

C.A.V. Batteries are British—are specially made for radio work, can always be relied on to stand the test of hard service, and give no trouble during radio operation.



**RADIO
"A" & "B"
Batteries**

C.A.V. Battery Service Station

(Barnes Auto Co.)

CORNER NORTH QUAY & QUEEN ST.

Constant Silent Power!

EMMCO ELIMINATORS give simple smooth working control and unequalled tone and volume. So perfect and silent in operation that their presence is forgotten. The light socket gives unlimited power, yet easily controlled.

No complicated series of plugs. No danger. Smooth, easy power always, once properly adjusted.

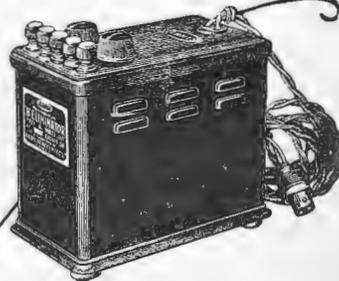
EMMCO Radio Power Units are guaranteed in material and workmanship. If instructions are followed will not break down. Get them at any dealers.



EMMCO A.B.C. ELIMINATOR for sets with .25 valves. Potential regulated up to 350 M.A. Variation of forty volts on input. PRICE: For .25 valves type £19/19/-
For .06 valves type £15/15/-



EMMCO SUPER POWER ELIMINATOR, for multi-valve sets. Potential regulated up to 85 M.A. Variation of 40 volts on sets input. PRICE £12/12/-



EMMCO B. BATTERY ELIMINATOR for sets up to 5 valves. PRICE £10/10/-

pect him to take much notice of it, though," he continued. Bang!! The four-inch gun in the bow gave a sharp, ringing bark, and the shell dropped a cable-length ahead of the diminutive target.

The reply was both prompt and startling. A faint crackle assailed the ears of the Britishers—a vivid blue flash hung in the air for a second—and the kite-balloon had disappeared.

"Well, I'm damned!" gasped King, "they're prepared for emergencies."

"My dear fellow, the truly Machiavellian mentality of our friends explores every ramification of possibility and probability," said Hilton sententiously. "They're so damnably clever at being clever that they're blind to the obvious. Send another messenger."

Once more the forward gun gave vent to its quick, snappy "cough," and hurled its missile just ahead of the racing motor-boat—and again the response was sudden and startling.

A muffled roar was accompanied by a crimson sheet of flame—and the black night and its turbid waters completely swallowed the hostile craft.

"Prepared, ye Gods! I should say so!" whispered King in awed tones.

"Those fellows cost us dozens of good ships and hundreds of needed lives," replied Hilton, "but they certainly were game."

Although diligent search was instantly made, nothing but the smallest fragments of riven timber could be found.

The "Leak was plugged"—but the mystery remained.

XII.

"Goodman's late again this morning. He'll be on the 'carpet' soon if he doesn't watch out."

The remark was passed between two healthy, straight-minded young Americans attached to the Allied Routing Office in New York.

"Oh, I guess he's on one of those mid-night speed-boat parties again," was the reply. "He'll 'blow in' some time to-morrow with a carefully prepared excuse as usual."

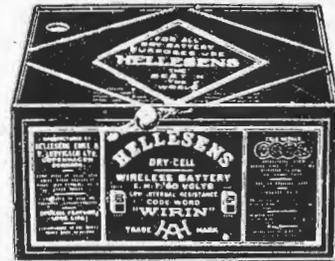
But Goodman—or rather Guttmann—was not at his desk the following day—nor any day—he simply disappeared without a trace.



SABBATH BROADCASTING.

It is a wise old saying that sets forth the fact that you do not realise the value of things until you have not got them. This is particularly true with regard to Sabbath day observance and church attendance: many people in Melbourne, with churches of every denomination from which to choose, with the most distinguished preachers, speaking within the proverbial stone's throw, find the exertion too great to put in an appearance from one year's end to another. On the other hand, it would be difficult for the average man in the street to realise the immense difference that Sunday broadcasting from 3LO has made to the people in the backblocks, how the farm work is got through in double-quick time, so that nothing may be lost, from the first peal of the Cathedral Chimes, and so on through the day. The splendid arrangements for Sunday broadcasting made by 3LO mark a red letter day to country folk, and help them to look forward with special interest to "the one day in seven."

HELLESENS
The Super
DRY CELL



The Battery that
RECUPERATES
while idle!

The world's oldest battery company introduces the century's latest dry cell improvement—the wonderful

No. 7 Recuperating Agent

This exclusive feature is to be found in no other dry cell. It ensures longer life and full value for every penny spent.

See for yourself how superior the New HELLESENS are. Connect one up to your set and take regular voltmeter readings. You'll be surprised.

PRICES

Standard Capacity—	
45V.	14/-
60V.	18/6
Triple Capacity—	
45V.	21/-
60V.	27/6

At All Good Radio Dealers

or 'Direct from:

BRISBANE ELECTRICAL CO.

(T. Tonks)

ELIZABETH STREET (Next to 4QG),
BRISBANE.



4QG Features for May

Few listeners care to listen-in every night of the week, yet none of us like to miss a good concert. By the courtesy of the Deputy-Director of 4QG (Mr. F. W. Stevens) we were able to take a glance at 4QG's May programmes, and have, for the benefit of our readers, listed hereunder the features which should be of particular interest during the month.

May 1st.—Mr. Erich John has arranged another of his popular classical concerts, and has grouped around his usual bevy of talent.

May 3rd.—Mrs. George Sampson has again arranged one of her much-appreciated entertainments. The assisting artists include Mr. Walter Land, Miss O. Cloake, Miss Cecile Pritchard and Mr. Seale.

May 4th.—A rather novel feature of this programme will be a half-hour's community singing and elocution—sung and spoken in the Esperanto language.

May 7th.—A good studio programme has been arranged and will include half-an-hour's band music by the Citizens' Band.

May 8th.—An inviting programme has been prepared by two popular concert parties. During the first half of the evening listeners will be entertained by the Brisbane Apollo Club, while the second half will comprise numbers by the Studio Orpheans.

May 9th.—During the afternoon a garden party in aid of the Wynnum Ambulance will be broadcast from the residence of Mr. Argaets at Wynnum.

May 10th.—Another of Mr. Erich John's splendid entertainments will be broadcast from the studio.

May 12th.—Billy Maloney, Dulcie Maloney, and Eileen Cusack, make their first appearance at 4QG in 30 minutes of mirth and melody.

May 14th.—A special programme by the Silkstone Apollo Club. This entertainment will be broadcast from the studio. Misses Doris Cariette and Ann Crommelein (violin and piano), instrumentalists from the orchestra of the s.s. Orungal, will also broadcast.

May 15th.—The Nocturnians, under the direction of Mr. Hugh Ellroy, will present an excellent programme.

May 17th.—Mr. Eric Hayne's party have arranged a classical programme which will be given from the studio.

May 18th.—Billy Maloney and his party in popular songs and sketches. Mr. Claude Walker will give a brief talk on the works of Henry Lawson.

May 20th.—Early morning service (7.30 a.m.) will be broadcast from St. Barnabas' Church of England.

May 21st.—Mr. Sydney May, the well-known organist, has arranged a fine popular programme for the first half of the evening.

May 22nd.—A short concert will be relayed from St. Barnabas Church of England. The concert will last from 8 p.m. to 9 p.m. From 9 p.m. to 10 p.m. dance music will be relayed from the St. Barnabas Hall.

May 24th.—Being Empire Day, special reference to this day will be made throughout the sessions. At

night the citizens' meeting from the Exhibition Hall will be relayed.

May 25th.—This programme, from a cursory glance at the contents promises to be one of the outstanding entertainments of the month. The programme has been arranged by Mr. Percy Brier, who has secured the services of such artists as Miss Edith Larwill, Miss Gwen de Grant, Miss Marie Knight-Corkran, Miss Ivy Plane, Miss Ruby Massey, Miss Eunice Cochran, Miss Beatrice Pugh, Mr. Eric Hayne, V. Blaikie, Arthur Sharman, Jack Wallace, Jack Ellis, and Archie Day. The company is rich in talent and should give an exceptionally fine entertainment. A feature on the programme will be a quartette for two pianos.

May 26th.—The Kao-Maole Duo makes its bow at 4QG. On the same programme are Billy Maloney and his party.

May 26th.—Mr. Claude Walker will give another brief talk on the immortal works of Henry Lawson.

May 31st.—The concert given at the rooms of the South African War Veterans' Association will be relayed.

HENLEY

Winding Wires

SCC, DCC, SSC, DSC.
Enamelled, Enamelled SCC.
WHITE & GREEN.

In 4oz., 8oz., 1lb., and larger reels. No. 6 to No. 47

Special Flexible For Radio Work

Also all types of Insulated and bare, and Cables
for Aerials.

Insulating Tapes. Resin Cored Solder.

THE **HENLEY**
Wiring System.

W. T. Henley's Telegraph Works Co. Ltd.

Central: 7044. 59 ELIZABETH ST.

Audio Frequency Amplification

How to Get it Without Distortion

Practical pointers for the radio fan who ought to get uniformly good results from his loudspeaker and his audio-amplifier system—and doesn't.

By JOHN V. L. HOGAN (in "Popular Radio").

There is a widespread opinion, among radio users, that the quality of tonal reproduction is dependent entirely upon the loudspeaker used. This is based upon one of the half-truths that are so common in radio circles and that lead to so much regrettable confusion.

The fact is, that unless you use a good loudspeaker you cannot get natural or pure reproduction of radio speech or music in volume sufficient to fill even a small room; but the corollary fact, so often overlooked, is that even the best loudspeaker will not give good reproduction unless it is used with a good audio-amplifier system.

This brings us down to the problem of defining what are and what are not "good" amplifiers and loudspeakers; and that is really something of a problem, largely for the reason that it is complicated by the volume of sound required in any case, and because of the interdependence of the speaker and the amplifying system.

What we actually desire is a combination of amplifier and speaker that work well together.

From some viewpoints, we do not care whether our particular speaker will work well when connected to another type of amplifier, or whether our particular amplifier will give good results when used with a different type of speaker. We want the combination that we are using, our own amplifier and our own speaker, to produce natural and clear, undistorted speech and music. Also, we want that reproduction to retain its clear characteristics as the volume is increased to a reasonable point.

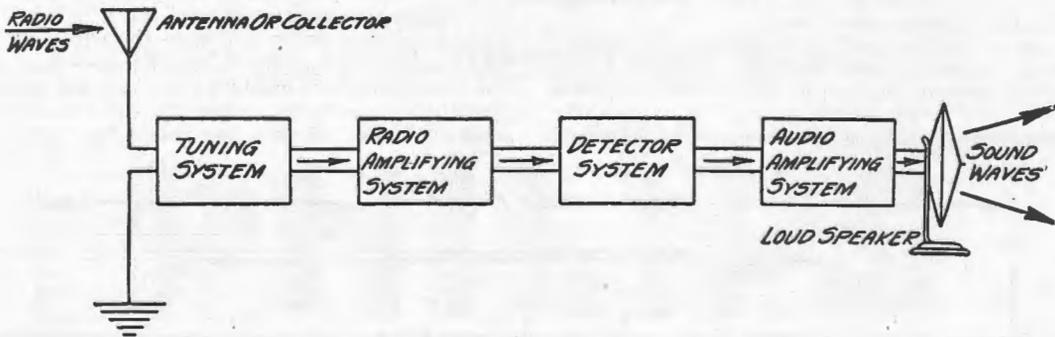
What is a Good Amplifier?

