

Friday, December 5, 1924.

WIRELESS WEEKLY

Make this a Radio Christmas

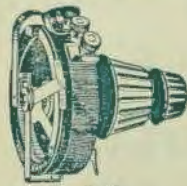


A radio gift will bring a radiant smile of appreciation. Here are some ideas which will guide you aright in selecting your Christmas presents, each one backed by the name of United Distributors Limited. You can get them at these prices from any Radio Dealer.



"SIGNAL" Audio Frequency Transformer

ensures loud tone, free from distortion. As good as the most expensive imported Transformers, 21/-



No. 610

FROST RADIO

Rheostats, Potentiometers, etc., etc., See advertisement on Page 6.



"SIGNAL" Home Assembly Sets.

Available in one, two, three, or four valve sizes. Mission or polished finish Cabinets. Can be put together quickly with a screw-driver and a pair of pliers. They cost 5 to 11 guineas. Do not accept inferior substitutes

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Strong and sensitive. Light and comfortable — and fully guaranteed, 25/-



"Astrophone"

The Super Crystal Set £4
Metro Crystal Set complete . . £3/15/-
Wizard Crystal Set 20/-

Fortevox Crystal Set 16/-

United Distributors Limited

(Wholesale Only)

72 CLARENCE STREET, SYDNEY.
592 BOURKE STREET, MELBOURNE
and at Brisbane, Perth, Adelaide.

The Super Volmax V

THE SUPREME LONG DISTANCE BROADCAST RECEIVER.

One taken from stock at random gave the following astounding results :

KGO.—America
3LO.—Melbourne
2FC.—Sydney
2BL.—Sydney

all on

Loud
Speaker

with
Full
Volume



SUPER VOLMAX V.

Numerous other stations heard, including 6WF, Perth.

Names of witnesses will be given on application.

These stations were all heard in

ONE EVENING.

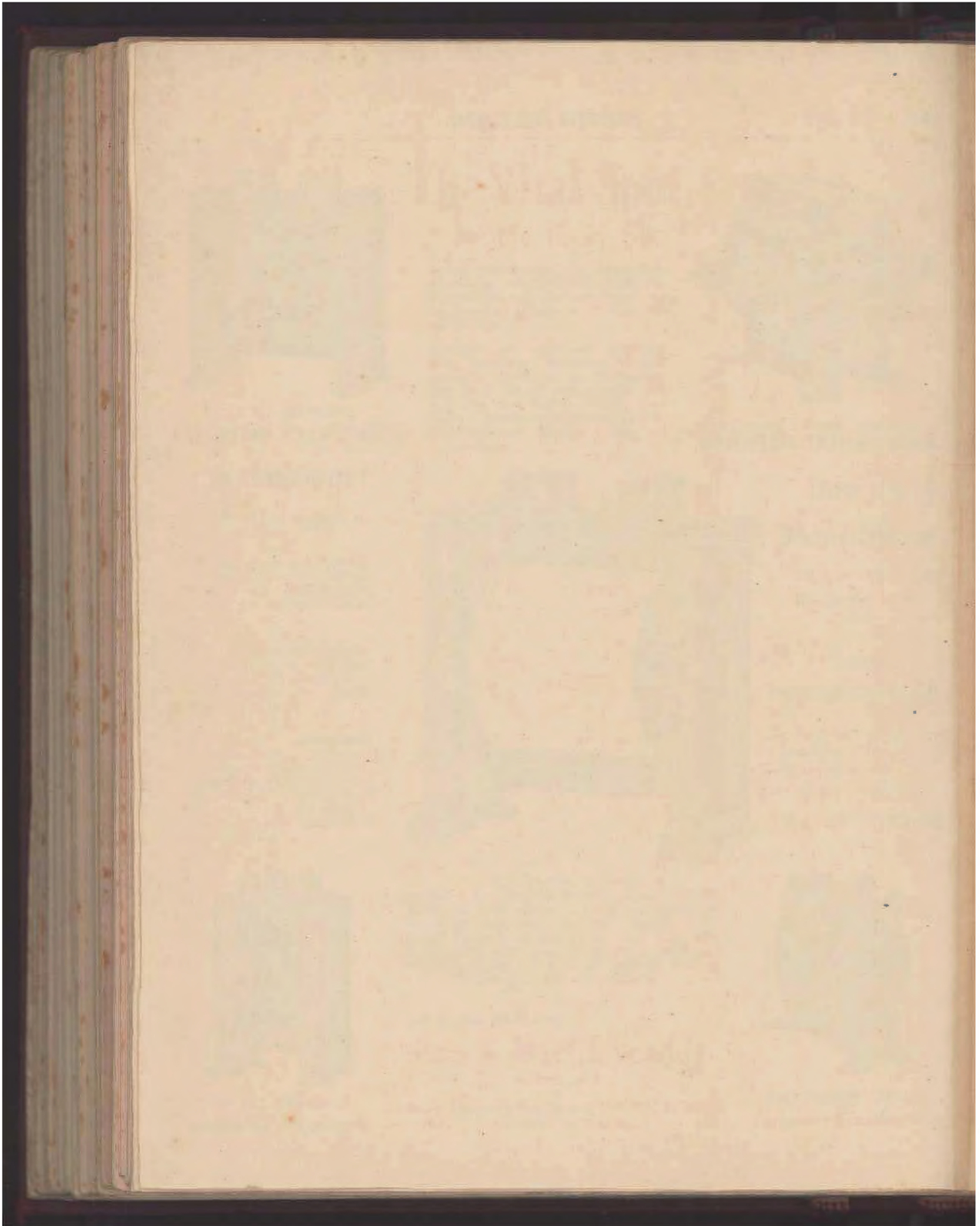
Phone M3378 for demonstration in your own home.

OBTAINABLE FROM

WIRELESS SUPPLIES LTD.

21 ROYAL ARCADE & 329A GEORGE STREET, SYDNEY

PHONE M3378



Page Two
WIRELESS WEEKLY Friday, December 5, 1934
Friday, December 5, 1934 WIRELESS WEEKLY Page Three

There's a Reason!!
Why the Owner of every Ormond Condenser tells his friends that he's got an

Ormond

All BRITISH Condenser



WHY ?

ORMOND FEATURES—
RUGGED CONSTRUCTION
WILL NOT WARP
COMPLETE WITH KNOB
AND DIAL
LOW IN PRICE AND RE-
MARKABLY GOOD VALUE
SIMPLICITY IN MOUNT-
ING
LOW LOSS
They are a rare example of
Precision Work

PAPER	
Den.	Size.
0000	10/6
0005	15/6
0010	18/6
0025	13/6
VERNIER	
Den.	Size.
001	14/6
00075	11/6
0005	10/6
0002	8/6

The World's Masterpiece
Standard Equipment throughout the French Army and Navy
Used exclusively at E 14 Tower!

Brunet

The HEADPHONE Superb

Specialized for:

EXQUISITE FINISH	Type "D"	34s.6d.
SENSITIVENESS	4000 ohms	
EXQUISITE FINISH	Type "D"	36s.0d.
TONAL REPRODUCTION	8000 ohms	
COMFORT IN WEARING	Type "A"	37s.6d.
MUSICAL PURITY	4000 ohms	
PERMANENCE OF MAGNETS		

The BRUNET TRANSFORMER
5 to 1 ratio
Shielded Type
Rheostat Knobs
Low Loss Cells

21/- Sold Everywhere

.. Of ALL Dealers ..

Wholesale from
Corbett, Derham & Co. Pty. Ltd.
39 DIXON STREET
Managing Agents for N.S.W.

the Agents:
& Co. Pty. Ltd.
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Ormond
Brunet



All Complete!
1 VALVE SET for £8 : 12 : 6
Nothing More to Buy

Special—1 Valve Set complete with valve, dry cell, Ever-ready A battery, 42V B Volt, 1 pair phones, aerial wire, insulators and 4 coils—English type—made specially by David Jones'.

A very serviceable valve set at an exceptionally low price.
All complete for £8/12/6.

Just Arrived!
New Valves at David Jones'

Phillips B 11 Dry Cell. Price 27/6
Phillips B V1 Tetrode. Price 27/6

"Comet" Crystal Sets
Complete for 63/-

The "Comet" Crystal Set is complete—sembled—ready for installation. It comprises—crystal set, crystal, cabinet, headphones, insulators and 100 feet aerial wire. It has a receiving range of approximately 25 miles, obtainable only at David Jones'. Price, Complete 63/-

DAVID JONES'
For Radio Service
252 YORK STREET :: SYDNEY

The . . .
**Amplifying
Transformer**
is the Magnifying
Glass of Radio



The scientist peering through his microscope gazes upon a fascinating world of cell and germ life so tiny as to be invisible to the naked eye. The microscope magnifies them.

Just so, the Amplifying Transformer magnifies, or amplifies, faint sounds to clear distinct volume so that a whole room full of people can hear them on a loud speaker.



Amplification is the key to Radio

But it is very important that the Amplifying Transformer does not distort the sounds, at the same time it increases their volume. A Transformer that distorts is like a microscope that blurs the vision. The Amplifying Transformer must not only increase the volume, but must also give it to you exactly like the original sound—pure in tone and quality, loud and clear in volume.

ACME Transformers are known everywhere Radio is used for "Amplification without Distortion."

Use ACME TRANSFORMERS in the set you build. Insist on them in the set you buy.

Wholesale
Only

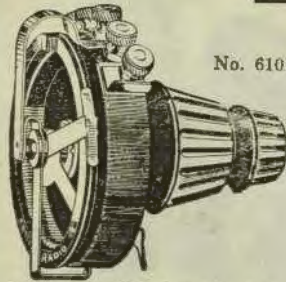
P. H. CLARK LTD.

38-44 CARRINGTON ST., SYDNEY

Phone: City 8469
Box 914, G.P.O.

Frost Guaranteed Parts

make Ideal Xmas Gifts
to anyone who owns a wireless set



No. 610

FROST-RADIO Bakelite Tube Control Unit.

Made of maroon bakelite. Combines in one unit rheostat with vernier, and potentiometer, with two-knob control. All controls work with extreme smoothness. A valuable addition to any set.
No. 607, 6 ohm Vernier and 200 ohm Potentiometer 17/6
No. 610, 35 ohm Vernier Rheostat and 400 ohm Potentiometer 17/6

FROST-RADIO Rheostats and Potentiometers.

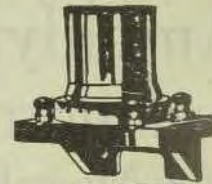
Precision adjustment. Pieces of apparatus that reflect quality.
Nos. 650-2. Maroon Bakelite 6 and 35 ohm Rheostats 7/3
Nos. 651-3. Same with Vernier 9/6
No. 654. Maroon Bakelite 400 ohm Potentiometer. 9/6
Nos. 600-2. Metal Frame 6 and 35 ohm Rheostats. 5/6
Nos. 601-3. Same with Vernier 7/6
Nos. 603-5. Metal Frame 400 and 200 ohm Potentiometers 5/6



FROST FONES.

Made with watch-like precision to respond to the extremely small electrical currents of radio reception. While remarkably sensitive, they also are sturdy enough for many years of use.

No. 161. Frost Fones, 2,000 ohm, Aluminium Head Pieces 32/6
No. 171. Frost Fones, 3,000 ohm, Aluminium Head Pieces 37/6
No. 172. Frost Fones, 3,200 ohm, Maroon Bakelite Head Pieces 45/-



FROST-RADIO
No. 618.

FROST-RADIO
Sponge Base Sockets.

No. 618. Moulded Bakelite Shock Absorber Socket for standard Base Valves 6/3
No. 617. Same for U.V. 199 Valves 6/3
No. 612. Moulded Bakelite Vacuum Tube Socket, Bakelite Panel, Maroon finish, for U.V. 199 Valves. 6/-
No. 107. Same for Standard Valves 5/-
No. 616. Compact gang of three Shock Absorber Sockets, for panel or table mounting, for U.V. 199 Valves 24/6
No. 619. Same for Standard Valves 24/6

FROST-RADIO.

Jacks, all styles 4/6 to 6/0
Plugs, double & single, 4/6 & 5/-
621. Parallel Switches 5/-
608. Push and Pull Battery Switches 4/-
400. Crystal Loose Couplers 75/-
410. Crystal Tuning Coil Slider 27/6

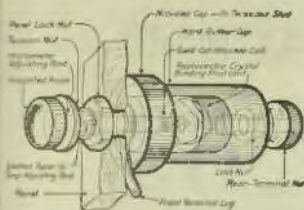
YOUR DEALER CAN SUPPLY ALL THESE!

UNITED DISTRIBUTORS LTD.

(Wholesale only).

72 CLARENCE ST., SYDNEY; 592 BOURKE ST., MELBOURNE;
and at Adelaide, Perth, Brisbane, Hobart, Wellington.

IMPROVE YOUR CRYSTAL OR REFLEX SET WITH Foote Triple Test Crystals



The Variotector is the result of long and constant research by the radio laboratory. The Variotector's metal case encloses (a) at closed end, Foote Tripletest Extra Loud All Over Crystal; (b) at open end, hexagon-head threaded brass bushing; (c) outside, lock-nut; and (d) at extreme outer end, milled head micrometer screw adjusting rod, with its solid gold spring contact.

The Variotector is especially designed, with its accompanying nut and bolt cup, for mounting back of the panel in tube sets, as its front screw allows the necessary adjustments for reflex circuits. It also fits the standard cup of all crystal sets.