Before we attempt to define more closely a "good" reproduction system, including both the amplifier and the speaker, let us consider the problem in a rather general way.

We may omit detailed consideration of the radio transmitter and of the wave propagation through space between the sending station and our receiving set, although they do have a definite effect upon the quality of reproduction. Unless the sounds picked up at the broadcasting station are correctly impressed upon the radio waves it sends out, we can hardly hope to get good reproduction of those sounds from our receiver.

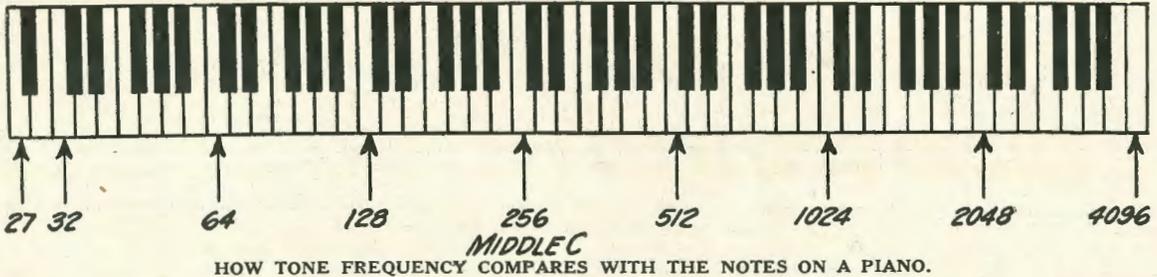
Similarly, if the radio waves are badly mangled as they flash through space, for instance, by some of those little-known causes that produce rapid "fading" or distortion, we will not hear natural tones at our receiver, no matter how carefully it is built. This simply means that for high quality we must listen to broadcasting stations that have carefully designed and carefully-operated transmitting apparatus, and that are not too far away. Often it happens that signals of beautiful quality come through very distant stations, but more often the fading or other effects spoil the naturalness of signals from all but the relatively nearby transmitters.

Coming to the receiver, then, we may leave out detailed discussion of the antenna and of the circuits preceding the detector. It is true that the tuning characteristics of these circuits sometimes affect the fidelity of tonal reproduction, for instance, because of an attempt to use excessive amounts of regeneration;



THE VARIOUS UNITS IN A RECEIVER.

Fig. 1: The radio waves that carry the energy that you hear as sound first pass through the antenna circuit and the tuning system and then are strengthened by means of the radio and audio-frequency amplifiers and rectified by the detector. The current waves are then led to the loudspeaker and transformed into sound waves. Distortion may be introduced through faulty operation in any one of these units.



HOW TONE FREQUENCY COMPARES WITH THE NOTES ON A PIANO.

Fig. 2: If all of our music were played on that part of the piano that is above middle "C" we would have a thin kind of music. This is the kind of reproduction that is obtained from a poor transformer which slights the notes that correspond to the lower frequencies: that is, between 27 and 128 cycles.

but as a rule there is not much loss of quality to be attributed to this part of the system. So, also, the detector tube occasionally causes defective reproduction by reason of overloading or an attempt to produce loud responses with insufficient audio-frequency amplification. This condition is not usual, however; and so we may properly consider, with some care, the two elements that are responsible for the greatest amount of tone distortion, namely, the audio-frequency amplifier and the loudspeaker. Nevertheless, one should not lose sight of the fact, that even with a perfect amplifier-speaker combination, some attention should be given to the transmitter, wave-propagation, tuning and detector conditions in order to get the best results.

The Purpose of the Detector.

The detector of any radio receiver of the type we are considering, delivers to the audio-frequency amplifier an irregular alternating current that corresponds, in amplitude (or intensity) and in the frequencies represented, to the intensity and frequency of each of the component sounds which affect the radio transmitter. The form of this alternating current changes from instant to instant, as the music or speech that is being reproduced, changes in sound. The original sound waves are exceedingly complex, in most cases; and, consequently, the detector output current (which is an electrical picture of the sound waves) is also extremely complicated in form.

The purpose of the audio-frequency amplifier is to magnify this rapidly-varying sound-current so that it is capable of doing more work.

If you are satisfied with head-telephone reception, you do not ordinarily need any audio amplifier. The alternating current, just as it is delivered from the detector, is, as a rule, strong enough to operate the telephone receivers. As the detector current is usually

a quite accurate representation of the sound, the response heard in a telephone is generally quite good in quality of reproduction. That is probably the main reason why so many people say they would always prefer to listen to radio in a head-set, if it were not for the discomfort of wearing phones for an hour or more at a time.

The vast majority of powerful radio receivers, which have been made up to now, have contained audio-frequency amplifiers that do not deliver to the loudspeaker an enlarged current that is an exact copy of the detector output current. Most of them, in the process of magnification, introduce some substantial (and often a very great) amount of distortion. As soon as one thinks about the matter, it becomes clear that even a perfect loudspeaker, when connected to such a distorting amplifier, cannot reproduce the original sounds accurately. A poor speaker with a poor amplifier usually makes things just so much worse. That is why so many people say they wouldn't tolerate loudspeaking radio sets in their homes.

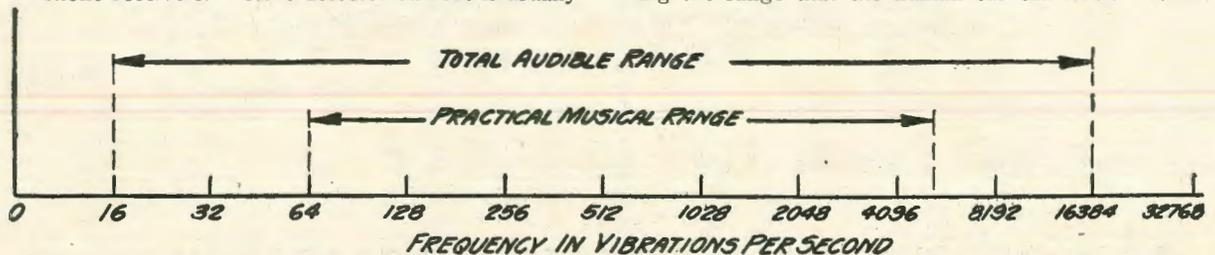
Radio Receivers are Improving.

Fortunately the trend of progress, in radio design and manufacture, is turning strongly toward improvement in tone reproduction. A number of last year's sets and speakers showed striking improvements in this direction; and the coming season will doubtless see greater numbers of outfits which are capable of giving true tones and natural speech.

Evidently a distorting audio-frequency amplifier is a bad thing.

What must an amplifier do, then, or what must it avoid doing, in order to give us the effects we desire?

Speaking generally, it should give the required magnification of current to produce the intensity of response desired, for currents of any frequency within the range that the human ear can hear. As the



THE FREQUENCY RANGE THAT MUST BE COVERED TO OBTAIN GOOD REPRODUCTION.

Fig. 3: The outer range (16 to 16, 384) covers the extreme limits of sound that the human ear can pick up; but the inner range is absolutely necessary for the good reproduction of ordinary music.

*Some people call
them critical—*

**Philips "PCJJ"
Junior Loudspeaker
£5/5/-**



**Philips
"PCJJ"
Loudspeaker
£6/10/-**

They Are !

LONG AGO people didn't like critical Loud Speakers, faults of their receivers were reproduced too faithfully.

NOWADAYS those who know, demand *exact* reproduction, and if it is not all that they, as connoisseurs, demand, they may then look to the set itself, and overloaded general purpose valves doing duty as power tubes in particular.

Illustrated above are the PCJJ Senior and Junior, who, as all radio experts know, are about the most sensitive reproducing mediums known to science. This is due in the main to the balanced magnet system and *full floating cone* on which all Philips Speakers depend.

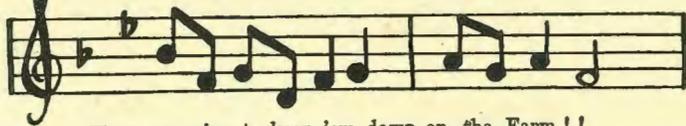
LET TO-DAY BE THE EVENTFUL DAY ON WHICH YOU
LISTEN TO EXACT REPRODUCTION

SOLD BY EVERY RADIO DEALER

PHILIPS

LOUD SPEAKERS

The Problem



How yer going to keep 'em down on the Farm!!

The Solution

RADIO

**Aerodyn Special
5-Valve Receiver**



The Cost



**£25
Cash**

**for the
whole
outfit
complete**

£25. . . . Cash for the whole outfit complete, packed and delivered free on rail or boat, Brisbane. "The Aerodyn" is unique among high-class radio receivers of to-day. Hundreds are in daily use, and in every instance are giving satisfaction. No need to go to the overcrowded cities for companionship and entertainment—a turn of the dial will serve to bring to your very homes all that is latest and best in the capital cities in Australasia.

WIRELESS gives to the settlers in those far-way places a new hold on life. News by mail is oftimes belated, and maybe the daily paper is delayed in the post. With the introduction of one of our "AERODYN" Wireless Receivers, they can switch on to each and any of our large broadcasting stations. A dream of yesterday? Yes! But a reality and a necessity of to-day.

The price, £ 25. . . for the complete Aerodyn Equipment, is small enough to enable all to possess a really first-class Wireless Receiver.

THE RADIO RENDEZVOUS are credited with HAVING BROUGHT RADIO DOWN TO REASONABLE PRICES. As a comparison, please check our prices of to-day with what you had to pay a year ago!!

Support the people who have been instrumental in effecting this reduction.

TRACKSON BROTHERS LTD.

The Electrical and Radio People

157-159 Elizabeth Street, BRISBANE

Phone Central 6080

The Night Distortion Theory

(By the Technical Editor.)



ROBABLY most of our readers have heard of the so-called "Heaviside Layer"—an envelope of rarefied gas which is supposed to surround the earth, at a distance estimated at between fifty and one hundred miles above its surface.

This layer of gas is acted upon by the sun in such a manner that it is at all times a ready reflector of any electric waves striking it. The technical name for the effect produced is "ionisation," and the result may be visualised by comparing the Heaviside layer with a mirror, which reflects any light that reaches it.

Now, during the daytime, the sun acts upon the lower atmosphere in the same way. As you know, waves are radiated from a transmitting aerial in all directions, but, because of the "mirror" effect just mentioned, only those waves which are travelling parallel with the earth's surface are permitted to journey for any appreciable distance. These radiations comprise what is known as the "earth-bound wave," for obvious reasons. However, the earth-bound wave is not very long-lived, for it is rapidly absorbed by the earth itself. After travelling, roughly, about two or three hundred miles (in the case of a powerful transmitter) the wave usually is attenuated, or weakened, to such an extent that it is of no practical value.

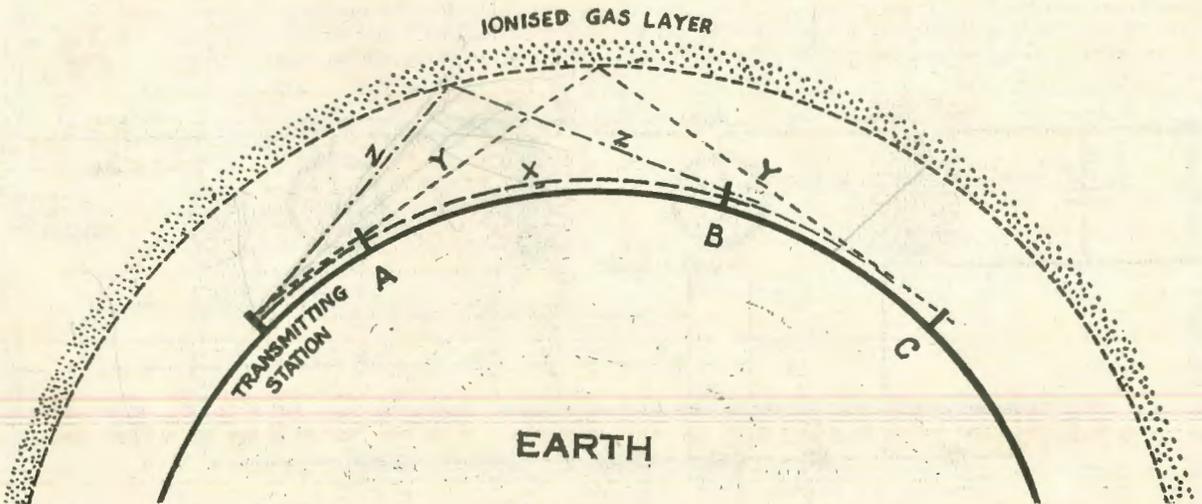
What is the result? Simply this: Receivers situated within the two hundred miles area served by the earth-bound wave will have a good daytime service, the strength of their reception being directly dependent upon their distance from the transmitting station.

Now let us see what happens as darkness approaches. As the sun's rays leave our lower atmos-

phere, the "mirror" effect disappears. The upper, or Heaviside, layer still is in an ionised state, but the lower atmosphere now offers no hindrance to the passage of radio waves through it. Therefore, waves leaving the transmitting aerial in an upward direction keep right on until they strike the gas layer, which promptly reflects them back to earth again, the angle of reflection being governed by the angle at which they meet the layer. "Reflected waves" is the term applied to these.

Refer now to the drawing which, needless to say, is not to scale. A part of the earth and the Heaviside layer are clearly indicated, and require no explanation. "A" represents a receiver within a short distance of the transmitting station, say ten miles distant. No trouble is experienced here, because the reflected waves apparently pass over points as close as this, and, in any case, the earth-bound wave is of such intensity that any interference between the earth-bound and reflected waves would be out of the question. An additional proof that only the earth-bound wave serves these nearby points is afforded by the fact that listeners in close proximity to the transmitting station notice little or no difference between the strength of day and night transmission.

Take the case of "B," which we will suppose is located 100 miles from the station. This is well within the recognised night-distortion area of the territory between about 50 and 200 miles from the station. This receiver picks up both the earth-bound wave (X), which is still strong at this distance, and the reflected wave (Z), as the diagram shows.



A represents a receiver located about 10 miles from the transmitting station; B another receiver situated 100 miles distant, and C a third receiver 500 miles away. X is the earth-bound wave; Y and Z are reflected waves. The diagram is fully explained in the text.

The Frequency Characteristic.

Taking these up in order, the question of how the audio amplifier valves are coupled to the detector, to each other and to the speaker is of prime importance.

To get sufficient volume to fill a good sized living-room, it is desirable to use either two transformer-coupled valves or three resistance or impedance-coupled valves. The resistance-coupled amplifier, when carefully designed, is probably most nearly uniform in amplifying power over a wide frequency range; but a number of the outfits that have been offered for sale do not have desirable characteristics. Some of the modern audio transformers give even better results than the average resistance-coupled or impedance-coupled arrangement; and in general they have the advantage of simplicity and valve-and-battery economy. However, to get good results you must use good transformers. All good transformers seem to be relatively expensive; but it is not so certain that all expensive transformers are good.

The matter of resonant periods is mainly dependent upon how fixed condensers are associated with the transformer coils. **Except as a radio-frequency by-pass around the first primary, none should be used;** and even here the size of condenser must be chosen carefully with regard to the type of transformer used. In resistance and impedance-coupled systems this effect is not so prominent, for the tube-linking condensers should be of large size (2 microfarad) despite the economy of smaller values. Artificial augmentation of resonant effects by audio feed-back is usually indicated by a tendency of the amplifier to ring or sing. It is often caused by "microphonic" detector or radio amplifier valves, in which case it may be cured by replacing the valves at fault. Where it persists because of battery coupling, large by-pass condensers are often of assistance.

Why Power is Needed.

Perhaps the least recognised of the three essentials stated, is the third.

Most radio designers and users have gone on the principle that a valve large enough to reproduce violin music at moderate intensity is powerful enough for any purpose. The fact is otherwise, for, in order to reproduce the low tones that are so essential in a musical back-ground, the final audio-amplifying valve must be able to stand relatively high instantaneous voltages without being overloaded. If it cannot do this, the music will sound broken or distorted whenever deep or loud tones come through, or else the lower tones will be partly suppressed. This is true even though the average volume is made no greater than that desirable for the average living-room. It becomes particularly evident when the outfit is called upon to deliver still greater volume.

The solution of this problem is the use of the newer and more powerful valves for the final audio stage. The larger valves supply reasonable reserve power; and operation with them gives on the comfortable sense that nothing is being strained. Yet the ability to produce great volume is there for use when desired—for instance to play dance music. The situation is comparable to that in driving a high-powered motor. One may seldom want to make 70

miles an hour, but the same reserve power that makes it possible on demand has the effect of providing greater flexibility and comfort at lower speeds.

The selection of the loudspeaker is every bit as important as the design of the amplifier; but it is based upon considerations too extensive to be treated in this short article. You will get the best results by using the best cone-type speaker you can buy, in conjunction with a powerful and well-balanced amplifier.

In selecting your speaker, be sure that you hear it driven by a proper amplifier; otherwise you may be misled, for a good speaker will show up the defects of an unsatisfactory amplifier by giving poor reproduction when connected with it.

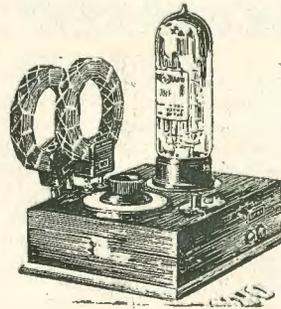
Yet the same speaker used with a correctly designed amplifier may give practically perfect speech and music.

PHILIPS STATION PCJJ HILVERSUM, (HOLLAND).

We have received advice that, until further notice, PCJJ will carry out experimental tests regularly each Wednesday and Friday morning from 2 till 6; Saturday from 9 till 12; and Sunday from 1 till 4 (Brisbane time).

Will wireless prevent crime? asks a contemporary. Unless certain howlers about Brisbane reform it is more likely to cause it.

**Not a Luxury—
but a Necessity of Life**



All our sets are built and designed on this principle. They therefore deserve the name given to them by the public itself.

**LOEWE
Popular Sets**

You get a perfect set operating without disturbance, consuming a minimum of current, and one that can be handled even by a child.

Ask your radio dealer to demonstrate one of our sets—there is no obligation on your part.



BERLIN, STEGLITZ (Germany), Wiesenweg 10

However, while the earth-bound wave has travelled only one hundred miles or so, it will be seen that the reflected wave has traversed a much greater distance, and for that reason it will arrive at the receiving aerial a tiny fraction of a second later. Small as this lag is, it is quite sufficient to cause extremely bad distortion, and this distortion would be continuous but for the following peculiarity: Now and again, possibly due to some irregularity in the layer, the angle of reflection appears to alter, with the result that the reflected wave disappears for a brief interval. The earth-bound wave now has matters all its own way, and good reception ensues until the reflected wave again puts in an appearance, bringing the distortion with it.

It so happens that, at certain periods, the reflected wave arrives at such a time that it partially "cancels out" the ground wave, thus temporarily weakening reception, and this is one of the causes of the severe fading experienced in the area under discussion.

Now, having dealt with receivers "A" and "B," let us turn to receiver "C." This set is situated about 500 miles from the station, at which point the earth-bound wave may be assumed, for all practical purposes, to have ceased to exist. For this very reason, receiver "C" picks up nothing in daylight.

As darkness approaches, however, and the reflected wave puts in an appearance, signals will be received with gradually increasing strength, and, except for the occasional instances with which we shall deal next,

theoretically there should be no distortion in this area, as it is served by the reflected wave only.

A curious effect creeps in here, however, and it is this: It must be remembered that the transmitter radiates waves in all directions—not merely in the directions indicated (for the sake of clearness) by the diagram. Naturally, it follows that these waves strike the gas layer at a variety of angles, and, consequently, are reflected back to earth again in widely differing directions. This means that, at certain odd periods, receiver "C" may be detecting two or more waves, and, since they have traversed varying distances, there is no guarantee that they will arrive at the same time. The result is the effect which we noted in considering receiver "B"; now and again it will happen that one wave nullifies the effect of the other, causing fading, and quite possibly, coincidental distortion for a brief period.

In case the point should be raised, perhaps it would be well to mention that we are aware that what we have referred to as "reflection" in reality is a combined process of reflection **and refraction**, which is a "bending" of the waves. However, in this article we have attempted to explain the night-distortion theory in language as simple and non-technical as possible, and it is hoped that this interesting matter has been made at least a little clearer to those who are interested enough to read it.

RADIO IN AMERICA

Mr. S. Wilding Cole, O.B.E., Sales Director for Messrs Brandes Limited, of London, recently paid a business visit to the United States of America.

Upon his return, Mr. Cole was good enough to forward us the following impressions of his trip, in the hope that they would interest our readers:—

During a short visit last month to New York, Albany and other parts of the U.S.A., I gained the following impressions which may be of interest to your readers.

Firstly, radio in America occupies a far more prominent place in national life than it does in this country. Practically every daily and evening paper of any importance publishes a comprehensive wireless supplement of anything from four to ten pages in extent; Sunday papers pay even greater attention to this feature. This supplement discusses fully everything of public interest, both as regards new sets and circuits, and at the same time brings the advantages of radio much more to the notice of the public than do our papers in this country.