A SOLID GOLD 14-BPOT BRUSH-TIP CAT-WHISKER.

Guaranteed: To vary and select exact tension for maximum loudness. No spot escapes its many contacts. Its flexible stem ends in fourteen very fine points. Highest conductivity. Rustless, non-corrosive.

Testing: Each crystal is thrice tested, including once before and once after mounting, by broadcasting in our laboratories under expert operators. It must pass for super-sensitivity on ITS ENTIRE SURFACE.



Mounting: All crystals are hand mounted, best face up, in our low-fusing "Radalloy," fitting the standard half-inch cups. Our crystals are flat and project out so that sensitive spots are easily held.

Guarantee: QSA (your signals are strong) ALL OVER the crystal. We replace any "Foote" with a new one on demand. Look for the "F" embossed on the back. APPROVED BY JACK BINNS, TRIBUNE INSTITUTE, "RADIO NEWS," AND PROVEN BEST BY AMERICA'S OLDEST RADIO SCHOOL.

ALSO THE "FOOTE" VARIOTENSER MULTIPPOINT CATS-WHISKER. SOLID GOLD TONE TRIPLE CATSWHISKER

Foote Crystals can be obtained at David Jones Ltd.; Harringtons Ltd.; Ramsay, Sharp & Co. Ltd.; Nock & Kirby Ltd.; E. R. Cullen; Swain & Co. Ltd.; W. Harry Wiles; Mark Foy's Ltd.; and other leading radio dealers. Trade enquiries from Keith Stokes Pty., Montana House, 27-29 King Street, Sydney.

MURDOCH'S EFFICIENT WIRELESS

Build Your Own Set ———— Murdoch's Special!

A 1 Valve Set for 63/-

Murdoch's Special One Valve Receiving Set in a nicely polished Cabinet. With a guaranteed receiving radius of 150 miles, with one set of coils

Necessary Extras:

1 Valve	£ 17 6
1 B. Battery	£ 9 6
1 4 Volt Accumulator	£ 2 2 0

TOTAL **£6 12s.**

PHONES AND ADDITIONAL COILS CAN BE SUPPLIED EXTRA.



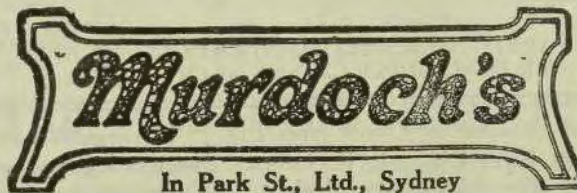
Phones! Phones! Phones!

THE LARGEST SELECTION
IN THE COMMONWEALTH

"PEERLESS" 21/-	Sterling 44/-, 55/-
Pico 25/-	Trimm's Dependable 32/6
Murdoch's 25/-, 27/6	General Radio 30/-
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EXPERT ADVICE ON ALL RADIO
MATTERS GIVEN FREE

Send for Mur-
doch's New
Illustrated
Radio Cata-
logue.



When writing
mention
"Wireless
Weekly"

In Park St., Ltd., Sydney

"The World's Largest Men's and Boys' Wear Store."

RADIOELECTRIC

draw special attention to their complete stocks of

WIRELESS EQUIPMENT

which contain every accessory needed in the construction of valve and crystal sets.

Only the highest quality goods are sold and the price is based on the lowest possible level consistent with such quality.

We are experts on Radio and will freely advise on the subject.

WRITE FOR OUR LATEST PRICE LIST OF WIRELESS ACCESSORIES.

All Metal Polished VT Sockets	2 9	Dubeilier Condensers	3 0
1in. to 1½in. Adjustable Switch Arms	1 3	Marco Jacks, Open Circuit	2 6
Radio Plugs	2 9	Marco Jacks, Double Circuit	3 6
Multi Plugs to take 5 sets Phones	5 6	Marco Jacks, Single Filament Control	3 9
30 ohm Rheostats	4 0	Marco Jacks, Double Filament Control	4 3
.6 ohm Rheostats	4 0	Honeycomb Coil Plugs	1 6
Crystal Detectors	2 6	45 Volt. Hellesen "B" Batteries	15 0
Lightning Arresters, outside fittings	4 6		
4,000 ohm English Double Headphones	22 6		

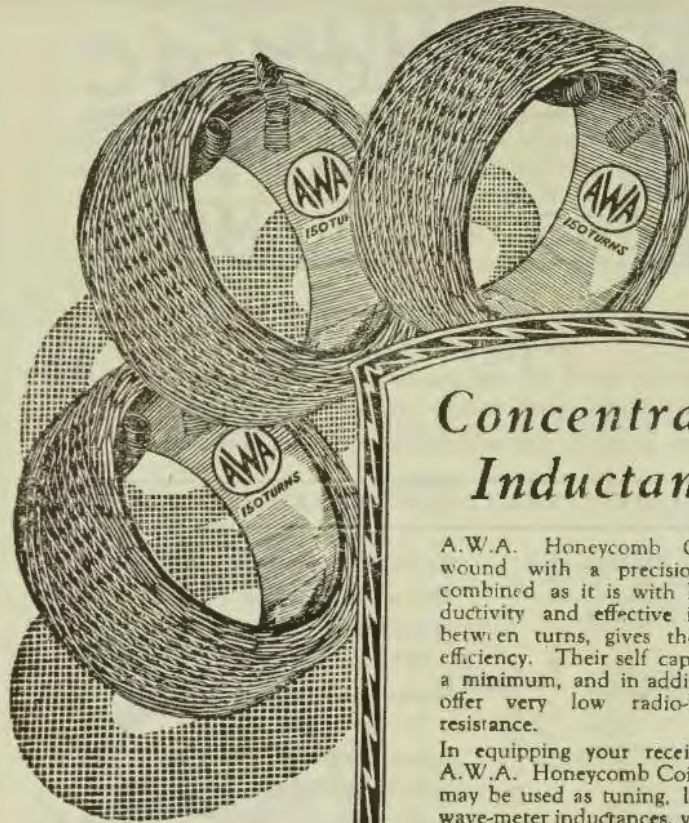
SINGLE VALVE AMPLIFIER UNITS £2/10/-
 2 VALVE AMPLIFIERS £4

RADIOELECTRIC

Wireless
Suppliers

10 MARTIN PLACE
(right opp. G.P.O.)
S Y D N E Y

Wireless
Engineers



Concentrated Inductance

A.W.A. Honeycomb Coils are wound with a precision which, combined as it is with high conductivity and effective insulation between turns, gives the utmost efficiency. Their self capacity is at a minimum, and in addition, they offer very low radio-frequency resistance.

In equipping your receiver with A.W.A. Honeycomb Coils, which may be used as tuning, loading or wave-meter inductances, you secure maximum all-round efficiency.

Each Coil is attractively boxed, a wave-length table being printed on every carton.

Procurable from all Radio Dealers

Amalgamated Wireless
(Australasia) Ltd.

97 Clarence Street, Sydney
'Collins House,' Collins St., Melbourne



PRODUCTS



Phones, Redfern 964 and 930.

Official Organ of the New South Wales Division of the Wireless Institute of Australia, with which is incorporated the Affiliated Radio Societies and the Australian Radio Relay League.

VOL. 5... No. 6.

FRIDAY, DECEMBER 5, 1924

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EDITOR: A. W. WATT The Editor will be glad to consider Technical and Topical Articles of interest to Australian Experimenters. All Manuscripts and Illustrations are sent at the Author's risk, and although the greatest care will be taken to return unsuitable matter (if accompanied by stamps), the Editor cannot accept responsibility for its safe return. Contributions should be addressed to the Editor, "Wireless Weekly," 12/16 Regent Street, Sydney, N.S.W.

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EDITORIAL

Advice Given Free.

WE have seen this sign tacked upon so many places of business running wireless as a sideline during the last few weeks that we are becoming somewhat bewildered as to what really constitutes advice. Here are a few of them; a chemist, a tobacconist, a sweet shop, and a small shop selling children's garments and wireless apparatus.

Those possessing an ordinary grip on the subject will not deny that to tackle the weighty question of offering advice upon wireless matters requires not only courage but an extensive technical and practical training. One has only to listen to conversations on trams and ferries to realize that half the world is giving the other half hints upon the making of wireless sets. It is, however, one thing for a fellow traveller to proffer advice to an enthusiast, but quite a different matter for a dealer to vent opinions to the prospective purchaser, who in the main relies absolutely upon what is told him by the dealer. The tobacconist mentioned above, met the situation satisfactorily, from his point of view, by referring inquiries to a writer of articles in this paper living not far away. Others are not so fortunately situated however, and we have correspondence from readers showing beyond all doubt that had they not appealed to us for confirmation of advice given them by certain suburban dealers, they would have been put to expenditure which was entirely unwarranted.

There is no reason to believe that the dealers were not sincere according to their beliefs, but there is a positive danger in a dealer hanging out the advisory sign unless he is in a position to deal with his clients' problems in a proper manner, or has somebody in attendance who is competent to do so.

The inception of every new industry is invariably accompanied by an epidemic of Get Rich Quicks whose sole object is to clean up while the going is good, and then get out. Since the figures disclose that within a radius of four miles of the G.P.O., Sydney, there are over 600 licensed radio dealers, we may take it that the radio industry is no exception. Every suburb houses, what might be termed its "Back Yard" dealers, who, having taken out Dealers' Licenses, proceed to manufacture receivers and sell them under the old and oft exposed war cry of "less than city

prices," to people who naturally are not in the position to judge whether what they are purchasing is absolutely satisfactory or not. While not denying that the operations of some of these dealers are quite open and above board, we have on record the case of a small tailor who entrusted the making of a three valve receiver to one of them, waited three months for delivery and then found that the results were not up to expectations. In disgust, he cancelled the order and approached a dealer in the city, with the result that within twenty-four hours he was supplied with a two valve set which was not only satisfactory, but put up a better performance than the three valve set mentioned before. Generally speaking, these "Back Yard" dealers are not in a position to give service, which is after all, the most important aspect of the wireless business generally. Service means an absolute assurance that the customer is satisfied and that whatever little problems may crop up will be given the fullest and most expert consideration, especially from a technical point of view.

On the advertisement pages of this journal will be found the announcements of firms who in many cases have spent years in building up a wireless business founded on service, and their advice is based upon long experience of the best type of apparatus or complete receivers that will function in various localities. They have spent hundreds of pounds in research work and experimenting and the result is passed along to the public in the form of receivers of undisputed efficiency.

These dealers constitute the foundation stone of the Australian Wireless Industry, and it was mainly due to their efforts that organised broadcasting is now in operation.

Therefore it pays to patronise those whose integrity is unquestionable and whose business operations are such as to ensure the public an adequate return for money spent.

Fair Play.

THE subject of regeneration is a weighty one, and one that we recommend to the earnest consideration of some of our readers. It is not so much a question of what regeneration is, but how to use it, and it is only necessary to tune in to certain wave lengths and to hear the eerie chorus of radiating receivers to be fully convinced of the fact

BUY RADIO FOR XMAS.

that lots and lots of listeners are not familiar with this important subject.

The report of the official in charge of "The Covered Waggon," which is touring America under the auspices of "Radio Broadcast" shows that in certain districts or territories, broadcasting is practically killed by the mis-use of regeneration by listeners-in, and as an antidote he recommends either a campaign of education, or an appeal to the better nature of those who wilfully cause interference with the pleasure of others in this particularly mean way. There can be no other term for it, because it is a very easy matter to so control a receiver that it will not radiate.

Mr. MacLurean tells us that a few mornings ago while trying to read the signals from England, his efforts were constantly hampered by two howling valves. That is to say, two selfish persons, not possessed of ordinary sportsmanlike instincts, and presumably out of curiosity, deliberately blundered across 2CM, despite the fact that it is well known that he has been trying for months to get through. It is perhaps natural to assume that most of us would have felt bound to keep off until 2CM had finished his job, and as is typical of him, passed on to fresh experiments. Not so these two, however, it seems almost incredible that, when an experimenter is pursuing some particular line of research, he is forced to work in secret; otherwise, so fierce is the interference caused by the onlookers, the work has to be abandoned.

Surely there is in all of us that latent spark of sportsmanship, that indefinable spirit which prompts us to hold off and give the other fellow a chance! Surely we would rather assist him along than deliberately put the blanket on his efforts. The moment we feel that the sense of fairplay is dead in us, then the sooner we get out of the wireless game the better.

RADIO INTEREST IS WORLD WIDE.

WHILE the activity in amateur radio work and in broadcasting is still greater in the United States than in any other nation, the past year has brought about marked changes in the situation in many other countries. To-day few are the nations which have not recognised the popular interest in radio by the enactment or revision of regulations of one sort or another.

Naturally the development abroad has had its greatest growth in Europe. In the British Isles, France, Germany, Sweden, Switzerland, Holland, Belgium, Denmark, and Czechoslovakia, the broadcasting of programmes of entertainment and news is on a regular basis, while in Italy, Finland, Spain

and Austria, programmes are sent out at irregular periods, with a decided likelihood of regular schedules being adopted in the no great distant future. In other countries of Europe there has been some sale of long-range sets to pick up British and French stations.

In South America, Argentine stands out as having made the greatest progress in the dissemination of music and other entertainment by radio telephony, while Chile also maintained a regular broadcasting service. For a time regular services were also maintained in Brazil and will undoubtedly be re-established in the course of time. Uruguay, as a result of broadcasting from Buenos Aires, has shown considerable interest in radio, and in Peru arrangements are going forward looking towards the establishment of regular service.