I found in the States that the lay-press really boasts radio to the extent which it deserves, and loses no opportunity of pointing out to its public that to enjoy life fully, the installation of radio is a necessity. This contrasts strikingly with the apathy of the Press here. We are afforded a further comparison by the attitude of manufacturers in England, each of whom is content to advertise his own wares against those of his competitor and takes no pains to awaken new interest in the man who is not already interested in either. An illustration of the difference in public demand for radio between the U.S. and this country is offered by the figures given me of sales of receivers

in the metropolitan area of New York alone. These figures were almost the same as those for the whole of this country over the same period.

With regard to American broadcasting, this certainly has improved greatly and it is now possible in New York to obtain on any evening, twenty to thirty good programmes on an efficient receiver. The only disadvantage is that sometimes broadcast advertisements are rather overdone; but even with these some of the larger stations, although not cutting them out entirely, have taken steps to reduce them to a reasonable minimum.

With reference to radio production, the component market is practically dead. The telephone and loud speaker market is dying fast, and even the radio set complete with batteries and loud speaker is fast becoming defunct. The main sales all over the country are for complete radio installations working from the mains on alternating current. This, although an impossibility here owing to the prevailing electricity conditions, is, of course, an easy proposition for the United States, as, with very few exceptions, the whole of their current is 60 cycles alternating. Sets themselves are of two types, the low-priced table model, such as the Atwater Kent, and more expensive console models, such as the R.C.A. and Kolster radio. I mention these sets as having been the most popular during the past season. The cabinet work on the console type set is certainly very attractive, and has to be really well made, owing to the dry climate.

The circuits used in America are very similar to those in this country, except that in order to obtain selectivity and single dial tuning, in the majority of cases, they use the three high frequency stages.

The
Sandman's Corner

Dear Children,—

It seems many months since I have been privileged to write to you through "The Queensland Radio News," and I am very glad indeed for the opportunity. As you know, Uncle Ben is in Sydney, and I believe he is having a wonderful time. By the time you read this letter he may be back again, and when he and Uncle Pete get before the microphone at 4QG again you no doubt will hear some of his interesting experiences.

I often receive letters from some of my little friends asking me how I came to play so many musical instruments. As some of my little readers may be learning to play the piano or violin or some other nice instrument, perhaps if I answer the question here it may be of help to them. When I began to learn a new instrument, I practised and practised until I had, to a certain extent, mastered it. Of course, I often felt like giving it up, but perseverance won through, and now I can play 23 instruments in some way or another. Mind you, I do not profess to play any of them perfectly, but I can at least play a tune or two on each.

The point I want to emphasise to young musicians—and for that matter every child, is **always persevere**. Whether at school, at music, at fancywork, at football, always let this be your motto. Never say, "I can't do it." Try, and if you fail, try again, always with the thought, "I won't let a little thing like that get the better of me." Soon you'll succeed—just through perseverance.

Now, children, our young friend, Percy, is at my elbow and he's afraid there will be no room left for him to say a few words. I'll close now with the final thought: "Always persevere."

Yours faithfully,

"THE SANDMAN."

* * * *

A Letter from Percy

Dear Boys and Girls,—

Here I am, Percy here. I've just been sharpening my pencil ready to write this letter when Sandy knocked it out of my hand and put his big foot on it. Now it's only a stump about this big ———

Now that I've started I'll have to say something. It's all very well for Shandy—I mean Sandy—to write a long letter. He's such a skite and skites always have plenty to say. Joves! here's two paragraphs gone and I haven't said anything yet.

Hope all the rain's gone—don't you? Every time I went to 4QG in the rain, my umbrella blew inside out, and if I got up to the studio late, Sandy used to rouse on me—oh, it was awful.

Well my pencil has worn out now, so I suppose I'll have to stop. Remember me to everybody at home. Hooray! Yours faithfully,

PERCY.

* * * *

The Sandman's Competition

This month the competition will take the form of a short essay, for which the usual prizes of 7/6 and 4/6 are offered. The subject of the essay will be "WHY I LIKE THE BEDTIME STORIES."

Essay should not comprise more than 250 words, and should be written on one side of the paper only. Address entries "The Queensland Radio News," Box 1095N, G.P.O., Brisbane, marking "Essay Competition" along the bottom left-hand corner of the envelope. Entries should reach this office not later than May 20th.

* * * *

**Result of Last Month's
Competition**

Many and humorous were the sketches sent in by little readers of this page for Uncle Pete's competition which appeared last month. The best attempts were received from—

First Prize (7/6)—MISS DOSSIE WIDDY, Coreena Station, Barcardine.

Second Prize (4/6)—MISS MAVIS JONES, Woolloongabba, South Brisbane.

**OREGON
WIRELESS
MASTS**

IN the use of Masts to carry Wireless Aerials, Rosenfeld's Oregon has proved to be the most serviceable. The Oregon for these masts is specially selected.

Call, 'phone 5991, or write to us for further particulars and prices of Wireless Masts.

You can purchase your Masts in one length of Oregon Pine, from 30ft. lengths of 3 x 3, to 80ft. lengths of 6 x 6, also 4 x 4, and 5 x 5 to any length.

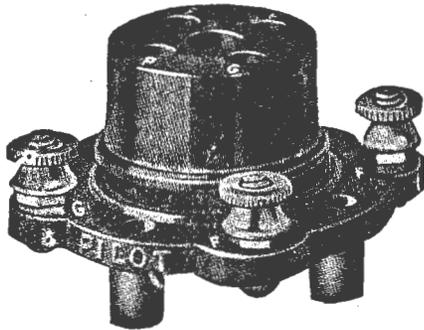
ROSENFELD & Co. (Qld.) Ltd.

"The Oregon Specialists"
TIMBER MERCHANTS.

Moray Street, New Farm, Brisbane
Phone C. 5991.

THE PILOT FLOATING SOCKET.

A very efficient member of the Pilot line of radio parts is the Floating Socket, an illustration of which appears on this page. It is of the UX type, moulded of genuine bakelite, with nickelled metal parts. The "floating" effect is obtained by means of four light spring



strips, in reality continuations of the contact springs, and the valve thus is cushioned against any exterior vibration. The use of this socket was found to eliminate all microphonic noises, and the contact is above reproach. The Pilot floating socket is well finished, and has plainly marked binding-posts. Our sample from Messrs. United Distributors Ltd., Queen Street, Brisbane.



THE MAGNAPHON ELECTRIC PICK-UP.

Messrs. Wireless House Ltd., City Buildings, Edward Street, Brisbane, have sent us for test a sample of the "Magnaphon" Electrical Record Reproducer, manufactured by the Magnaphon Electric Mfg. Co., New York City.

By the use of this sturdily-built little instrument in conjunction with a good set and loudspeaker, one may convert any type of phonograph into the equal of the finest modern machine. The "Magnaphon" may be fitted without disturbing the gramophone in any way; it simply stands inside the machine, adjacent to the turntable, and is connected to the radio receiver by inserting the plug provided in the detector socket.

Under actual test, using a good quality cone speaker, the results were very pleasing indeed, the quality of reproduction being of a very high order. It was noticeable that the low notes were given much more liberal treatment than in the usual gramophone, the result being a volume of real music having fine "body" and roundness of tone. The unit is very well finished, and appears to be a good mechanical job.

DON'T GUESS

Make certain of what you are going to listen to by sending 9/6 to Box 1095N, G.P.O., Brisbane, for 52 weekly issues of the "Broadcast Bulletin." Posted every Thursday evening. Programmes commence from following Monday.

BALKITE RADIO POWER

The Balkite "B" Eliminator

In another part of this issue will be found an advertisement for the Balkite "B" Eliminator. This "B" power unit operates on the electrolytic principle, employing a special type of rectifier cell, using an element (probably tantalum) which does not require to be replaced at intervals.

According to the manufacturers, the Balkite "B" has these important features:—

- (1) It is entirely noiseless, delivering a smooth, silent flow of current.
- (2) It is permanent. So far as is known, not one has ever worn out.
- (3) It has no tubes. The rectifying cells are permanent, requiring no renewal.
- (4) It will not deteriorate either from continuous use or from lying idle.
- (5) Once connected and set to the requirements of the receiver, it needs no adjustments.
- (6) It is built in conformity with the Fire Underwriters' standards.
- (7) It occupies much less space than its equivalent in batteries.

Two models are available, the "B.W." for receivers using five valves or less, and the "B.135" for sets using up to eight valves and requiring voltages up to 135.

The Balkite Trickle Charger

The manufacturers of the Balkite "B" were the originators of the "trickle-charging" idea for keeping batteries always in a fully-charged condition. Operating on the same general principles as the Balkite "B," the Balkite Trickle Charger is designed to be connected permanently to the radio "A" battery and the electric light socket, and automatically fulfils its duty of maintaining the battery at concert pitch. The current consumption is very low, and the life of the battery is greatly prolonged by virtue of the low charging rate— $\frac{1}{2}$ ampere—and the fact that it is never allowed to reach a fully-discharged condition.

Descriptive literature may be obtained from the agents, Messrs O. H. O'Brien (Sydney), 37-39, Pitt Street, Sydney.

SUBSCRIPTION FORM

"QUEENSLAND RADIO NEWS."

Box 1095N, G.P.O., Brisbane.

Please send me the "Queensland Radio News" for 12 months. I enclose cheque or P.N. for 6/6.

Name

Address

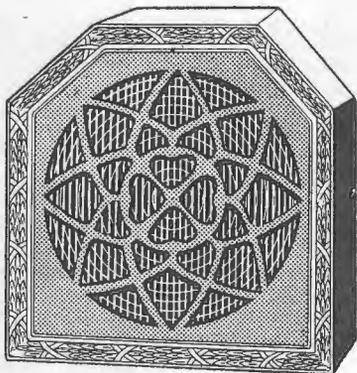


TESTED AND RECOMMENDED

A Department of Investigation, conducted for the benefit of our readers. Every piece of material featured on these pages is subjected to a rigorous and searching test before publication. No remuneration is received for the publication of these paragraphs.

THE CELESTION LOUDSPEAKER.

We have received a sample of the Model 12 Celestion Loudspeaker from the Distributors, Messrs. J. B. Chandler & Co. 45 Adelaide St., Brisbane, and have submitted it to a thorough test. The speaker is of the Cone type, contained in a handsome English Oak cabinet, and is provided with a simple means of regulating the driving unit. We found the tone quality to be very fine indeed, and, when connected to a good receiver, the Celestion gave really splendid reproduction, with any amount of volume. The Celestion Cone is available in five distinct models, the chief difference being in the cabinet work.



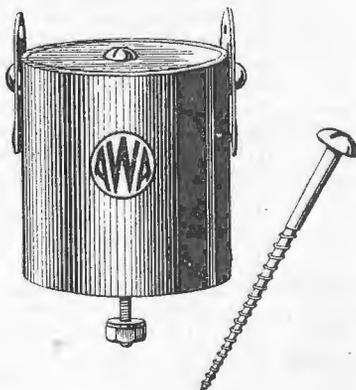
ed bakelite knobs on the front panel. An ingenious automatic "take-up" device ensures a permanent freedom from back-lash or lost-motion of any kind, and the nicely designed bakelite face-plate carries, in addition to the two knobs (one for each dial), two windows through which the scales are read, and also two smaller opening for the purpose of logging station call-letters directly onto the dials. The unit is fitted with either the Emmco S.L.W.L. or the "corrected S.L." type of condensers, as desired.

This beautifully designed and finished instrument, which was received from Messrs. Edgar V. Hudson, 55 Charlotte Stret, Brisbane, undoubtedly is one of the finest pieces of work that has come under our notice from any part of the world, and it surely is a triumph for the well-known Australian manufacturers, Messrs. Electricity Meter Manufacturing Co., Ltd., of Sydney.



THE A.W.A. RADIO-FREQUENCY CHOKE

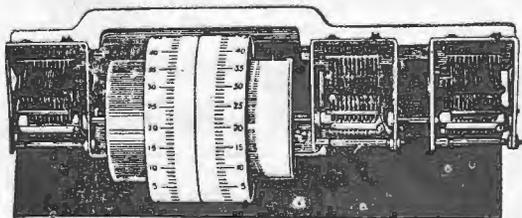
From Messrs. Amalgamated Wireless (A'sia.) Ltd., King House, Queen St., Brisbane, we have received a sample of the new A.W.A. radio - frequency choke coil for test. This is unusually well made for such a small instrument, and is well protected from mechanical injury. The winding — which is designed to have a minimum of distributed capacity—is wound on a bakelite bobbin, and is surrounded by a tubular shield of the same material. Substantial terminals are provided, with soldering lugs, and the choke is supplied with a bolt and nut for sub-panel mounting as well as a nickelled wood-screw for mounting direct on a baseboard.



Tested in a standard short-wave receiver and a Browning-Drake broadcast receiver, the A.W.A. choke gave very satisfactory results, and can be fully recommended.

THE EMMCO DRUM CONTROL TUNING UNIT.

The illustration reproduced below shows the new Emmco Dual Control Unit, fitted with a single condenser on one side, and a two-gang condenser on the other. Of the design all one can say is that it is a flawless engineering job, carried out with an admirable attention to detail. The unit is assembled upon a cast



aluminium chassis of channel section, and consequently great strength, to this member being bolted the supports for the dial assembly, and, by means of slotted holes, any size of Emmco condensers may be secured. The dials are of the drum indicator type, driven through a simple friction mechanism by mould-

Club Activities



RADIO CLUBS OF QUEENSLAND.

- AUCHENFLOWER AND DISTRICT**—Secretary, L. Gibb, "Frampton," Ridley Street, Auchenflower.
- CAIRNS AND DISTRICT**—Secretary, Mr. Tarbit, c/o. Mr. Les. Fitzsimmons, Cairns.
- EASTERN SUBURBS**—Secretary, J. Burns, Longland Street, East Brisbane.
- GRACEVILLE**—Secretary, H. Carter, Cr. Molonga Terrace and Wylie Streets, Graceville.
- IPSWICH**—Secretary, S. J. Aspinall, Brisbane Street, Ipswich.
- SOUTH BRISBANE**—Secretary, W. R. Gilbert, Gordon Street, Coorparoo.
- TOOMBUL**—Secretary, T. Starkie, Sandgate Road, Nundah.
- TOWNSVILLE**—Secretary, E. J. Jefferies, Fletcher Street, West End, Townsville.
- WIRELESS INSTITUTE (Queensland Division)**—Postal address Box 689K, G.P.O., Brisbane.
- WOOLLOOWIN**—Secretary, H. A. Jiear, Lisson Grove, Woolloowin.
- WYNNUM AND MANLY**—Secretary, P. J. Golden, c/o Trackson Bros., Ltd., Elizabeth Street, Brisbane.

Wireless Institute of Aust. [Q'ld Div]

The annual general meeting of the Queensland Division was held on 12th of April, and was well attended by members of the Institute.

The President's address covered a most interesting review of the past year's activities, and from the general opinions expressed, the Institute is still to be considered one of the most advanced of the amateur sections of the radio community. Even the lack of publicity that is now given to the amateur's doings has not dampened the enthusiasm of the Institute members, for it was shown that the past year has been one of activity in the direction of lectures, experimental broadcasting, experiments, etc.

The yearly report stated that up to January last broadcasting from 4WI took place every alternate Sunday morning, but that in that month it was discontinued to allow of the transmitting set being installed in another room of the "Courier" Building. This change of location entailed alterations to the equipment and aerial, and it is hoped to again be on the air during May.

Votes of thanks were passed to Messrs R. J. Browne and S. H. Smith for their untiring assistance to the Institute during the year, Mr. Brown having been responsible for 4WI's success in the recent "round Australia" short-wave test.

Once again the Institute has shown that in time of stress it can be relied upon to furnish a complete chain of communication by means of short-wave transmissions. During March the Federal Executive arranged a relay test, and all Institute divisions participated. A message originated at Melbourne, was received by Adelaide, transmitted from there to Perth, thence to Adelaide again, who passed it on to Brisbane. Brisbane sent it to Sydney, from there it went to Melbourne, who flashed it over to Hobart, and Hobart sent it back in its original form to Melbourne. The test was an outstanding success, and the way 4WI acquitted itself during its

handling of the message leaves no doubt as to the Queensland Division's reliability.

The election of officers for the year 1928-29 resulted:—Patron, A. G. Jackson, Esq.; vice-patrons, Professor T. Parnel, Dr. Boyd and J. Christie, Esq.; president, W. I. Monkhouse, Esq.; vice-presidents, Messrs J. Williams and N. B. Harper; council, Messrs C. H. Casperson, T. H. Dutton, R. J. Browne, F. Sharpe; hon. secretary, A. A. Jackson, Esq.; hon. treasurer, S. H. Smith, Esq.; hon. members, Messrs S. V. Colville, C. W. J. Isles, J. Sutton, F. W. Walker, Commonwealth Radio Inspector for Queensland, and Director of Queensland State Radio Station; hon. auditor, A. G. Jackson, Esq.

Toombul Radio Club

Toombul has experienced a moderately busy month since last report and the Technical Committee has drawn up a new roster of lectures to be delivered during April and May and members are looking forward to some interesting meetings.

It has been decided to rebuild the club's transmitter for operation of the 125 metre to 250 metre amateur band, to experiment in telephony and interrupted continuous wave telegraphy and to attempt to interest Brisbane listeners in club and radio matters generally.

Toombul feels rightly proud that the first three Queensland Radio Transmitters League prizes for best amateur stations should have been won by the two Toombul Club amateurs. Mr. T. W. Starkie, of 4NW gained first place and was presented with "The Gold



For unsurpassed price value the British-Made "ORPHEAN" Loud Speakers defy all competition.

The "De Luxe" Model is the largest "ORPHEAN" Loud Speaker made, and gives the very best performance obtainable.

Price, 70/-, resistance 2000 ohms, height 24 inches, flare 14 inches. The "Standard" Model of similar design and construction is splendid value for 52/-, Height 19 inches, flare 10 inches, resistance 2000 ohms.

The "ORPHEAN GEM" (the STANDARD MODEL) cheapest efficient British Loud Speaker, is obtainable in marvellous price value. Costs only 30/-, Height 19 inches, flare 10 inches, resistance 2000 ohms. The "Oriel," for those who favour the cabinet type, is a splendid instrument at 60/-, Size, 15 inches by 9 inches by 4 1/2 inches. Enclosed in an artistic Oak Cabinet.

Write for Illustrated Leaflets No. 17 to

LONDON RADIO MFG. CO. LTD.

STATION RD., MERTON, LONDON, S.W. 19, ENGLAND
The NEW ZEALAND LOAN and MERCANTILE AGENCY CO., LTD.

538 COLLINS STREET, MELBOURNE

Trophy" and a "Purple Pennant," whilst Mr. A. E. Walz, of 4AW obtained second place and was presented with the "Blue Pennant."

Everyone knows (or should know) that a secret is no longer a secret when three persons are "in the know." Perhaps the mildly sarcastic Publicity Officer of "the other radio club" would like to have (to use his own expression)) "the secret" of making a financial success of a dance; or of educating and encouraging amateur operators; or of calling meetings for the discussion of interchange of club lecturers; or even of scaling one's aerial pole to replace a burnt-out electric lamp previously used to illuminate one's call sign.

Whilst no doubt an expanse of properly kept lawn is ever so much better than some broken pieces of asphalt; surely a perfectly smooth asphalt pavement (such as fronts 4TC clubrooms) is infinitely better than a pavement which resembles a paspalum plantation.

The Toombul Radio Club meets every Wednesday evening at the clubrooms, Eton Street and Sandgate Road, Nundah. Anyone interested in wireless is cordially invited to attend.

Wooloowin Radio Club [oa-4WN]

Club meetings have been held as usual during the past month. Attendances have been good, considering the very strong inducements to remain at home, which Jupiter Pluvius held out on two or three nights. Certain members also appear to be experiencing considerable difficulty in recovering from that holiday spirit contracted at Easter.

On Thursday, April 12th, Mr. V. F. Kenna, the club's "Man of Mysteries," decided to show members some little bits of little things. A very good microscope enabled him to carry out this laudable idea, and members spent a very interesting evening getting close-up views of the features of moths, spiders, ants and other domestic animals, as well as examining a number of other objects in detail.

The treasurer, Mr. J. P. Love, has very kindly promised to donate a small bookcase to the club, and arrangements are in hand to enable a number of books for a technical library to be purchased as soon as the case is erected in the club-room. These books will be loaned out to members for study in their homes.

Visitors are welcome at the club-room every Thursday night. Business meetings are held on the second and fourth Thursdays of each month, the remaining Thursday nights being devoted to informal discussions on radio and kindred subjects. Meetings start at 8 o'clock in the club-room on Mr. Thomas' property in Willmington Street, so how about coming along some Thursday night? No further invitation is necessary.



Toowong, 19th April, 1928.

(The Editor, "Q.'ld. Radio News," Brisbane.)

Dear Sir,—May I be permitted to question one or two statements made recently by 4QG regarding distorted reception in certain country areas, and which appeared in last issue of "Q.R.N."

The first one:—"Until such time as methods of transmission and reception are completely revolutionised, there seems no possible chance of the trouble (i.e., distortion) being remedied." This is quite incorrect, unless it is understood to read "on the present broadcast waveband." By using a higher wavelength around, say, 10,000 (ten thousand) metres, distortion areas would be eliminated, or if not quite, the small amount of distortion would be negligible in the receivers. Increasing the wavelength of a broadcasting or receiving station could hardly be called a revolutionary change. It would be, in fact, retrogression.

"The cause of distortion over certain areas, etc. . . . only an unproved theory has been put forward to explain this puzzling problem."—another statement which is not quite correct. It has been definitely decided upon by scientists that radio waves are bent back to earth, not necessarily according to the theories advanced by Heaviside, Eccles, Meissner or any others, but it has been, and can be, proved that either reflection or refraction takes place in the upper atmosphere, and that is all we need to prove definitely the cause of distortion in certain areas.