Australia and New Zealand have each displayed much interest in the new art, and in view of the recent lifting of hampering regulations in Australia a marked expansion in radio interest is looked for. In the Orient, little has as yet taken place, though India and Ceylon are opening up, and intermittent broadcasting is being provided. In Japan, adequate legislation has been enacted making provision for the establishment of broadcasting stations, but little progress has taken place. In China, radio is technically barred under an embargo forbidding the entry of anything usable as war material, though in the British port of Hong Kong and in the international settlement of Shanghai some broadcasting has been done.

In no foreign country is the use of radio receiving sets as free and unrestricted as in the United States. Even in Canada users of receiving sets must pay a nominal license fee therefor, while in some countries the restriction imposed and the license fees assessed are onerous.

While most of the countries which have enacted legislation on radio telephony during the past year or two have established certain wave bands, not varying widely from that in America, which must be used for private broadcasting, not a little of the European broadcasting is at wave lengths greater than those in use in the United States and for which American sets are designed.

Designed as a rule for the wave band provided for broadcasting in that country. American radio sets, and certain parts, have been handi-

(Continued on page 15, Co. 2)

FOR SALE.—3 Valve Set, complete with Phones, Valves, Batteries, etc., £25. Geo. E. Cooper, 35 Tabrett St., Banksia.

HEADQUARTERS
Royal Society's House
5 Elizabeth St.
SYDNEY, N.S.W.

Wireless Institute of Australia

N.S.W.

Div. Inc.



Incorporating the Affiliated Societies and The Australian Radio Relay League

Phil. Renshaw, Hon. Sec.
Box 3120 G.P.O. Sydney
Phone B2235
A.H. Perrett, Publicity Officer.

D.X. Work.

It is very gratifying to note that Australian amateurs have established two way communication with England. In quick succession, Messrs. Maxwell Howden, J. Davis, and Chas. MacLurean have worked experimenters in the old country, and it is a matter for congratulation that every one of these gentlemen are members of the Wireless Institute of Australia, two of them belonging to the New South Wales Division. It shows that much real experimental work is being accomplished by members of the Institute and the facilities which are offered for the genuine experimenter hardly need further emphasising, when it is remembered that Mr. MacLurean is a foundation member of the N.S.W. Division of the Wireless Institute, and Jack Davis is one of two honorary members.

The fact that they have used rather more power in their achievement than is usually employed by amateur transmitters really cuts no ice, as this is but a prelude to further tests in which the power will be cut down. To each and all of these three gentlemen we extend our heartiest congratulations. We feel ourselves honored by association with them, and there is no feeling of jealousy among any of their fellow experimenters, because it has long been recognised that these gentlemen would be the first to establish two way communication. It was merely a question of which one would be the first to get through. Carry on the good work. It is such achievements as these that will place Australia and Australian experimenters more firmly on the map than ever before.

New Headquarters.

The Wireless Institute of Australia, N.S.W., Division, is now comfortably settled down in their new headquarters at the Royal Society's House, 5 Elizabeth St., Sydney, and members of the Institute should take an early opportunity of visiting the new premises and inspecting the library and office accommodation. The phone number remains as before (B2235) and postal address will still be Box 3120, G.P.O., Sydney.

BUY RADIO FOR XMAS.

General Meeting.

The next general meeting of the Wireless Institute of Australia, New South Wales Division, will be held in the Royal Society's Hall, 5 Elizabeth Street, Sydney, on Thursday, December 18. It is hoped that members will keep this date clear and will make an effort to be present on that occasion as it will offer an opportunity for many, who will otherwise be unable to inspect the new headquarters to do so before the meeting.

Transmitters, Take Notice!

We have been asked, in view of the fact that many transmitters confuse certain letters of the alphabet, to state definitely the correct pronunciation of the various letters as used by the Army Signal Corps. It appears that there is quite an amount of uncertainty in this respect, but it can be stated definitely that all letters of the alphabet are pronounced in the ordinary way with the following eight exceptions, which on account of their similarity with other letters and the confusion which is likely to arise from their pronunciation, in the ordinary manner, have been given the following special phonetic forms:

- | | |
|---------|----------|
| A—Ack. | P—pip. |
| B—beer. | S—esses. |
| D—Don. | T—toc. |
| M—Emma. | V—Vic. |

QRM. de 2DE.

A very agitated member called at headquarters this week. He wanted to know what had happened to 2CX. He feared a tragedy, and stated that he thought 2CX had cut his throat. At least his buzzer sounded like it.

Mr. Malone has been in Sydney for a fortnight. We were not aware he was going to stay so long. If we had we would surely have had an Executive Council Meeting. Perhaps it is as well we didn't as telegraphs have been occupying his time to the limit.

Mr. Crawford has gone to Grafton. Unlicensed broadcast listeners beware. We have good reason to believe that Mr. Crawford wants many country cases. The fines are likely to be progressive.

First £2; second £4; third £8; fourth £16; Fifth £32; and so on, in view of the severe comments made by the Sydney judges in dealing with the local cases. All experimenters are smiling.

2DE reports an enormous QRM from experimental stations at Great Mackerell Beach. They interfered very much with his screening test, breaking down all his old theories of a Mackerell screen.

Last Friday night an Institute party, Messrs. Perrett, Cutts and Carter were conducted by 2DE to 2J1, 2CX and 2BF's experimental stations. It is reported 2BF lost a valve. Many more visits are being planned.

What has 2BB done with the Institute's audibility metre as replies to date have been inaudible.

In spite of his appropriate (?) epithet 2JM is still going strong. He can be heard any night after broadcasting hours, but you should be careful how you apply endearing names to him. Anyhow he won the W.W. tests. An Institute man again.

War.

It behoves us to prepare. Pull together and do serious work and organise. Should this country ever be involved in war our communications will be our first line of defence. Each and every experimenter is concerned. Join up and do your best.

A. H. PERRETT,
Publicity Officer.

Engraving Panels

THE amateur who constructs his own apparatus is often at a loss for a method of suitably identifying the various terminals and other items on the face of the panel. In the majority of cases where the apparatus has been constructed in a neat and workmanlike manner, the owner is unwilling to try his hand at engraving, for fear of spoiling the appearance of his instrument.

When it is remembered that many a receiving set is valued in hours and hours of patient labour, this reluctance is understandable. Of course, the lettering can be marked on by a jeweller or other skilled workman, but this is, in many cases, an expense that cannot be undertaken.

With a little practice and given some patience it is within the ability of any amateur who is able to construct his own set to engrave the panel. As this panel is to be the outward and visible sign of the labour which has been spent on the whole of the apparatus, it is surely worth while giving a little time to it, and thus ensure a workmanlike finish to the complete instrument.

The method described here has been tried with success many times, but in order to ensure neatness on the panel itself, those who experiment with this method are advised to try it out first on scrap pieces of ebonite.

Draw with a lead pencil, preferably a fairly soft one, the required letters or figures on the face of the panel. The actual engraving should be done with a fine steel point, such as the point of a pair of dividers. The dividers should be wrapped with some material so that they may be held when hot. The point then should be heated in the flame of a spirit lamp. The letters may then be engraved on the panel, care being taken that the point of the dividers is not made too hot, otherwise the ebonite may be scorched and the finished lettering present an untidy and ragged appearance.

The required heat may best be found by experiment upon spare ebonite before any attempt is made upon the panel itself. As a rough guide it may be stated that the heat of the steel point should not be more than sufficient to engrave one letter at a time.

In order to draw the letters neatly, make two parallel lines about an eighth of an inch apart as a guide, and space the letters evenly. A suitable filling can be made by mixing clear gum and powdered white chalk into a smooth paste. This paste should be smeared on the panel around the letters, and before it has time to dry, should be rubbed off with a soft cloth. Just sufficient paste should be left in the letters to show up clearly, without the paste being thick enough to remain raised above the panel. This filling should also be practised on spare pieces of ebonite.

(Continued from page 13)

capped to some extent in other markets. On the whole, however, it may be expected that the situation as regards wave lengths will tend to improve and that there will be less and less handicap from this quarter.

The interest shown by plantation owners, mine operators, ranchers and the like in the interior of India, Ceylon, Central America, South America, and part of the East Indies is sufficient to indicate that the field is there. In part, of course, the potentialities of these fields cannot be developed until better broadcasting is provided at points within a distance that can be regularly and reliably covered by a good modern set. However, in the case of sections, such as Central America, Northern South America, the West Indies and even many of the Island groups of the South Seas, the high class set will to-day enable the isolated planter or mine operator to reach some of the more powerful American stations.

With Our Readers

(To the Editor)

Sir—WGY, the new Western Electric station, who broadcasted the special concert recently, came in strongly, and I was able to pick same up within one minute from the time Broadcasters temporarily closed down at 8.30 p.m. to leave the field clear. Three of the items were so strong on the phones that the loud speaker was introduced, and these items could be heard all over the room. Although 2BL commenced again at 9 p.m., this did not interfere with my reception of WGY and I held them until nearly 10 p.m., when I purposely tuned them out to listen in to the steel guitar item from 2BL. Fading was noted. Later 6WF came in very clear and was loud speakered. The reception of WGY can be verified.

Yours etc.,

Box 5, P.O., Albury.

P. HOULTON.

(To the Editor)

Sir,—In reference to T. R. Anthony's letter in your last issue to hand, I can report having received three of the stations he mentions, namely, 4AG, 4AA and 3BD, all on a Reinartz detector and under extremely adverse conditions as our well known "roar" was doing its worst at the time.

Can any reader tell me the QRA of 1XL. Have heard this call sign several times before on about 150 metres on C.W. The following is part of a message logged last night: "... bad QRN hr 1XL, 1XL, K.K.K." He does not appear in any call sign list I have.

Yours etc.,

P. OAKLEY FYSH.

Tasmania.

Charles St., Launceston,

To the Editor.

Sir,—I am sorry you had to disagree in regard to the broadness of 2YI's transmission but quite believe that you do receive most of the amateurs sharply on your "low loss" set. With the very greatest respect I may suggest that with that set it is possible that you tuned in one of 2YI's many harmonics and as you know "harmonics" are always intensely sharp. I got 2YI on 580 metres (harmonic) almost as loud as on his true wave and very strong also on 1050 metres and again on a very low wave but on his true wave viz. from 210 to 220 (whichever he elects for the time being), I find

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his signals readable on every wave from 180 to 320 metres and by no possible means can he be shut off—numbers of amateurs have the same experience. 2JM and 2BF are also broad but not nearly so as 2YI. 2YA, 2YG, 2BK, 2GR, 2JR, 2HM, 2CR, 2ZN, 2GQ and hosts of others logged are intensely sharp and such transmissions are what the transmitters should all earnestly strive for. The air should be in such a state that each station could be tuned in one after the other with clock like precision and certainly if 50 stations can show that this can be done, what is the sense of one or two persisting in making their presence felt everywhere. Your reference to 2CM and 2DS not being mentioned, your explanation therefore is in a measure correct. To tell the truth, I did not think such super-wireless men would bother to enter into such a competition. Those gentlemen have assured their position as the two most proficient amateurs in the Commonwealth and as I thought would give the infant amateurs a chance. With 2CM and 2DS on the air it would be invidious to make any comparison to the gramophone grinders. I heard 2CM not long ago announce that he intended to cease organ grinding on the air as it appeared to him that the general public were quite well enough served by the regular broadcasters and mournfully complained that not any one rang him up or sent encouraging cards as heretofore and no doubt he stated the case exactly. It is only a small section of the amateurs' nearest friends that tolerate their broadcasting and amateurs may be assured that the wireless authorities will not consider any achievement in that respect warrants a renewal of experimental licenses—what is required from amateurs is original "research". Has any amateur devised a circuit of improved efficiency? One hears of the Hazeltine, the Reinartz, the Cowper, the Scott Taggart, the Captain Round, etc., but when is one to hear of the Nolan, the Marsden, the Forsyth, or the Renshaw? The question might also be asked and what about yourself; the Macrow circuit has not been heard of either. Well, sir, it is here.

It is a starter, and can be inspected at any time from 11 a.m. to 12 midnight at the address mentioned below, as I have nothing to do night or day but experiment with wireless, and am at it constantly from 10 to 12 hours daily, and will only be too pleased to receive wireless visitors. The "Macrow" circuit will probably be patented if it stands the patent office enquiry scrutiny and naturally its construction is at present a secret, but as I said before its operation is on evidence at any time. Permit me to suggest to the amateurs who are at present mystifying your readers with the

wondrous results of music without phones—to disconnect their condensers one by one replacing them by new ones of the same value and the offending "singing condenser" will soon be located. Your correspondent has forgotten or perhaps never heard of the "singing condenser" invented some years ago to act as a loud speaker—a contrivance composed of a number of fairly large condensers arranged on a resonant sounding board which faithfully reproduced music and speech at very fair strength indeed. By the way, I have been requested by many of the general public to use my influence to procure the shutting down of the "amateur broadcasters" on the occasion of the next attempt by the American broadcasting station to entertain the Australian public. What is meant is not merely shutting down transmission but the shutting down of these stations altogether. It was found on the last occasion that the frightful howling of the expert amateurs' valves absolutely spoilt every attempt to receive the Yank, notwithstanding 2JM's long wireless military description of the airline fight to the contrary. As you know, the two great broadcasters announced that the American broadcasting was for the Australian public in general and not, as apparently wrongly conceived, for the benefit of Sydney "experts" in particular.