Where a strong "ground wave" and an equally strong refracted wave are being received together, there is bound to be trouble, because the ground wave, coming direct from the transmitter, brings part of an audio frequency vibration a tiniest part of a second before the refracted waves arrives with the same vibration. This difference, the small fraction of time, between the arrival of both waves, is quite sufficient to cause a slight slurring of every audio frequency vibration and, especially with the higher audio notes, this slur will be sufficient to cause bad distortion. This is what is happening in certain districts between 30 and 200 miles distant from 4QG to cause listeners there to rightly complain.

The use of very long waves is the only solution at present known for the elimination of this type of distortion, in that they automatically suppress the "refracting waves," reducing their strength to a negligible factor. This is most likely due to an inability to refract to the same degree as their shorter brethren without considerable damping.

Again, the use of very short waves under 100 metres would reduce to a very great extent the distortion areas, as the ground wave would be very much weaker than the refracted wave at 30 miles and over from the transmitter; that is, if the ground wave was not entirely damped out before it reached that distance. This however is not taking into account the effect of "skip distance," which is so prevalent on all wavelengths

Let Me Teach You MORSE

If you would become proficient in Morse Sending and Receiving, let me coach you, as I coached 4RB, 4AZ, 4BO and others, including commercial operators. Sounder or Buzzer method; speed and proficiency guaranteed; terms moderate.

CHAS. RUNGE

(3 Years' Experience as a Morse Instructor; Several Years as a Commercial Operator.)
Address enquiries c/o "Queensland Radio News,"
Box 1095 N, Brisbane.

THE **FERRANTI** TRANSFORMER

We know what you want to get out of your set. Everyone wants it. It is clear, pure-toned reception—and you don't want to miss a note from the muffled base of the kettledrum or the profound booming of the baseviol to the shrill "sky-high" tones of the fife and piccolo.

A.F.3 ... 42/6

So much depends on your circuit, so much on your speaker—but even more on your transformers. To render sweet music and to get the full range of orchestral or instrumental performance, the transformer must faithfully reproduce all frequencies.

A.F.4 ... 32/-

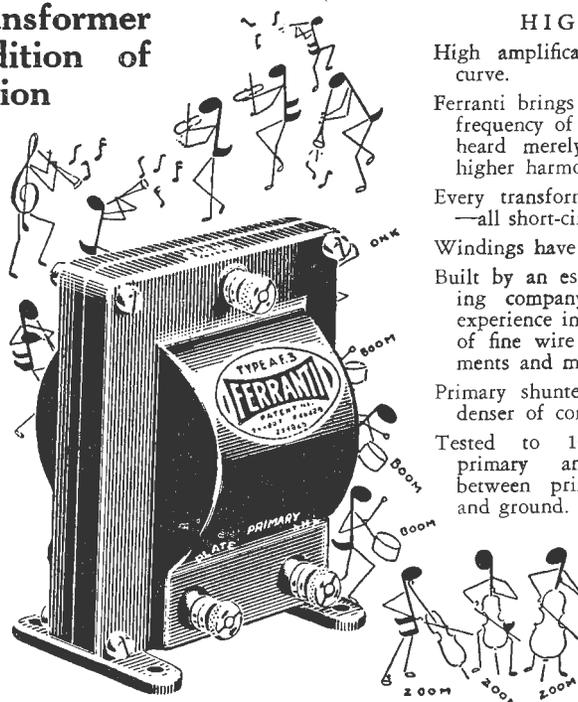
The Ferranti Transformer Meets Every Condition of Good Audio Reception

It takes two and a half miles of wire for the coils of the A.F.3, and one and a half for the A.F.4, plus the many refinements which the genius of Dr. Ferranti has made possible, to create transformers whose amplification curve is almost perfect—almost a straight line. By installing Ferrantis you can modernise your old set or perfect your new one. **Ferranti will give you an uncensored message from the sending station.**

If you want to make the best of the power valve, feeding the loud speaker, use Ferranti. Ask your dealer for a Ferranti. Don't be satisfied until you have installed one. No better transformer is available at any price.

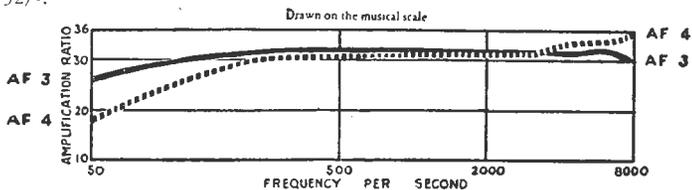
For the best available transformer results—Ferranti Audio Frequency Transformer A.F.3—ratio $3\frac{1}{2}$ to 1—42/6.

For a transformer far superior to the average, use Ferranti A.F.4—ratio $3\frac{1}{2}$ to 1—32/-.



HIGHSPOTS

- High amplification ratio with flat curve.
- Ferranti brings out the fundamental frequency of low tones—none are heard merely by inference from higher harmonics.
- Every transformer tested ten times—all short-circuit turns eliminated.
- Windings have high impedance.
- Built by an established manufacturing company with forty years' experience in the winding of coils of fine wire for electrical instruments and meters.
- Primary shunted with built-in condenser of correct capacity.
- Tested to 1000 volts between primary and secondary and between primary and secondary and ground.



This graph is drawn on a musical scale—the only accurate way of showing the full value of each tone which your set receives. Note the evenness and fullness of amplification in both the Ferranti A.F.3. and the A.F.4. extends throughout the range of the organ, cello and the human voice.

ISOLATE YOUR SPEAKER WITH A FERRANTI OUTPUT TRANSFORMER 41/-

Obtainable from every Radio Dealer in Australia.

Dealers please communicate with:—A BEAL PRITCHETT (Aust.) LTD., Sydney & Melbourne.
 WEDMA, LTD., Adelaide - - EDGAR V. HUDSON, Brisbane - - GIBBS BRIGHT & CO., Perth.

below 50 metres at certain times. Short waves are not entirely immune to bad distortion on certain areas; there is no ground wave to cause this, but there is a "complex refracted" wave, which is one radiated at a multiple of the angle of the refracted wave being received. This complex refracted wave, if not sufficiently damped by the greater number of "refractions" or "reflections" and the longer distance travelled, will cause the same interference with the refracted wave as does the latter with the ground wave as explained two paragraphs up.

The complex refracted wave is also the cause of any distortion areas at distances greater than 200 miles from the broadcasting station operating around 300 metres. With the majority of distant listeners these waves are received so feebly in comparison with the main refracted wave that the interference caused is quite unnoticeable.

Yours faithfully,

R. J. BROWNE, 4RB.



Mossman, N.Q., 12th April, 1928.

(The Editor "Q."ld. Radio News," Brisbane.)

In reference to the statement issued by 4QG in the "Broadcast Bulletin" of March 21st re fading and distortion, I do not think same covers complaints made by North Queensland. If 4QG can enlighten me on the following questions, I shall feel that they are doing their best to overcome this trouble, but nature is against them.

Before asking these questions, I would like to give 4QG the reason why there are complaints from North Queensland of reception from this station for the past four months or more.

There are eight sets in this district, and they all get bad distortion from 4QG, whilst 3LO, 2BL or 5CL come through quite clear. (We are not in the 150-mile zone.) This trouble was not experienced last year or the previous year. I have had my set for two years and could tune in 4QG at any time of the year (statics permitting) as clear as 3LO or any other Australian station.

Question 1: Why is it that this district and others have not been able to get clear reception from 4QG for the past four months or more, while previous to this 4QG came through as clear as any station?

Question 2: Why is it that at odd times during mostly any night 4QG comes through quite clear for a few minutes only? These questions deal only with night reception and distortion having no bearing on fading, as this trouble applies to other stations also.

Question 3: Has 4QG made any test or tried to gather any information from listeners in order to find out why the reception from their stations has been so bad in North Queensland, while any other station comes through clearly?

If you would publish this under the name of "Still Another Listener," I trust it will help to clear the atmosphere for discontented listeners. Your faithfully,

"STILL ANOTHER LISTENER,"

Mossman, North Queensland.

Special Announcement

3LO ON SHORT WAVE

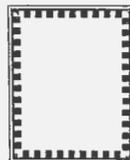
Extended Service Licenced

Experiments of considerable importance will be carried out by 3LO Melbourne on Sunday, May 6th, in broadcasting special programmes on a wavelength of 32 metres for the purpose of testing the possibilities of providing a satisfactory service during the daytime for the whole of Australia.

The tests are to be carried out with the approval of the Postmaster-General, and very far-reaching results are anticipated.

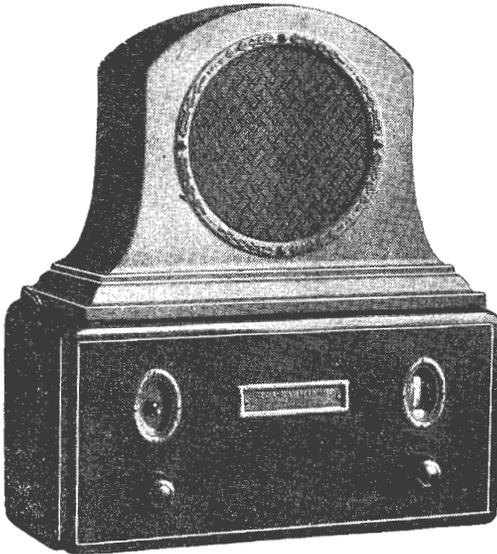
It will be necessary, of course, for listeners to instal a short-wave set or to make the necessary alterations to their ordinary receivers. This does not entail much difficulty or expense, and 3LO have had prepared a special booklet to guide listeners in constructing a short-wave receiver, a copy of which will be forwarded to anyone sending name and address and enclosing a one-penny stamp to cover postage.

Reports are invited from listeners throughout Australia and New Zealand upon their reception of the transmissions, which will be made at the following times on Sunday, May 6th:—
9.45 to 10.15 a.m., 12.45 to 1.45 p.m.,
4.45 to 5.45 p.m.



A CROSS in this square denotes that your subscription expires with this issue.

Subscription **6/6** Year



Free!

**This Magnificent 6-Valve
R.C.A. Receiver & R.C.A.
Model 100A Speaker —
Valued at £45**

The publishers of this magazine are desirous of enrolling more subscribers, and solicit your assistance — for which they are prepared to PAY.

We ask you to introduce "The Queensland Radio News" and "Broadcast Bulletin" to your friends and neighbours, or to canvas your district. We pay 20 per cent. commission in monthly cheques, and the amount of your commission is limited only by your ability to book up subscribers.

Big Spare-time Money for YOU!

This offer is a genuine opportunity to increase your weekly earnings. You are supplied with books of subscription forms and all information and hints on selling.

The task is easy—for who would not pay 6/6 for 12 issues of "The Queensland Radio News," or 9/6 for 52 issues of that splendid little weekly programme paper "The Broadcast Bulletin."

IMPORTANT

In response to many requests, we are amending Condition No. 2 (see last issue). We have reduced the minimum number of subs. eligible for commission from ten to FOUR. This makes the scheme easy. Surely you can book up FOUR subscribers—and earn your 20 per cent. !!