Yours etc.,

S. A. MACROW.

55a Brown St., Paddington.

(And that's that. If our correspondent will refer to an Editorial in the issue of September 19th, he will find that we are heartily in accord with many of his sentiments concerning the mis-use of the term experimenter. The pumping of gramophone records for the edification of listeners-in, or even the delivery of lectures cannot be defined as experimenting. However, the signals we received from 2YI were on his stated wave length, and were quite apart from the harmonics which by the way are not peculiar to that station alone.

The recent Wireless Weekly Transmitting Test Week is perhaps inaccurately described as a competition by Mr. Macrow. As was pointed out when we organised them, these transmission were designed primarily to attempt to gain a little data that might be useful to Experimenters. The fact that so few co-operated—especially listeners-in—seems to indicate that the matter was not of sufficient interest.

There was only one reason why 2DS and 2CM joined in (they were among the first to offer their services) and that was to help the thing along—Editor.)

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(To the Editor)

Sir,—Will you permit me to explain the phenomenon which appears to be puzzling Mr. P. Boulton, "Frequency" and others of your readers. I wonder if these gentlemen have ever noticed that when walking along certain suburban thoroughfares they hear when passing overhead transformer substations (that is, points where transformers are carried on the poles at a height of about 18 or 20 feet), a distinct, monotonous, low-pitched hum, a 50 period note in fact. This hum proceeds from the transformer, the iron core of which is being rapidly magnetised and demagnetised by the alternating current. It is now established that molecules of iron are all permanently magnetised and that they are normally so set as to produce no magnetic field exterior to the iron. On the application of a "magnetising force" such as that due to a coil carrying a current, the molecules are constrained to move into such positions as cause the iron to exhibit the phenomenon of magnetisation.

The movement of the molecules against the frictional resistance due to their being in contact with each other causes heating. When subjected to an alternating magnetising force the molecules are continually moving, with the result that the iron heats up appreciably. Hence part, at any rate, of the "iron loss" in the transformer.

The hum referred to is due to the molecular vibration having a frequency equal to that of the current supplying the magnetising force. There is no difference in fundamentals between a power transformer and an audio transformer. The function of the detector in a radio set is to convert fluctuations in magnitude of a high frequency current into currents of a lower (telephonic) frequency which are then amplified per medium of the audio transformers and valves. The frequency is of course much greater than in the case of the power transformer. The magnetising force is much smaller—yet is not so small as may be imagined. Have your readers ever received a shock which is distinctly due to an alternating current at the terminals of a loud speaker?

The iron cores, unless tightly clamped, will vibrate sufficiently to be evident if the core is lightly touched with the tips of the fingers. However tightly clamped, the molecular vibration cannot be got rid of. (If it could be stopped the transformer would cease to function.) I am of the opinion that it is quite unnecessary to go further into the matter as sufficient indication of the cause of the phenomenon has been given.

"Frequency's" theories on vibration, etc., are diverting. I propose to deal with one or two of

them: (a) Why should the jacks vibrate "about their contact points?" (b) Alternating currents of electricity might be considered as "vibratory forces" but what about direct currents? (c) Placing a finger on the aerial or grid circuit does not damp out a vibration, it merely throws the set out of tune and provides an external path for currents through the capacity to earth of the body. (d) A nail is not driven into a piece of wood for the reason given. The hammer, in its rapid passage through space, stores up a comparatively large amount of energy which it gives up to the nail. (e) The man's finger was not crushed by the steam hammer because the operator had such fine control that he was able to arrest its descent at the right moment and not because of the rapidity of its motion. It worked just as rapidly whilst forging the crank shaft.

Yours etc.,

E. JOSEPH.

(To the Editor)

Sir,—Listening on one valve with two pairs of fones in parallel and having successfully received 6CGO working with 2DS between 8.30 p.m. and 8.45 p.m. on 14/11/24, 6CGO and 2CM at 7.50 p.m., 25/11/24; 6AWT and 2CM at 8.10 p.m. to 8.20 p.m., and 4TJ (U.S.A.) and 4AK (N.Z.) at 8.50 p.m. to 9.5 p.m. on 24/11/24. I received word last night (25/11/24) of 2CM and 2DS getting through to 2OD (England) and this morning (26/11/24) on one valve I heard 2OD (England) calling 2CM, and in communication at these times—4.43 a.m., 4.49 a.m., and 5.4 a.m. The strength of 2OD was good, but owing to a "Joey" being right on him the full strength of signals could not be properly determined. However, this will serve to confirm the report of to-days "Herald" that 2OD was received on one valve. The wave lengths appeared at a rough guess to be 75 (2CM) and 85 (2OD) metres.

Yours etc.,

Mintaro Avenue,
South Strathfield.

T. H. HARRIS.

(To the Editor,)

Sir—I am about 350 miles air line from Sydney and have an inverted L aerial 46 feet high at receiver and 48 feet at free end, and 110 feet long.

About two months ago I built a loose coupler crystal set and had no trouble getting VIS any time after dark, also several stations which I could not copy. I also heard music and speech on a longer wave length but the music was very faint and speech not readable. Later on I placed a

valve in the circuit as detector in place of the crystal and discovered that the music was coming from Farmers (2FC.) By using the crystal as detector, without valve, I can get him very faintly almost any night. By using the valve as detector with the loose coupler and making use of regeneration, I can get 2FC and 2BL every night very clearly. 2BL's transmission is very clear and every word can be heard distinctly but I can only get his carrier in daylight. 2FC is just audible in daylight. The other day I discovered something peculiar. By placing a piece of paper underneath the slider on the primary of the loose coupler (thereby cutting out the earth) I could hear distinctly the whole of the two way conversation on the telephone. I find I can do this any time anyone is speaking on the telephone, no matter where the set is tuned so long as the valve is connected up and alight. Can you or any of your readers explain this? The nearest point of aerial and telephone line is about 80 feet. Both have independent earth.

Yours etc.,

R. H. CLARK.

"Gamalally," Collareenbiri.

(To the Editor.)

Sir,—If Brasso would care for it, I shall be happy to furnish him with the name of the "ENGINEER (large type please)" who was responsible for the design of the "alleged 3 K.W. Set installed on the S.S. 'Bulla' and also of the 'frightful balanced carborundum affair.'"

The design for the latter was not by the way wholly the work of the Radio Service and not at all the work of the staff at Randwick Wireless and Electrical Workshops. It was a slightly modified design of a tuner developed by a concern commercially interested in wireless.

At the period of which "Brasso" writes, all the vessels of the Australian Mercantile Marine were fitted with spark sets only, ex-German vessels having their Telefunken gear removed and sets of local construction installed in its place. I shall be pleased to forward for reproduction if you care to have them, photographs of the type of set installed in S.S. "Bulla" and also of a set designed at Randwick to supersede it, during the time I occupied the position of designing Electrical Engineer there.

I note "Brasso's" remarks re the note emitted and am surprised that he was unable to correct it as there was a simple adjustment provided for that purpose.

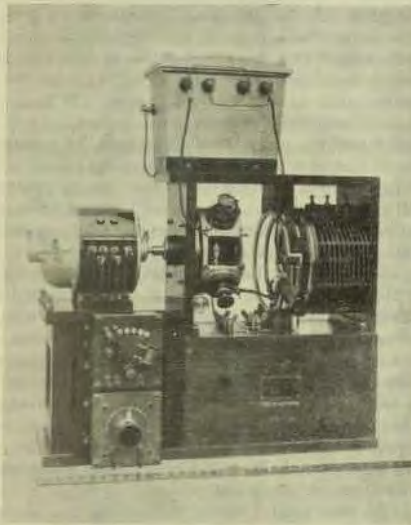
It was possible to make the note rise several octaves during the time required to "make" a long dash or, by a different adjustment to make it fall

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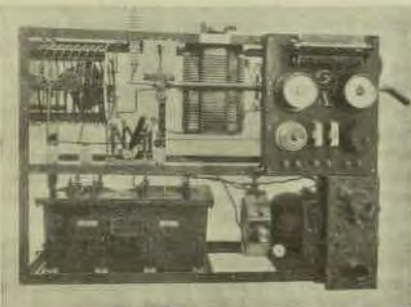
instead, and clearly to pass from one extreme to the other it must have passed through a position of no change in note.

Yours etc.,

E. JOSEPH.



The Set on the "Bulla."



Set designed by Mr. Joseph.

CROYDON RADIO CLUB.

The weekly meeting of the Croydon Radio Club was held on Saturday, November 22, at the Club-rooms, "Rockleigh," Lang Street, Croydon, at 7.30 p.m.

The meeting night, after a short discussion remained unaltered. Lively discussion took place over the experimenters' position under the new regulations.

Mr. Phil Renshaw delivered a most interesting lecture on "Vacuum tubes and their Operation," which received marked appreciation from those present. After supper the meeting closed at 10.30 p.m.

All intending members are respectfully invited to communicate with the Hon. Secretary, Mr. G. Maxwell Cutts, "Carwell," Highbury St., Croydon

THE LEICHHARDT AND DISTRICT RADIO SOCIETY.

On Tuesday, November 25th, members of the Leichhardt and District Radio Society held their 109th general meeting at the club-room, 176 Johnston St., Annandale.

The attendance was very satisfactory, and the main business of the evening was the delivery of the eighth lecture of syllabus No. 2 by Mr. E. J. Fox, who dealt excellently with the interesting and instructive subject of "Batteries." The construction and action of the various types of batteries were explained clearly and in detail, and the lecture was much appreciated by all present. At its conclusion a number of questions were replied to by Mr. Fox, after which a vote of thanks was carried by acclamation.

During the meeting discussion took place on the question of members being present at the "all-experimenters' night" arranged by the Wireless Institute of Australia, to be held on the following Tuesday night, and it was decided that the Society's 25th monthly business meeting be postponed until December 9th, to enable members to be present on that occasion.

On Tuesday, December 16th, the Society will hold its 112th general meeting, when the 9th and final lecture of syllabus No. 2 will be delivered by Mr. F. Thompson, who will talk on "Valves," and on Saturday, December 20th, a launch excursion will be conducted.

Inquiries regarding the activities of the Society should be addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Booth St., Annandale.

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Some Further Hints on Receiver Faults

By "SQUEAL"

CONTINUAL crackling, rushing, roaring noises that drown all signals save the loudest, and cause one to tear the phones off, gently or otherwise, according to one's temperament, are the most common symptoms of a "seedy" valve set. The worst part about it, too, is that there are quite a number of different things that can cause the trouble. Probably the most usual is that one of the cells in the H.T. battery has developed an internal fault, and is indulging in a little effort of local and individual internal activity — in other words, is "dud." By cutting cells out of circuit one by one, the faulty cell can sometimes be located and dispensed with; but the best scheme is to endeavour to borrow another H.T. battery from the owner of another valve set to try out, because generally speaking, when one cell of an H.T. unit gives out, the others will very quickly follow. Buy another battery, but do not throw the old one away, because, to a certain extent it will recover and will prove a useful "stand-by."

Having tested the H.T. battery and finding that to be O.K. the next thing to do is to examine the accumulator. Take note whether there is any sign of sulphating, which can clearly be identified by the white substance that collects on the plates should this be happening. Sulphating is caused by carelessness in not keeping the cells well charged or in allowing them to stand idle for lengthy periods without attention. To avoid trouble from this source, everyone that handles accumulators should possess a voltmeter, and should test the cells while they are connected to the set, with the valves turned on, at frequent intervals. As soon as the voltage per cell falls below 1.8 volts under these conditions it should be taken along to the electrician for re-charging.

Some Elusive Points.

Keep the terminals of the accumulator well greased to prevent corrosion, and the top dry and very slightly greased to prevent acid creeping. If the aforementioned advice is strictly followed, there will be one, at least, of the many causes of "roaring" prevented.

The next possible cause lies in the metallic connections of the circuit. A loose or dirty connection can cause the trouble, and all leads, terminals, plugs, and sockets should be run over and carefully cleaned and tightened. Take out the valve or

valves, and clean the valve pins or "legs" and their sockets. Examine the small terminals situated on the back of the telephone earpieces. Possibly there might be a fault in the earpieces themselves. They might even be partially burnt out if very heavy work has been carried out without the insertion of a telephone transformer. If there are several telephones in series on the set, try shorting them, one pair at a time, and if conditions should improve to any considerable extent while doing so, then the telephones that are so "shorted" will be the culprits. The same test can be carried out with each individual earpiece by connecting their little terminals together.

Examine the filament resistance from the point of view of its action, and run it backwards and forwards several times rather quickly; this will, of course, clean up the point of contact between the moving arm and the wire. That fairly well covers all possible causes of the "roaring" trouble, as far as the outside of the set is concerned, and should the careful application of all the foregoing tests not result in successfully cutting it out, then one can only come to the conclusion that the fault exists somewhere in the inside wiring.

At this point I would not advise the beginner to attempt to dismantle the set, although later on I hope he will find that it is not much more difficult to deal with the set from that point of view than it is from the outside.

Local Interference.

Intermittent rushing and roaring sounds can be caused by the passing of electric trams, whilst regular humming sounds can be induced from electric light or power mains, and it is only fitting in such an article as this that a few words should be said on how to handle such interference. In the first place, aeriols, wiring, and earth leads should be kept as far away from, and as near to right angles as possible, to any electric light, power, or phone wires or cables. Should one be situated uncomfortably close to such mains or to a tramway or power station, then undue low frequency amplification should be avoided. Such interference is usually of low frequency, and therefore it stands to reason that low frequency magnification should be avoided. Two L.F. should be the maximum, and should only be employed where a stage or so of H.F. amplification is used, as this latter will not

to a certain extent as a filter to such disturbances. Better still, cut L.F. amplification out altogether, and give the loud speaker a miss, sticking to the phones, which, after all, have quite a number of other advantages.

Having carefully taken note that the above has been carried out carefully, and still the interference is markedly noticeable there are still a few other things that can be done. The most useful will be to employ what is known as a counterpoise, or balanced earth. Quite a number of the disturbances mentioned above make themselves evident in the form of earth currents caused by leakage, and the introduction of a balanced earth will prevent such currents entering into the set. In effect, such an earth is really another aerial similar in dimensions, directions, etc., to the real aerial, and insulated in the same way with the usual insulators and led in tube, but suspended only a few feet above the ground. Should this fail, then as a last resort, one can try screening the set. This is accomplished by either placing the complete set in a box, made of soft sheet iron, so that as little of the set and its wiring is exposed as possible, or by lining the inside of the set, should it be fairly easily accessible, with lead or tin foil. In each case, a wire should be taken from the screening material, and connected to a direct earth, and not the balancing earth. The object of such a screen is to shield the set from the electromagnetic waves generated by such things as A.C. mains, "sparking" tram cars, etc.

Complete Failure.

Now we come to perhaps what is the most baffling of all symptoms—complete failure. There is nothing so totally disheartening to the beginner as a valve set that absolutely refuses to produce a sound in the phones. Practically all the points dealt with in that part of the article dealing with continuous rushing and roaring noises obtain in the case of complete loss of signals. Connections must all be examined, tightened and cleaned, etc., just as detailed in the other case. Perhaps the H. T. Battery has completely "petered out." Test it by momentarily shorting it with a small piece of wire across its terminals. A nice, crisp spark should result; if it does not, then the days of that particular battery are numbered. Don't carry out the same test in the case of the accumulator employed for the filament lighting of the valve, because this type of battery does not possess the internal resistance of a dry battery, and would therefore momentarily pour out as much current as the wire would carry. As you will by now no doubt know, this would cause the cell to discharge more current than it should be allowed to do, which

would cause the plates to buckle. However, it need hardly be added, even dry batteries should not be unnecessarily "shorted," because, as a matter of fact, their design is such that their rate of comfortable discharge is considerably below that of its voltage divided by its internal resistance. That is a little application of ohm's law which you need hardly worry about if you are not interested.

"Freak" Results.

Dealing with total loss or partial loss of signals, mention must be made of the aerial and local conditions. However, as such articles as "Hints on Aerials" and others that have appeared in this paper have dealt with the faults and maintenance of aerials in detail, I will pass the aerial and its insulation and freedom from damp, etc., as O.K.

With regard to local conditions I must make mention of what is known as amplifying heterodyning. This is, in effect, the re-radiation or building up of the ether waves by the relaying action of the more powerful valve receiving stations. Such is presumed to be the cause of many of the so-called "freak" results obtained on crystal and one valve sets, and would appear to be a quite feasible explanation. Therefore, should you have several neighbours who possess 5, 6 or 7 valve sets, there may come an evening when not one of them is enjoying the reception of broadcast concerts, and you are not able to obtain assistance in your reception by means of the relaying action of such stations. This is put forward more or less tentatively and may well be open to criticism; but if accepted, provides, anyway, quite a possible explanation of such phenomena as "fading," and general "freak" results, which, although quite an interesting sideline of wireless, are rather without the scope of discussion in this article.

The Indian Radio Telegraph Co., Ltd., with a capital of about £1,500,000 has been registered in India for the purpose of erecting a large wireless station near Bombay, to be connected with the Imperial Wireless Chain. Messrs. F. M. Chiney & Co., of Bombay, are organising the enterprise, and have obtained all rights from Marconi Wireless Telegraph Co., Ltd., London. The proposed station planned will be one of the most powerful in the world, and will use American apparatus. An application to the Indian government for a license to erect the station will probably be granted this year. The station is expected to be completed in 1925. Cultan M. Chinroy, a member of the board of directors, will visit the United States shortly to purchase the necessary equipment.

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BRINY REMINISCENCES

By "BRASSO"

THE screw thumping steadily, we sauntered down the Gulf of Salonika and eventually the good ship poked a blunt but honest bow into the deep blue waters of the Mediterranean. The day was typical of those beloved by novelists who write wonderful books descriptive of that frequently unromantic romantic sea, blue sky overhead, deep blue depths beneath us, the air mild and sweet, and the blue clad Grecian hills sliding silently and picturesquely by to starboard. In the offing, a white-winged schooner tacked on a long and slow course, away on the port beam, a single unit of the Greek Armada, painted dull grey and belching forth a lazy cloud of black smoke, moved in leisurely fashion towards the East—a perfect day, and one that set the third officer, usually characterised by a deep and solemn silence, to humming snatches of square rigged chanteys as he prowled up and down the bridge. From various parts of the "Bulla" came sundry cheerful whistles and fragments of song from the hands working around the decks, and wafted on the gentle breeze, the mournful voice of a trimmer in the foc's'le rendered the firemen's favourite: "In the 'Eart of the City Wot 'As No 'Eart," from the stokehold came the rat-tat-tat of a shovel on the grating and a raucous voice invited the trimmers to "come hon with the blinkin' coal."

Down underneath my window "Pas" sawed and planed in the dug-out where most of his time at sea was spent. Formerly a military canteen, "Pas" had knocked it up into a carpenter's shop, and there, surrounded by an array of tools that often made my mouth water, he made a variety of weird and wonderful things ranging from a patent bath for the dog, so constructed that when placed in it on bath days, our young four-legged friend was hog tied, and beyond contemptuous flashes from his eyes, couldn't put up any resistance to the indignity of having his ears washed, to a non-collapsible deck chair which looked so safe that everybody shunned it like a plague. On a memorable occasion "Pas" added to the list of wireless apparatus one variable condenser. It was fashioned lovingly out of large and heavy brass tubing, and at a rough guess its capacity was probably close to umpteen farads. Not having the heart to pain him, I accepted it with much gratitude and gave it a place of honor on the table, with two leads running off it to the phone terminals of an old and

dis-used crystal receiver where it couldn't do any harm. Every time "Pas" came in I made a great show of adjusting the variable condenser, and assured him signals were much improved by its use because their wave length was longer—whereat he would depart considerably bucked.

On this peaceful morning, however, the Yank sat communing with me upon the history, past, present and future, of Turkey, and predicted somewhat gloomily, that the Ottoman Empire would eventually be blotted out by a stroke of Divine wrath. The wireless shack on the "Bulla" ran the full width of the lower bridge, with a door opening on to both the port and starboard sides. The port half was my two-berth living cabin, made home-like by the Kirchner gallery on the bulkheads, the cane lounge chair which I had purloined from a Salonika cafe in the stilly hours, and the various knick-knacks which had been accumulated honestly and dishonestly during the months I had been roaming the briny seas in the ship. On the wall was a souvenir of which I was very proud—the silken banner of the Anzac Wireless Squadron which was presented to me long before by the boys before they disembarked from the "Anglo-Egyptian" at Port Tewfik. Fresh from the Moore Park Camp, they took two-hour watches on the phones all the way across to Egypt, and their stock in trade being a couple of precious guarded volumes of friend Bangay, I essayed to take them a step further into the mysteries of wireless, and found them more than willing to listen to my learned discourses upon various extracts from Hawkhead's "Handbook of Technical Instruction for Wireless Telegraphists," at that time the bible of every marine operator. Dear old Hawkhead, how oft have I blessed thee!

So, with the phones clamped to my ears, and feet up on the table, I puffed lovingly at one of the Yank's cheroots, while, blinking at me through his rubber tired gig lamps, he explained to me how he would get the strangle hold upon international relations so that humanity would be eternally free from war—that is, if he had his way. I had my own private views, but while those cigars lasted, I was prepared to agree with him all the way. Out of the corner of my eye I caught glimpses of those Greek hills, wrapped in wonderful history, rich in the memories of age-old civilisation, of nations

which had risen and fallen, of kings who had conquered all and had faded into oblivion (even at that moment Constantine was playing golf in Switzerland and between holes, chewing the cud of bitter reflection)—I thought of these things and listened attentively to this citizen of the world's youngest nation, plotting the downfall of monarchs and with swift passes of his Eversharp, setting up a sort of universal republic where Moslems hobnobbed with Jews, and Buddhists chinwagged at the brass rail with Christians and chuckled over the latest yarn of the President of China. While he talked, the phones hummed pleasantly with the drone of a myriad stations, from Rinella Bay, Malta, to Lloyd's station at Port Said and up the far reaches of the Bosphorus where an American destroyer, pumping out about 20 k.w. gargled very indifferent Morse to someone apparently located at Baku. Now and again I made a note in the log and made slight adjustments on the tuner. A cool breeze passed through the open doors. The Yank was just down from Czecho Slovakia, where he had done some very fine work with the American Red Cross; in fact he had been presented with a decoration by the Czech Government and also was very proud of a medal militaire, conferred upon him by the French for services rendered in the French army. Casually he informed me that every foreigner was given this decoration by the French as a mark of courtesy, but one day I wandered into his cabin whilst he was shaving and caught a glimpse of a great jagged scar on his forehead—and I wondered.

Bound for Paris, and with railway communication through Austria disorganised, he had been glad of the chance of a passage to Genoa with us, and like all Americans, he quickly hit his level, and within a few hours, was one of the lads. I often wonder why it is that Americans alone seem to have the gift of invariable cheeriness—a natural aptitude to grin and say, "Why worry," and to treat every old thing as a quiet joke, to be shared with everyone. I have met one or two Englishmen like that, but very few Australians. There are, of course, Yanks whose mode of dress and whose choice of words is similar to that common to the lads who hail from that part of Sydney called colloquially, "The Rocks," but most of them parked in their own home towns during the war and few apparently braved the perils of the tin fish in their rush across to the discussion in France.

The Yank was one of the exceptions, and as he sat there settling the world's destiny, I couldn't help thinking of Henry Ford and his peace mission. All the same, my New York friend had a surprising grip on near Eastern affairs, and only gave up his predictions of Bolshevik invasions of

India when I finished the cigar, and, yawning noisily, asked him to define the reasons why America entered the war—whereat he winked solemnly behind his horn rims, poked me in the ribs, and enunciated a portion of Lincoln's famous liberty speech at the San Francisco earthquake or the opening of the Panama Canal or wherever it was and then consigned me to Hades, after which he removed the small of his back from the chair and trickled out the door, to enter into a nautical discussion with Silent Bill on the bridge. Left to myself I gloomily contemplated the horrible contraption to which I was chained, and, following an ancient but useless custom, took out some sheets of paper, drew the circuit of the transmitter, and attempted to create out of its hopeless carcass, something that would function. Just by way of diversion, I used to occasionally and suddenly push over the starting handle, which ill advised action would cause the engine room dynamo to throw a couple of fits and almost stop. Presently, the telegraph on the bridge would tinkle and the voice of Silent Bill, raised in wrath, demanded loudly, "Say, Sparks, the 3rd Engineer wants to know what the devil's wrong"—having told him to inform the 3rd engineer with my compliments to put the matter in writing, I resumed my studies and tried to imagine the effect if a Mills bomb were suddenly dropped down the ventilator on to the main transformer. Fortunately these melancholy periods were of short duration and except that now and again, with a sardonic chuckle I hurled a wheezy "QRA" (?) at a passing Italiano, I contented myself with ultra 600 metre D.X. reception on the audion and writing long letters to the Royal Australian Naval Radio Service outlining splendid, but expensive suggestions for the improvement of the wireless installation on the "Bulla." Fortunately perhaps for me, these letters were never posted—still they eased my grouch.

A word here on the subject of animals would not perhaps be amiss. In addition to the usual collection of sea-going cats—and, by the way, whenever you happen to cross trails with a ship's cat, treat him with respect, because he is probably a hard bitten veteran of the seven seas; the maritime cat is essentially a roamer and has a habit of jumping ships in foreign ports. Not being particularly fussy about the color of the flags he sails under, the wide world his habitat, he is apt to survey the surrounding ships from the foe-ster ahead, select his mark, and after dark, decamp without so much as farewell. Leaving a port, the complement is invariably added to by a collection of canine passengers from other ships—only once have I seen a cat do the round trip, but unfortunately, while strolling blithely along the rail one day, he van-

ished from sight, and coal then being about £20 per ton, it was decided not to stop the ship. So, remember that your ship's cat has more than likely gazed boredly upon the heights of Hong Kong, or the palm-fringed shores of the Hoogli or perhaps has even observed the beatific expression of the Statue of Liberty, or the waters rising rapidly in the Locks of Panama, while the electric mules strained at the mooring ropes—and treat him kindly and with that deference due to a citizen of the wide world. However, besides the cats, the "Bulla" was richer for the presence of dogs, cocker spaniel(1) and goats, assorted (1)). The former, placed first by virtue of the degree of respectability to which he had attained, had been put aboard in Albany at the young and tender age of five weeks, and opened his eyes to a vision of leaping green seas, and decks peopled by brass bounders and tobacco chewing sailors. Called first of all "Bulla," then "Bull," his name afterwards distorted into "Bolpip," and he was eventually amid much ceremony re-christened "Pip," and thus he remained until his hurried nocturnal removal in a certain port when "Pas" was transferred. Jet black, "Pip" as is the way with his breed, early developed long and floppy ears, and being blessed with a more than normal appetite, he quickly attained strength and beauty so that ere long he was waddling around the decks, completely at home. He was a thoroughbred, and strange to say, seemed to be a keen discriminator of persons, because he wouldn't allow a fireman to touch him, gazed tolerantly upon the efforts of the seamen to cajole him, mingled in a hail-fellow-well-met manner with the officers, and made violent love to the chief steward — when he was hungry (the dog, of course, not the chief steward).