ENTRY FORM

The "QUEENSLAND RADIO NEWS,"
Box 1095-N, G.P.O.,
BRISBANE.

Dear Sirs,—

I am desirous of becoming a subscription agent for your radio publications, "The Queensland Radio News" and "The Broadcast Bulletin." Please send me by return post, supplies of working material so that I may commence work immediately.

NAME

ADDRESS

.....

Do you Realise—

What this great scheme really means? Are you fully awake to its possibilities?

If the wonderful Trophy were offered as the only incentive to enter, the competition would be well worth entering. But apart from the trophy EVERY ENTRANT is paid—

20%

COMMISSION.

Nobody works for nothing, and the most energetic entrant scoops the magnificent prize.

Unless you are content with your present earnings, put your spare-time hours to great profit by working for this journal. You've nothing to lose—and much to gain.

**Fill in your
Entry Form—
NOW!**

This department is conducted for the assistance of our readers. Except under special circumstances, we do not undertake to supply answers by mail.

Questions Answered

By the TECHNICAL EDITOR

Questions received before the 20th of the month will be answered in the following month's issue. Queries arriving after this date are deferred until the next issue.

H.E.R., Maryborough.—“I have a five-valve receiver similar to the ‘Portable Five Valver’ (‘Q.R.N.’ December, 1925), except that it is built as a cabinet model. Volume and tone are beautiful, but my trouble is that I cannot separate the various stations, and the A.T. condenser has very little effect on the tuning of the set. I may say that I built one of these receivers twelve months ago, and it gave good results. Can you suggest any remedy for this trouble?”

Answer.—It is very difficult to diagnose this trouble without seeing the set, but it is possible that one of the following may be the cause. Faulty valve or valves in the R.F. stages; the fact that the set does not oscillate readily indicates this. Aerial too long; try a .00025 fixed condenser in series with the aerial. Faulty A.T. condenser; this is quite probable with the type you are using—try substituting a different make. You might also try lifting the coils off the baseboard and suspending them between the coils and the baseboard. Coils should not be screwed to the base in the manner you describe, although it is hardly likely that this is the cause of the lack of selectivity.

M.R.B., South Brisbane.—“Can you please tell me the correct connections for an audio transformer with the terminals marked OP, IP, OS, IS, and what do these letters stand for? (2) Is 16-gauge copper wire heavy enough to stand the filament current for four Cossor ‘Point One’ valves?”

Answer.—Connect OP to “B” positive, IP to plate, OS to grid, and IS to “C” negative. This is the old English marking, and refers to “outside primary,” “inside primary,” “outside secondary” and “inside secondary.” The usual marking for these terminals is B, P, G, F. (2) 16-gauge wire is amply heavy enough for the valves mentioned; in fact, 18-gauge would be perfectly satisfactory for this purpose.

“Battery,” Southport.—“Kindly advise me what is meant when referring to batteries by ACTUAL ampere-hours as opposed to IGNITION capacity. I have seen these terms several times, but have never heard a satisfactory explanation.”

Answer.—A storage battery having a capacity of 50 actual ampere hours is one which will supply a current of one ampere continuously for 50 hours; 2 amperes for 25 hours; 5 amperes for 10 hours, and so on. However, when a battery is used for ignition work, as in a car, current is only drawn intermittently—that is, every time the distributor completes the circuit to the ignition coil, and so causes a spark in the correct cylinder. As an optimum figure, it is always considered that a battery, under these conditions, is supplying current only for HALF the number of hours the engine is running, and thus the ignition capacity of a battery is always quoted as DOUBLE the ACTUAL capacity, meaning that it will last twice as long for a given discharge rate. For radio work, a battery should always be chosen for its ACTUAL capacity, since the discharge is continuous during the time the battery is in use.

“Anxious,” Paddington.—“Some time ago, you published in your ‘Q.R.N.’ the construction of a crystal set which would operate without aerial or earth. Could you please publish the diagram of the above in an early issue of your book? (2) Could you please tell me the correct way to use a potentiometer and a battery on a carborundum crystal?”

Answer.—We regret that space will not permit us to publish diagrams in connection with this page, but if you will send six-

pence in stamps we will be pleased to forward you a copy of the September, 1927, issue, in which the article you mention appeared. (2) We are mailing you a diagram showing the correct connections for a carborundum stabilising unit.

J.W.C., Innisfail.—“How can a wavelength be counted? For example, I am trying to tune into a station, but that station is not on the air, how can I know when I have the set for that wavelength? (2) Will an Exide battery for bright-emitter valves also work satisfactorily with dull-emitter valves?”

Answer.—Wavelength can only be measured accurately by an instrument termed a wavemeter. However, it usually is a simple matter to obtain an approximate idea of a certain wavelength by the following method: Assume that the station for which you are searching operates on 379 metres. Tune in 3LO (which any programme list will tell you uses 371 metres), and note your dial settings. Do the same with 4QG (385 metres.). Suppose that the respective dial settings are 43 and 49. The wavelength you want (379) is mid-way between the two known wavelengths, therefore your search may be narrowed down to one or two degrees on either side of the point on the dial, mid-way between the two known positions—somewhere about 45 degrees.

(2) Provided suitable types of valves are used, the accumulator mentioned will be quite satisfactory. If it is a 6-volt battery, dull-emitter valves for 6 volts must be used; if 4-volt, then 4-volt valves are necessary.

G.G., Silkstone, Ipswich.—“I have built a split coil two-valver, another form of Reimartz, and would like to know if I could use it as a short-wave set using a .00015 condenser, and what grid coil I would use. I have a 20-turn aerial coil wound on the end of the grid coil, which consists of 50 turns, tapped at 28th turn, using .0005 condenser.

Answer.—This type of receiver can be used successfully for short wavelengths by substituting the correct sizes of coils. The primary coil should have about 4 turns and should be variable in its coupling to the grid coil. With a .00015 condenser, a grid coil of 4 spaced turns will cover approximately 20 to 36 metres. The tickler coil must be determined by experiment; about 6 turns should suffice, wound close to the filament end of the grid coil, making 10 turns in all on the secondary.

J.H.A., Springsure.—We are answering your letter by mail, for obvious reasons. A copy of the April issue has been posted to you.

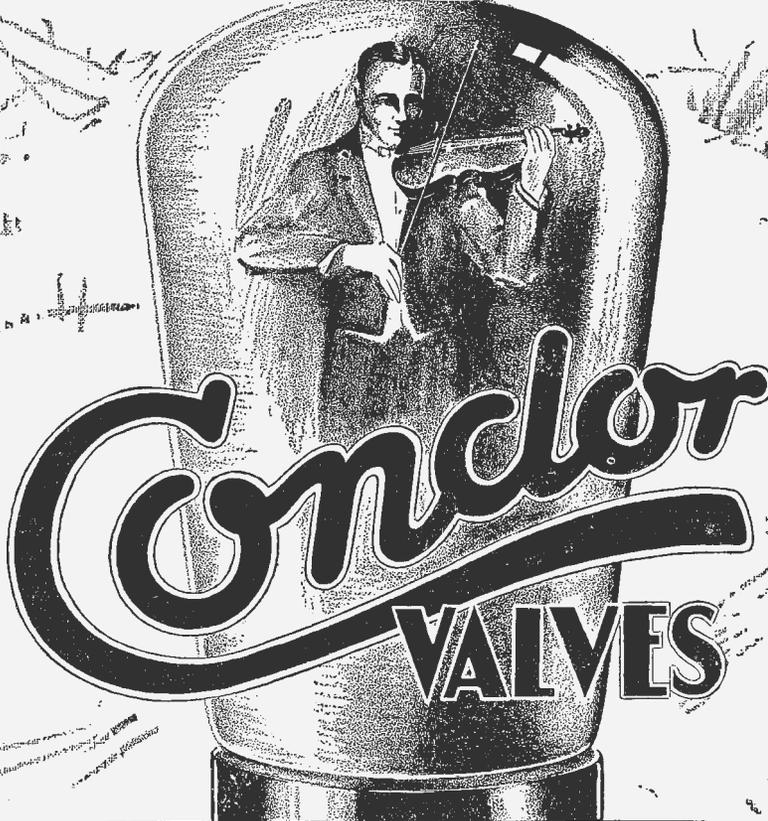
R.M., Freshwater.—(1) “What is the difference between a crystal receiver set for telegraphy and one for telephony? and would one set receive both, or could it be made to? (2) Would such a set work two pairs of earphones as easily as one pair? (3) Can a crystal set receive short waves? (4) Would electron wire used as an indoor aerial be a practical proposition at this great distance (8 miles north of Cairns) from 4QG, 3LO, etc.?”

Answer.—A crystal set will receive both telephony and some forms of telegraphy transmission; but NOT “C.W.” (continuous wave) Morse. For that reason, in addition to several others, a crystal receiver is useless for short waves. (2) Yes, two or even three headsets may be used without serious reduction of volume. They should be connected in series. For instance, supposing two headsets are to be connected: One wire from each headset connects to one terminal each of the crystal set. The remaining two



SHARE your Problems with the Technical Editor—he thrives on them!

*Even the finest notes
of the violin—clear
clean—undistorted*



JUST as you would hear the artist were he before you, so you are sure of pure radio enjoyment, with every fine note and intonation amplified to its true strength, with "Condor Valves."

Made by the Makers of "CONDOR LAMPS"

CONDOR LAMPS (Australasia) LTD.
Sydney, Melbourne, Adelaide, Brisbane, Wellington (N.Z.).

wires are joined together. (3) See answer No. 1. (4) Provided your receiver is sufficiently sensitive, an indoor aerial such as you mention will give satisfactory results on distant reception, although the volume will not be as great as with an outdoor wire. At your distance, an indoor aerial would scarcely be worth while, in our opinion, with less than five valves.

"Cells," Didcot.—"Will you kindly tell me through your valuable journal how to construct inexpensive 'A' or 'B' batteries from old dry cells? Also, where can I buy glass containers for cells?"

Answer.—In the July, 1926, issue we published full constructional details of "How to Make an Inexpensive 'B' Battery from Your Old Dry Cells." This battery has been built by a number of our readers, and reports indicate that it has been very successful. If you are not in possession of this issue, we shall be pleased to forward you a copy on receipt of the sum of sixpence in stamps. We know of no way of making 'A' batteries from old dry cells.

A.G., Moregatta, via Cairns.—"I have an eight-valve Super-Het., and would like to know if the Short Wave Adapter would work with this set. If so, there being two detector valves, which one would I use?"

Answer.—The Short Wave Adapter will work excellently with your receiver. The four-pin plug must be inserted in place of the SECOND detector, the valve so displaced being used in the adapter.

H.A., Innisfail.—(1) "I want to use the electric current direct from the mains. The current is D.C., and is supplied at 110 volts. If I coupled the mains to the set through two condensers and one choke coil would it reduce the current? I want a supply of 100 volts, and some arrangement for plugging in. Will you give me a sketch of the circuit? (2) Is it possible to take both 'A' and 'B' from the same main, one supplying 6 volts and the other 100 volts? Give the values of the condensers and choke coil for same."