Quickly sizing things up, he soon decided that the best available home was the wireless cabin and despite many serious objections, there he stayed, occupying the empty lower bunk in my two berth cabin. Not being nimble enough to jump up to it, whenever he felt like hitting the hay, he would stand up on his hind legs, plant both feet on the bunkboard, and favour me with a solemn and unblinking stare until finally I grabbed him by the scruff of the neck and dumped him in, upon which he curled up, snorted, and was fast asleep. Quite early he developed a curiosity for wireless, and although by day he prowled around the decks sniffing things over, he parked on the floor of the wireless cabin during the 8 p.m. to midnight watch, and was an interested observer of everything that went on. The rotary spark gap especially fascinated him and he would peer at it intently while it was revolving, and the spark was leaping and

sizzling. At times I used to grab his paw and tap out a few words with it, and this he would note with a gravity that tickled me immensely. At 10 p.m. the night watchman brought up supper, and this, "Pip" shared with the air of one who has done his duty nobly and well. Three days a week he faced the soapsuds, and as he had, quite without invitation, attached himself as Junior Wireless Operator, the task of removing the coal dust from off his hide naturally fell upon me. His attitude



"Pip" (on left).

during this process was somewhat reminiscent of that old yarn about Little Daniel in the Lion's Den, and the early Christian martyrs did not face the pit with one degree more courage and fortitude than that shown by "Pip" as he submitted to the indignity of being harnessed into the contraption which "Pas" had evolved. The bath being over, the dog would favour me with a withering look as though to say, "you poor fish," and toddled off to dry himself on the hatch.

The goat I think of now with feelings of poignant regret, because I eventually sold his defunct carcass to a bunch of Gippos in Port Said for a box of Turkish Delight. I blush now when I recall the horrid way we haggled over whether it was to be one box or two. He wandered aboard in the first place masquerading as a sheep, with a bunch of newly clipped woolies at Norfolk, Virginia, and the Yankee who put the deal over, must have chuckled when he thought of the goat penned in with the sheep, headed for the broad Atlantic. That animals themselves appreciate the importance of separating the sheep from the goats was evidenced next morning when the butcher walked aft looking for a victim, and found that 35 sheep were

backed up against the wall by one lone animal who, upon closer inspection, turned out to be a one-horned goat and who regarded the meat carver with no friendly eye. It required the services of three sailors to hoist the stranger out of the pen and for two hours or so he careered the decks with stumpy tail erect and flashing eyes and blaring defiance at the crew who observed these manoeuvres from a safe distance.

An important conference that evening decided that as goat's meat was not especially succulent, the goat should remain alive, and as port regulations forbade him being landed at the various ports, for two years he roamed the decks as a universal pet. According to tradition handed down from generation to generation of goats, our friend early received the name of William, or as it is quite vulgarly abbreviated, Bill, and to this, in the course of time he answered. His past history was a sealed book and we often wondered in what fierce encounter that starboard horn had been broken off or how those honorable scars were obtained. Having a natural fondness for animals I early chummed up with Bill and as soon as he got used to me he followed me around the decks and gazed blandly at



Bill at peace, and—

me out of his fishy eyes. When I sat on the hatch just aft of the saloon, Bill had a habit of coming up behind, planting his head in the small of my back and giving me gentle shoves, whereat I shoved him back. Retreating a few feet, he edged up again and gave me another shove. This was a popular game we played for hours, until one day I gave him an extra hard shove, upon which he retreated a little further than usual, got up steam, and shoved me about ten yards out on the deck. After that, in the interests of all concerned, it was decided to abandon the game. I walked stiffly for a week afterwards. Bill's menu took in a variety of food ranging from hard tobacco to blotting paper, and on this juicy fare he thrived and prospered amazingly—cigarettes, sandpaper, flypaper, all went the same way. I remember with joy how Big Mac, who wrote long and inspiring epistles to a lady in

Melbourne, finished a 17 page letter one morning and left it on his table while he went up to shoot the sun at noon. Meanwhile Bill wandered in, and all that was left when Mac returned were a few scraps of paper, and his wrath was not appeased when I suggested that he post the goat. On Sunday mornings I led Bill aft, tied him to the emergency wheel, and with the aid of Art, gave him a spring cleaning from which he emerged white as snow. During the hot weather he slumbered placidly beneath a special awning, and when the wintry winds blew, he paraded the decks dressed fashionably in a warm cover, and at night dreamed sweet dreams at the top of the engine room ladder, his carcass located about one-sixteenth of an inch away from a steam pipe. The dog and the goat did not mix, regarding each other sourly whenever they passed, and frequent barking and maa-



When someone got his Goat.

ing denoted that they had reached the stage when they found each other's presence on the same ship intolerable, and that a little discussion was proceeding. Anyway, no reasonable goat could be expected to stand a dog nipping his heels while his back was turned.

On occasions, one or the other of them got off colour and with due pomp a pint or so of Ol Ricini was poured down his neck.

Thus the four-legged members of the crew, worthy companions of the two-legged members, probably the finest and most homely bunch one could wish to meet. "Pas" had the most happy knack of setting everyone at ease and there was an almost entire lack of formality which was delightful. Always interested in the progress of all departments under his command, he spent daily, half an hour in the wireless cabin yarning about things in general. In the old days "Pas" was chief

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officer on the "Bakara" when I was there, and together we had visited many of those London districts made famous by Thomas Burke; so in the privacy of the cabin, we frequently fell to discussing the old days and whenever I could get him on to it, the days of his apprenticeship in the wind-jammers.

The meals in the saloon were always cheery affairs, with much badinage and leg-pulling, and the Yank was conspicuously a bright spot with his yarns of the Czechs and his travels in Middle Europe. Except for the English Channel there is no busier place for wireless traffic than the Mediterranean, and it would be almost impossible to describe the din in the phones on the 8 p.m. to midnight watch. At that time all restrictions upon the use of transmitters were lifted and there was a splendid sense of freedom. The old pitch dark nights, when, with every light doused, we sneaked along with bated breath and nerves on edge were gone forever, and it was wonderful to see the lights of passing ships and to hear the familiar high rotary note of a Marconi set beef out "QRA o.m.?" and to hear the Siemen's quenched gap come back with "QRA S.S. 'Malakuta,'" "QRF London, QRD 'Karachi'."

No one who had not travelled those submarine infested waters during the war could possibly imagine how glorious it was to hear all the old familiar flapdoodle flying around in the ether again,

the "Merci o.m." of the Frenchman, the Italian "Grs Sr," the "TKS o.m." of the Marconi man, and the hundred and one things which the war had silenced. There was a positive delight in keeping a watch, and the only fly in the ointment was that my exuberant spirits were not shared by the Ford. Outwardly it beamed merrily at me from its highly polished brass work, but inwardly no doubt it chuckled sardonically from the depths of the oft-repaired main condenser, and metaphorically rolled up its shirt sleeves in preparation for my next attack. After a perfect run from Salonika we rounded the curve and passed on through the picturesque Straits of Messina with the tall masts of the wireless station standing prominently out on the headland. To the south the glittering peak of Etna stood tall and proud as though floating on air, and as the dusk descended the peculiar yellow glow from the burning island-volcano of Stromboli cast a dull light over the waters. Nestling right at the foot of Stromboli is a small town and I could scarcely imagine myself living there with impending destruction standing a few thousand feet above me. After passing the Island of Elba, once the domicile of the great Napoleon, we ran along on a sea dead calm, and to the boom of the one o'clock gun from the fortress on the heights close to the Righi, at the top of the Funicular, we slid in through the entrance at Genoa and came slowly to anchorage off the Ponte Colombo.

(To be continued)

INTERSTATE NOTES

VICTORIA

3BD.

MR. COX, upon whose lofty aerial the ethereal swallows of England perched of late, and made him a brother of those "intelligent of seasons who set forth their airy argosies high over seas," is a young man with a vivid personality whose knowledge of wireless has been turned to good account by a Melbourne newspaper whose columns he illumines. Fitly named, he has for some time been coxswain of the crew that lately cleared their DX for action, and after raking the American amateurs fore and aft, which is to say from the Pacific to the Atlantic shore, he got tired of the Yankee dialect and drank deep from the well filled English undefiled by getting some heavy broadsides in and from the amateur dreadnoughts

of old England themselves. 3BD some time ago ventured forth like little wanton boys who swim on bladders and wrote a Yankee epistle to the South African amateurs challenging them to put it across the Indian Ocean and all over Australia, meeting with a ready response but very disappointing results. He, at that time attributed the response to his premeditated use of the Californian idiom in his communications but apparently the answering ardors were not fanned in the right sort of breast. What language he uses in talking to English amateurs has not yet been divulged, but those who have heard him lecture know that he has quite an Oxford or perhaps we may call it a Coxford accent on occasion, so if that can be transmitted by code, he is well equipped at all points.

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Canterbury Honors 3BQ.

Fired by the Presidents successes the members of the Canterbury Section of the Wireless Institute (Vic. Division) tendered him a social evening in November, which, however, proved rather too exclusive, none of the affiliated sections being invited and the function being late and ill-arranged. However, those who were present were enabled to witness the pleasant ceremony of handing Mr. Howden a loving cup, presented to him on behalf of the Canterbury members, whose modesty prevented them from doing the job themselves, so it was performed for them by Mr. Love, President of the W.I. Mr. Love, in glowing terms, traced the growth of 3BQ's successes on short wave-lengths from the time when amateurs were allotted these despised waves by the Government "to play around with," up to the present time when even the world's experts like Marconi see in short waves the possibilities of the future.

Among those present by special invitation were Mrs. Love, Commander Cresswell and Mr. T. P. Court.

Max Howden's Methods.

A graphic picture painted by himself was presented by Mr. Max Howden in telling the Canterbury Section the story of his recent talk to England. He works in town and rarely gets home before half past six, but managed to beat the clock on the eventful evening. One sees the methodical Max not exactly hurrying, but still getting there as fast as his feet would carry him. At 7 he sits down to his set, not having, we imagine, dawdled over his frugal meal. He gets into touch with a New Zealander and is duly passed on to an American or so, and hears that weather conditions are good right through; and so, as the immortal Pepsy puts it, "to bed."

At 4 o'clock next morning, the weather is chilly, but ideal for the job, and behold him spurning his despised bedclothes as he issues forth to conquer a new world from the ether. His little "shack" is outside his house. Above it stretches the aerial web in which this spider of the ether catches the notes that people the sunbeams. The dews of early morning begin to sparkle in the first rays of dawn when having sent out his CQ signals and alternately changed over, and listened-in the stolid Max's shoulders shake and then stiffen to attention as he twirls his condenser dial. He hears an Italian station rattling furiously in the Adriatic regions. Then POZ booms in and the redoubtable Nauen of Germany blusters through the ether. For a moment

Max thinks POZ is "calling" 3BQ, but it is only a CQ signal. Then faint and far away the horns of elf-land faintly blowing settle down like bees disturbed from a flower and delicately poise over one degree on Max's graduated scale. He listens. The shack fades out. Time and space are dust about his feet. Music such as immortals love sounds faintly in his ears. We mortals call it Morse, but distance has enchanted it into angelic syllables, and 3BQ hears G2OD calling. If we cut out the numeral the call becomes fraught with mystical significance although as ever it percolates through a purely human medium. At first the long drawn characteristic final note of this English station sounds to Max's ears like Z and we can picture Max strung up to unaccustomed and unadmitted tension as he hears the oft-repeated signal. He has been hearing 3BQ, 3BQ, 3BQ, 3BQ, dinned in his ears for a long drawn out four consecutive minutes, when suddenly the old commercial English compulsory break sign, DE, comes, and he knows he has drawn the first blood of an Englishman; and that stern joy that warriors feel in foemen worthy of their steel comes to Max in the early morning hours as he exchanges cut and thrust of eager Morse through the last remnants of that ethereal silence that once divided England from Australia, but is now shattered for ever. Max has achieved maximum results and his gentle aerial has put a girdle round the earth in about the seventeenth of a nimble second. The way is now wide open for others.

Amateur v. Scientist.