Answer.—It is quite possible to use the 110-volt D.C. mains for supplying the "B" current, but the system you propose would not be operative. The subject is one with which it would be impossible to deal in the space at our disposal on this page, but in an early issue we hope to publish an article giving constructional particulars of "B" battery eliminators for D.C. mains. (2) While it is within the bounds of possibility, we would not recommend the use of the mains for supplying filament current. An accumulator is the better proposition, especially as it is an easy matter to charge it from the D.C. mains.

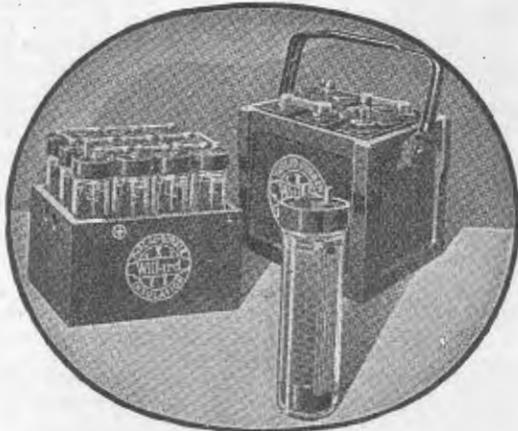
"Point One," Warwick.—"In your opinion, is a rheostat necessary for the detector valve, or has it any advantage over the use of a ballast resistance? I believe the latter are satisfactory for controlling the amplifiers."

Answer.—We always advise the use of a rheostat when the detector valve is not preceded by any radio-frequency amplifiers. Under these conditions, the detector valve must operate at the peak of its efficiency because the input to it is so very small. When, however, the detector follows one or more r.f. stages, the need is not nearly so important, and the rheostat may be dispensed with without sacrificing efficiency.



CORRECTION

On page 35 of our April issue, in the list of parts required for "An Amplifier for Your Crystal Set," we specified a Philips A-306 valve. This was a mistake, as the old A-306 no longer is marketed under that name. The correct valve is the A1409, which is a 4-volt type consuming .06 ampere. Unfortunately, the error was not noticed in time to correct it in the April issue.



Made in both "A" and "B" Types to suit every Wireless Requirement.

For Battery Economy Reliability ~ Satisfaction

WILLARD Radio Batteries are the secret of battery economy, reliability and satisfaction.

Thousands of radio set owners have made this discovery.

WILLARD Batteries are made to give remarkable service and will meet any demands made by your radio set.

ASK FOR

WILLARD RADIO BATTERIES

MOTOR SUPPLIES LIMITED

PERRY STREET off Boundary Street

BRISBANE

Whispers from Maoriland

A new station has come into being—2ZF Palmerston North. 2ZF is not really a new call letter, as the Manawatu Radio Club have been operating a low-power transmitter for some months under that title. The new station is on increased power, and intends to keep to a high standard of tone-quality rather than strain for DX records.

Maoriland now has a radiophone service, for at a cost of £2000 the system has been installed at Glade House tourist resort for communicating to the top of Lake Te Anau. This is the first such system to come into operation in the Dominion, and it is estimated that at least £10,000 would have been taken up in connecting the two places by land line phone.

It has been resolved by the Arbitration Court not to add the Radio Broadcasting Company of New Zealand as a party to the Musicians' Award.

Within a few weeks some £75,000 will be collected by the Post and Telegraph Department for the ensuing year's radio licenses, and of that large sum substantially more than £60,000 will be transferred to the Broadcasting Company.

Previously listeners' license fees could be paid quarterly, but now the payment has to be made in a lump sum annually. This appears to be inflicting quite an unnecessary hardship upon those radio fans who have small incomes and large families, for it is often much more convenient to pay 7/6 each three months than it is to find 30/- for the annual payment.

It is almost perfectly safe to predict that we are on the eve of a revolution so far as the control of broadcasting in New Zealand is concerned. For some time there has been a distant rumble of discontent, and now the storm has broken. The amount of adverse criticism hurled at the Broadcasting Company by the correspondence columns of the Daily Press has indeed been remarkable, and it is indeed painful to reflect that a great deal of what has been said about broadcasting in the Dominion is perfectly true. Perhaps the most influential protest comes from the Auckland Listeners' League at the last meeting of which the following resolution was passed: "That this meeting is of the opinion that while the control of broadcasting is in the hands of the present inefficient administration, no real improvement in broadcasting can be expected, and after eight months, it reaffirms its lack of confidence in either the capabilities or the good intentions of the Radio Broadcasting Company." If that is not straight from the shoulder, then I do not know what is. Again, the North Taranaki Society has expressed keen dissatisfaction with the transmissions and management of the broadcasting stations operated by the Broadcasting Company, and calling for an early Government investigation. The meeting also, when expressing the foregoing, ventured the opinion that the time was opportune for the formation of a legally constituted advisory board which should have the powers suggested by the Secretary of the Post and Telegraph Department in September last.

This is general election year in New Zealand, and the Government will surely find that one of the greatest thorns in its side will be the manner in which it has dilly dallied with the question of radio broadcasting in this country. The interest of listeners in their hobby is waning, and it is up to those in authority to see that the root of the trouble is got at and renewed life given to radio per medium of better programmes and better treatment to those who pay the piper—the listeners-in.

Another matter calling for alteration is the fact that the broadcast programmes are copyright to a certain weekly journal, and the Daily Press can only secure them from day to day. Often it is desired to see what is to be given a few days ahead, and this is only possible by buying the weekly mentioned.

Mr. Claude Grey, of Shannon, has been receiving first-class reception of Yankee stations, and the approaching winter promises to give him a surfeit of them, owing to the earlier setting-in of darkness, which is so favourable for reception of the American stations. Mr. Grey is a confirmed advocate for high aerials, is own'ing some fifty feet from the ground.

Distance has a decided lure for the majority of owners of multi-valve sets in the Dominion. Novices should remember, however, that long distance reception varies very considerably, and in the case of Manila and Japan, is rarely available at this time of the year.

The Canterbury Rugby Union has decided that the Broadcasting Company will have to pay for putting matches played under the Union's jurisdiction on the air. The officials realised that the broadcasting of the more important matches is a boon to country listeners. It was decided, however, that any fee received from the company would be handed by the Rugby Union to some deserving charity. It is quite safe to say that the other football bodies throughout the Dominion will follow Canterbury's lead in the matter.

Mr. J. H. Owen, President of the Amateur Radio Society of Wellington, was tendered a dinner at the Grand Hotel recently, prior to his departure on a 12 months' trip to England. The function was attended by Mr. J. Ball, Chief Announcer at 2YA, who stated that alterations and additions would shortly be added to the programmes broadcast from his station. The children's hour would commence at 5 o'clock instead of 6 and the 6 to 7 o'clock hour would be devoted to instrumental music. Other important developments, said Mr. Ball, including the installation of a regular educational session organised by the Department of Education, were also in contemplation.

The knowledge attained by amateur wireless operators is to be utilised by the Defence Department. Twelve operators, whether they are over the age for military training or not, will be given the opportunity to join the Southern Depot of the Corps of Signallers.

Another AWA Con- tribution to Radio

Cheaper and Better Valves

 **MALGAMATED** Wireless (A/asia) Ltd. have pleasure in announcing that they are now in a position to offer Marconi and Radiotron Valves at reduced prices. The reductions apply to a complete range of fifteen types, including the popular Radiotron U.X.201A—reduced to 8/-, and the new Marconi Economy Valves—reduced to 12/-.

Obtainable from all Radio Dealers.

Amalgamated  Wireless
(Australasia) Ltd.

BRISBANE . SYDNEY . MELBOURNE . ADELAIDE

:: *Australia's National Wireless Organisation* ::



Phone Central 2562

EDGAR V. HUDSON

55 Charlotte Street, BRISBANE

The Leaders in Radio Merchandising

New Lines and Shipments Arriving This Month

FERRANTI

SPEAKERS.

The True exponential horn speaker—acclaimed to give the finest reproduction yet heard—the first to arrive in Australia.

£ 5/5/-.

A.F.5 AUDIO TRANSFORMERS.

This superior transformer even transcends the wonderful A.F.3, which has been recognised hitherto as the world's best,

£ 2/17/-.

RADIO METERS.

The finest line volt, milliamp. and ampere meters yet produced. Extremely accurate and high resistance—Bakelite cases.

From £ 1/18/6.

TRICKLE CHARGERS.

The smallest and most dependable battery charger manufactured. Ferranti Transformer and Westinghouse Cuprous Oxide Rectifier.

£ 5/10/-.

PUSH-PULL TRANSFORMERS.

Now available in all audio and output types. Centre tapped Transformers and split amplification is the ideal method of handling volume without excessive voltages.

OUTPUT TRANSFORMERS.

If set builders and users would isolate the high tension battery current from the speakers, not one tenth of the breakdowns in speakers would occur. Ferranti Output Transformers—the sure way.

£ 2/1/-.

RADIOKES

MASTER BROWNING-DRAKE KITS.

The 1928 model, smaller, sharper tuning, more efficient and new method of neutralizing. A really great improvement.

£ 2/-/-

PERIDYNE SHIELDED KIT.

The shield tuning of this set, designed by Hugo Gernsback, builds the perfect one-control receiver for selectivity and volume.

£ 3/15/-.

STROBODYNE R.F. KIT.

The three essentials of the perfect broadcast receiver—extreme selectivity, perfect tone, and long distance with the wonderful Radiokes Strobodyne 7-valve

£ 6/15/-.

DE-JUR

RHEOSTATS.

Admitted by all to be the finest Rheostats ever introduced to Australia at a reasonable price. 8, 10, 20, and 40 ohm. 3/9 each.

CONDENSERS & RHEOSTATS.

Complete range of high-class Fixed Condensers and Resistances of all values, now so largely used.

BAKELITE ACCESSORIES.

De Jur U.X. Valve Sockets are known everywhere as moderately priced efficient components. Phone Plugs are cheap and good.

EMMCO

NEW VELMO VERNIER DIALS.

The latest addition to the fine range of dials made by the premier factory. Two sizes both for either hand reading 0-100-100-0 degrees. Velvet smooth control. Emmco are truly the Vernier dial kings. Note the marvellous prices—

5/- & 6/-.

"A," "B" and "C" BATTERY ELIMINATORS.

For making or converting to fully electrical operated sets. One instrument replaces all batteries; no worry, charging or expense buying new B batteries. Available in .25 amp. and .06 amp. types.

£ 18/18/- & £ 15/15/-.

DRUM CONTROL CONDENSERS

One chassis supports whole movement, only two holes to drill in panel for mounting. Beautifully moulded bakelite escutcheon plate, finest graduated scale drum, and smoothest vernier control. 3-Gang Stratelnye or S.L.C. Models,

£ 4/10/-.

New Full Stocks Just Landed

BAKELITE TUBING,
All sizes, 1/4in. to 3in.

BAKELITE SHEETS,
Black and Mahogany.

SPAGHETTI SLEEVING,
Finest Quality.

WIRE,
Aerial and Flexibles.