At the social tendered to 3BQ by the Canterbury Section (please note we call them sections here, not clubs), Mr. Love, the President of the Wireless Institute (Vic. Division) referred in characteristic terms to the Beam System and raised the interesting question whether it had not been inspired by Australian amateur successes on short wave lengths. Apparently Mr. Love was under the impression that Marconi heard of the Trans-Pacific Test one evening and next morning evolved the Beam System before breakfast, which would in itself be a very creditable performance even if inspired by jealousy. The professional view on the other hand is that the success of the Beam System in getting through to Australia a few weeks ago, although only an incident in the long list of Anglo-Australian intercommunication, gave a fillip to the amateurs and was the direct incentive to their recent long-distance feats. Stress is laid, however by men of Mr. Line's school on the undoubted fact that the achievements of 3BQ, 3BD,

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2CM and other amateurs are made on very low power. The early transmissions from Leaffield ran into hundreds of horse-power whereas 3BQ uses only a few score watts of which less than 800 go to the horse-power. 3BQ himself points out that the weather conditions for his successful test were most exceptionally favourable, which of course makes his feat more of a sporting than a commercial success, and as he modestly but probably quite correctly puts it, the performance was rather in the nature of a freak. Such "freaks" are almost everyday experiences of trained operators on ships and land stations and the whole point of the matter is that though amateurs who get such results take rank at once with men of professional efficiency, they need not therefore belittle them. The fact that one good cricket team beats another, does not make the beaten team of no account, although this is a very hard doctrine to instil into the mind of the small boy barracker. With regard to the question of short waves v. long waves, it should be remembered that the success of amateurs with short waves is due to their having handled short waves exclusively, and no one knows how much better long waves might not have proved had they been within the scope of unrestricted amateur experiment. It is time that Marconi now favored the short wave, but he is only returning to his first love, and those who have but lately look-

ed on at the game do not realise that in the early days of wireless the generation of short waves was practically impossible and even now, under commercial requirements of all-day efficiency, it is not perfect. As experienced amateurs are the first to admit it is one thing to go home at night and start up the old set for a few hours, and quite another to keep it running without breakdowns week after week. The success of 3BQ and others are due to the almost uncanny efficiency and enthusiasm of the operators themselves. They are successes of personality. Science has to devise means whereby mediocrity can be assured of the same successes being automatically repeated as a mere matter of daily routine, or as science puts it, the personal equation will have to be eliminated.

D.X. in Victoria.

All Victorian experimenters are going into D.X. stacies over the achievements of some of their leaders, notably 3BQ and 3BD, who appear to make a practise of having at least a couple of English amateurs before breakfast each morning.

3BD recently took unto himself an eighty-foot mast with all encumbrances, which has evidently enabled him to peer across space right into the heart of England and talk Fee Fi Fo Fum to the English amateur. These D.X.'s are apparently a new species of D.T.'s, since they afflict one most
(Continued on page 30)

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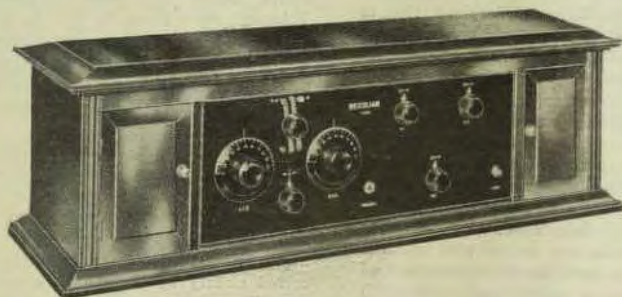
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(Continued from Page 28.)

in the early morning after the night before, and affect all the sufferers in the same way. At one time it was fashionable to hear America; now one must really hear England to be someone, and it is confidently predicted that we shall shortly hear the English language again in wireless circles in Melbourne, where of late they talk a Yankee lingo. It is, of course, rather a pity that these marvels should happen only after New Zealanders and other outsiders had led up the straight and shown our victorious Victorians the way, but was it not the great Duke of Wellington who once complimented the generals opposing him on their having taught him how to beat them? There is a great battle for the laurels now waging between 3BD and 3BQ, Messrs. Cox and Howden, and in this ethereal Marathon honors now veer to one and now to the other. It is all extremely interesting to onlookers and in-listeners, although it seems to some a queer notion for two antiquated old amateurs to be clicking out code to the other end of the world in a fine frenzy when telephony is now all the rage in commercial circles, and the despised Marconi (despised, that is by your lofty amateur) is actually directing short waves in beams from England to Australia. The question naturally arises; why was not all this truly excellent D.X. work done long ago? Is it because the English amateur has only recently discovered the Antipodes, or because of the great fillip given to short waves by the commercial experts having permeated to the inner strata of amateurs on both sides of the habitable globe with exhilarating effects? Whatever the reason, wireless waves which in some mysterious way synchronise with the fashions in ladies hair, have lately become bobbed or shingled waves and a recent picture of 3BD presents him as a Mephistophelean figure holding communion with the Devil of Distance in the midst of spurtings of violet crepusculations and oscillatory tongues of flame investing all apparatus and adjacent objects with a supernatural glare. As 3BQ is in much the same predicament the devil aforesaid must be suffering from an embarrassment of riches, especially as 3BD too is reported as having annihilated distance while his companions slept. It is almost a relief to turn from contemplating these giants and to visit almost any city shop where they daily rejoice, as a strong man, to receive 3AR on a four valve set at a distance of 500 yards, with almost deadly precision.

SOUTH AUSTRALIA

A Band Concert Broadcasted.

A CONCERT given by the Hindmarsh Band in the Exhibition Building with the distinguished English bandmaster and composer,

Lieut. J. Ord Hume (Bandmaster of the famous Scots' Grey) as conductor, was broadcasted by station 5DON N on Monday, November 3rd. Among those present were the Lord Mayor of Adelaide, (Mr. C. J. R. Glover) and the Lady Mayoress, the Mayor, and Councillors of Hindmarsh.

The opening number was a march "Reliance" composed by the conductor; this was followed by the overture, "Pique Dame" which was also arranged by the conductor, and with the interesting themes worked into it made an altogether pleasing number.

Exceedingly good playing characterised the military fantasia, "A Drumhead Church Service" (Hume) into which church bells and other pleasing effects were skilfully woven. "The Wedding of the Rose" (Leon Jessel) was played with dainty effect. An admirable rendering of selections, "Works of Hayden" (Hume), the intermezzo, Hypathia (Hume), and "Pirates of Penzance" (Sullivan), and the march "The Elephant" (Hume) won from the audience unmistakable approval. The songs "Drake Goes West" (Sanderson) and "The Veteran" were given by Mr. R. W. Correll.

Miss Elsie Wooley, the winner of the grand average for vocal solos at the recent Ballarat competitions rendered in beautiful style "Land of Hope and Glory" (Elgar), and "The Lost Chord" (Sullivan).

Mr. C. Baggot, who also had a long list of successes at Ballarat to his credit sang "I hear you calling me" (Marshall) and "Vale" (Russell). All the songs were given with band accompaniments and although the singers were at least forty feet away from the microphone their items were received clearly by the many listeners-in.

There were one or two incidents which took place during the evening that are worthy of mention. No announcement had been made that the concert would be broadcasted and one member of the audience who had reserved his seat noticed the microphone during the concert and springing from his seat he made for the door saying "I am going home to see how this comes through on my set." He was seen no more that evening.

None of the performers were aware until the interval that the concert was being broadcasted and that thousands of people beside those in the hall were hearing the performance.

Mr. Hume, the owner of station 5DON N received scores of letters next day congratulating him upon the success of the experiment, and the general opinion among those who listened in is that this is the best demonstration of broadcasting ever heard in South Australia.

When will we have broadcasting? The Public

here are getting impatient, we have so many promises of a station starting up soon, but that station never materialises so nobody will take such promises as being genuine now. Many letters have appeared in the local press lately from persons who have paid 35/- for a broadcast receiving license and have found that there is no broadcasting station to listen-in to.

The A class broadcasting looks as far off as ever as the company which was formed for the purpose of erecting the A class station has, according to rumour, gone into liquidation.

Mr. Hume's station, 5DON N is now equipped with a high powered transmitting set and I believe that all that is necessary now is the long overdue B class license which has been promised. Mr. Hume has gone to endless expense in equipping an up-to-date transmitter with the necessary voice frequency amplifiers and land lines for the broadcasting of high class entertainments from the University and Conservatorium. It is about time that this license was issued and the public given something for their money. I do not mean to infer that Mr. Hume should be made to do better than he has already done, as he deserves great praise for the entertainments which he has already given us, but I do blame the authorities for taking the people's money under false pretences for that is what it amounts to.

Among the Amateurs.

Mr. H. L. Austin of Norwood, 5BN has constructed a new transmitter and has been heard lately putting through some very fine transmissions his modulation is very clear and has great strength with it.

5AL, Mr. Henry Lloyd now comes through with great punch and his music and speech comes through very clearly.

5BG, Mr. Harry Kauper is still stirring up the ether; a few nights ago he was heard giving a lecture on the construction of valves which was very interesting indeed.

5AW, the Adelaide University were heard recently. Why not try some more?

5BD Mr. Frank Earle who was noted for a good class of music and good modulation does very little on phone now. Why is this so, Frank?

5AD, Mr. Ray Snoswell, has not been heard for some time now. His license has run out, and he says it is not worth the bother getting a new one. Ray has done some excellent DX work and will be missed by interstaters.

5AH is heard to good advantage on Sunday mornings. He puts out excellent music and knows how to get the best out of his transmitter.

5AE is seldom heard. Jack must be swotting as usual.

5DA seems to forget his call sign now; give it to 'em after each record and let's know who is transmitting. It is rather nerve racking to listen to half a dozen records before hearing a call sign.

In nearly every DX list that appears in N.S.W. and Victorian journals, 5AG and 5BM are mentioned as being logged. These stations have not been transmitting for some months.

I have read in some Yankee radio magazines of receiving sets which could pick up messages which had been transmitted some time back in the dim past. There must be quite a number of these sets in use in Australia, or else some of the DX loggers have very vivid imaginations.

THE GORDON SCOUTS WIRELESS CLUB.

A wireless club was formed in 1st. Gordon Troop of Boy Scouts on Thursday 20th inst. At present the Lion patrol only is being admitted owing to the lack of a large club-room. There was a good attendance on Thursday and the following Officials were elected: T. Reynolds (President), A. Livvit (Treasurer), and J. M. White (Secretary.)

The members listened-in to begin with on the President's set. Circuits etc., were then discussed for a short while. Following that, Master William Gray delivered a very interesting lecture on the important subject "Aerial and Earth Systems" and described various types of aerials and earths and their special uses etc. This was the club's first lecture and of course everyone enjoyed it immensely. For half an hour or so we had buzzer practice on a buzzer which one of the members brought along.

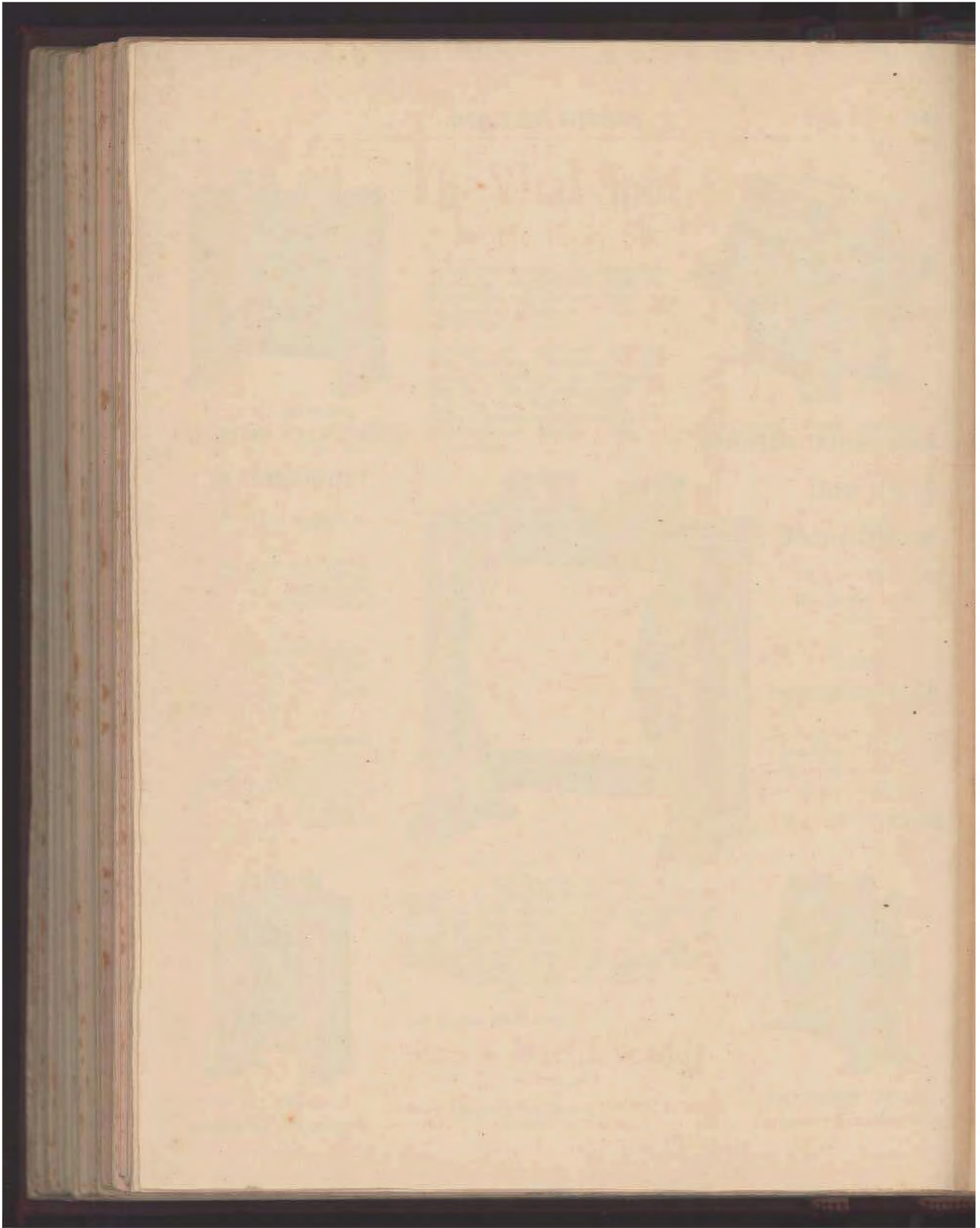
We ended this pleasant evening by listening-in again.

THE VARIABLE TELEPHONE CONDENSER

In order to facilitate oscillation in valve sets a small fixed condenser of the order of .0005 to .003 microfarad is usually connected across the telephones, telephone transformer, or intervalve transformer, as the case may be. The function of this condenser is to by pass the high-frequency component of the anode or plate current. It may be found very advantageous to replace this fixed condenser by a variable one, say of .0015 microfarad capacity. This will, by altering the impedance of the anode circuit, provide a very convenient control of regeneration.

A great advantage of this type of fine reaction control is that it does not alter the aerial tuning like most other types, which is a great convenience.

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 Marconi's, 4000 ohms .. 1 7 0
 N. & K., 4000 ohms .. 1 7 0
 No. 1 Spanish .. 1 7 0
 Perlon Special, 4000
 ohms .. 4 7 0
 Type, 2000 ohms .. 1 12 0
 Tatham's Japanese .. 1 18 0
 Wacker's Standard Tone .. 1 15 0

Vesta, 4000 ohms .. 1 17 0
 Western Electric, 4000
 ohms .. 1 17 0
 Stromberg Carlson .. 2 0 0
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Converting your Loose Coupler into a One-Valve Set

USING THE WELL KNOWN SINGLE CIRCUIT, REGENERATIVE CIRCUIT, OR P1.

By Wireless Weekly.

XMAS time will undoubtedly bring forth presents of radio material to some of our readers and just what to do with the new gear will perhaps be a problem. Those who are not quite contented with the volume obtained with their simple crystal set will perhaps add a one valve amplifier. This is quite O.K., but still the old bug bear of having to adjust the catswhisker and find the sensitive points of the crystal is still there. The set still only has the range of the crystal set, as it must be remembered that the amplifier cannot amplify what the crystal can't detect.

The P1 circuit will give excellent volume for two pair of phones anything up to 250 miles from Sydney (except in screened areas) and by using your loose coupler for the tuning elements you obviate the use of honeycomb coils. You will find that you have a very fine control on your reaction, so that with careful handling you will not bother your neighbour who might also be using a regenerative set:

Those who cannot understand the circuit diagram are advised to copy wire for wire the connections shown in Fig. 2, which shows the back view of panel. The following materials are required to build this detecting panel which, by the

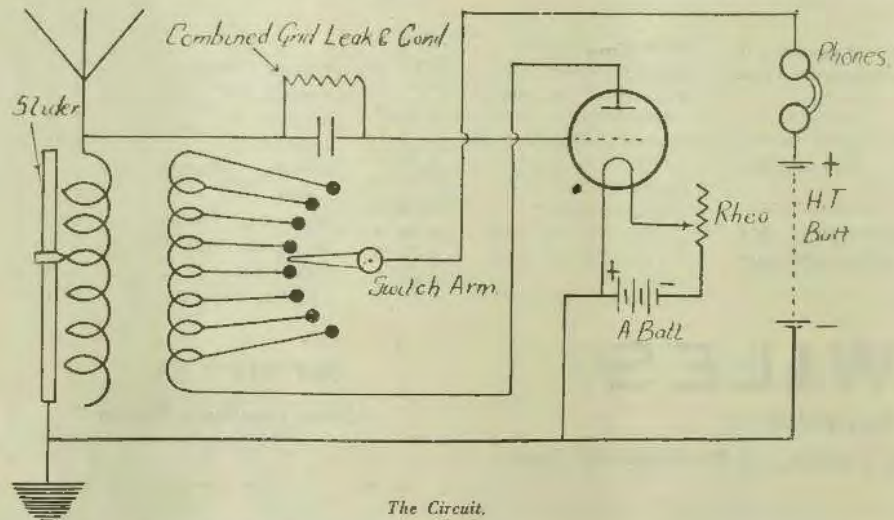
way, can be used in conjunction with any other circuit you may choose to try later.

- 1 piece bakelite 7in. x 5in.
- 1 rheostat (to suit valve used).
- 1 A Battery (to suit valve used).
- 1 or 2 H.T. batteries (to suit valve used).
- 12 terminals.
- 1 valve holder.
- 1 combined grid leak and condenser.

To Operate.

Make sure that the slider will go right to the beginning and the end of the primary coil; quite a lot of broadcast listeners who are unable to get 2BL with their crystal sets will find this is where their trouble lies. The self capacity of the primary coil is rather high and on some aeriels it may be necessary to get within two turns of the beginning or end of the coil. If the handle of your slider arm hits up against the wood end, before you can get on to the first or last turn of wire, remove some of the turns at the beginning and end of the coil.

Join up flexible leads as shown in Fig. 2, not forgetting of course that it is the back view of panel you have in this Fig. If you are unable

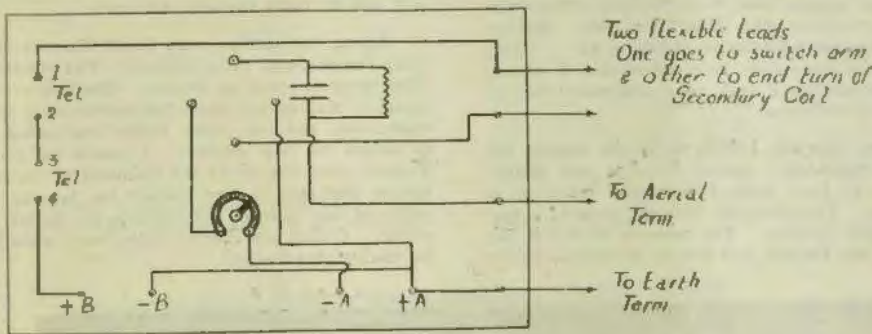


The Circuit.

to get the carrier wave which is the high pitch note heard in the phones you will know that you have reversed re-action. To remedy this, reverse the two flexible leads going to the end of secondary coil and switch arm. It will be readily seen that these two connections can be made to the old telephone terminals of your loose coupler. But be sure you short your catswhisker on to your crystal cup permanently by a piece of wire. For clear reception of BC music use as little of the secondary coil

batteries. It is a golden rule to join up the A battery first and try your filament circuit.

Carry out the valve maker's instructions explicitly regarding filament current and plate voltage. Next week we hope to be able to show you how to add a stage of radio frequency amplification to this receiver. Those of you who have discarded your loose coupler, bring it to light and compare it with the results, you have been obtaining with honeycomb coils.



(which is your regenerative coil) as possible together with loose coupling. Well handled you will get just as good results using your loose coupler as your friend does with six different sized honeycomb coil. You also have the added advantage of not having to change coils each time you wish to listen to the different broadcasting services. Once you have obtained the positions of the slider, secondary taps, and coupling for the different wave lengths, you can make a note of them to go to them again at will.

Fig. 2 shows four telephone terminals for two pair of phones; if you only wish to use one pair, join them between terminals 1 and 4, if you have two pairs in use, join the first pair between terminals 1 and 2, and the second pair between terminals marked 3 and 4.

If you intend using a dry cell valve you will need a 30 ohm rheostat; most of the English valves other than the dry cell type require a 6 ohm rheostat. Make quite sure of this point and don't try to use a 6 ohm rheostat on the dry cell valve. The paper type of combined condenser and grid leak is quite O.K. In conclusion, check and recheck your connections before you join up your

Experiments will show you that the dead end losses are more than recompensed by the wonderful control you have of regeneration. This article would not be complete if we did not refer briefly to the theory of this well known circuit arrangements (P1) in which the receiving detector valve may be made to act as a feeble generator of continuous oscillations. The secondary coil of the loose coupler, which is the reaction coil, is included in the anode or plate circuit of the valve and is inductively coupled to the aerial in such a direction that energy from the anode circuit is passed back again into the grid circuit where it undergoes further amplification.

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A High Tensionless Two -- Valve Receiver

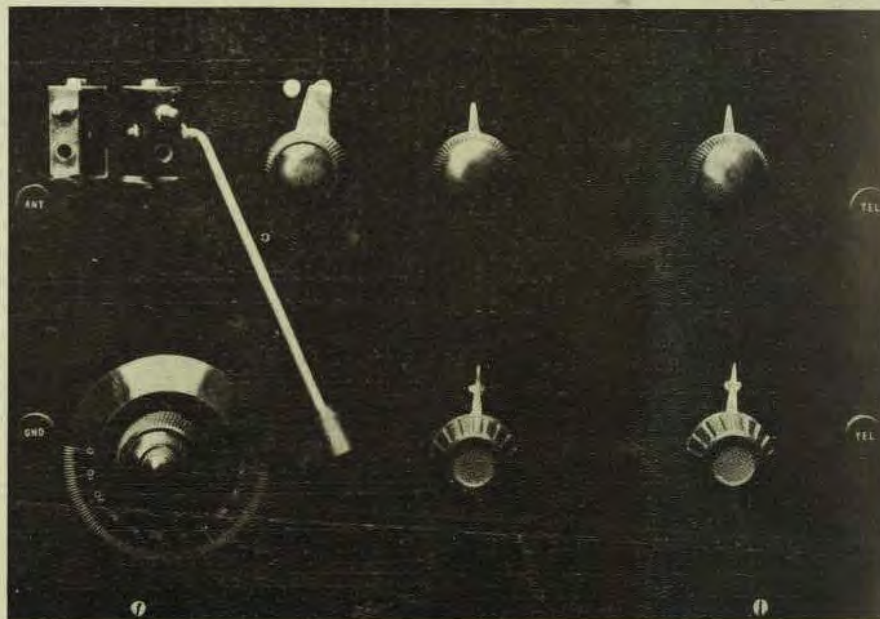
By "INSULATOR"

THE heading of this article should perhaps be, "My short experience with a two valve high tensionless receiver." Last week, you will remember, I promised to tell you something of this new fangled idea. Well, I'll keep my promise and that's about all. Why? you ask. Because I am disappointed with the results so far. Really, I expected more from two valves than I actually got, but perhaps I don't quite understand the circuit or its "working."

Some time ago, I think six to nine months, two young englishmen, named Dowding and Rogers, claimed to have made a wonderful discovery in wireless. This discovery took the form of a high tensionless receiver. The nuisance of the B battery, it was claimed, was now to be dispensed with.

Instead, a four electrode valve was used and the wonderful results all accrued from this type of valve. Circuits and diagrams were published in one journal, only to be scoffed at by other journals, and by many eminent radio men.

Among the scoffers were found Marconi, John Scott-Taggart, and Percy Harris. This started a little newspaper war on its own. Challenges were issued to Marconi and Scott-Taggart to prove their statements, and Sir Oliver Lodge was called on to defend the new scheme. So much did Scott-Taggart raise the ire of the inventors of the new system that they in turn attacked the favorite receiver of this eminent Englishman—the Reflex receiver. Claims and counter claims were made but no finality was reached.



Front View of Panel.

I, whom you know as a follower of Scott-Taggart, naturally inclined to his views—unfairly, no doubt. However, the other day I thought I'd just try for myself so I arrived home with a few parcels of wireless goods. Here is a list of the contents of the parcel:

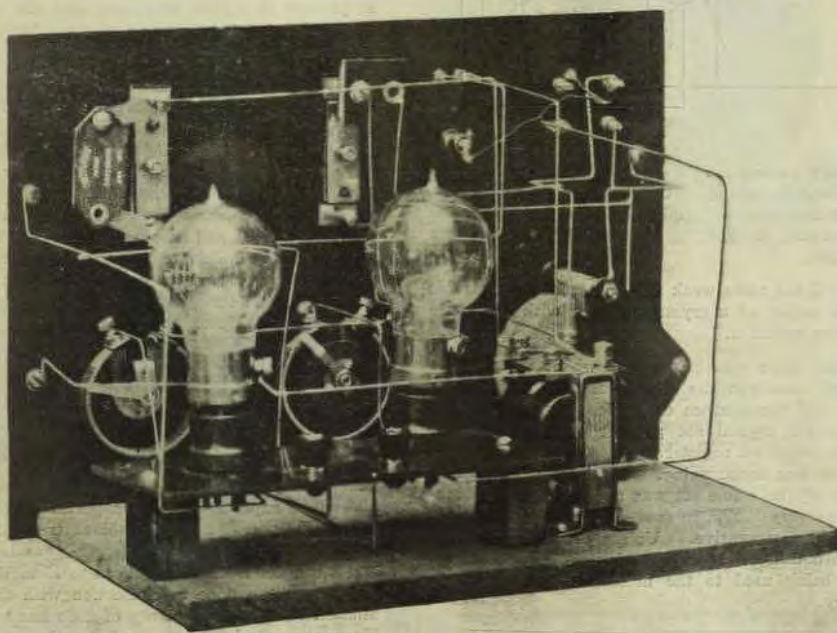
- 1 bakelite panel 13 x 9 x 1/8.
- 1 2-coil holder.
- 1 audio frequency transformer.
- 2 English valve sockets.
- 1 piece of bakelite, 7 x 3 x 1/8 for mounting the sockets.
- 1 switch.
- 2 contact studs.
- 2 variable grid leaks.
- 1 .00025 grid condenser.
- 1 .001 fixed condenser.
- 2 6-ohm rheostats.
- 6 Terminals.
- Panel wire, etc.

In another parcel were two Philips D6 valves—the tetrode type, and bulging from my back poc-

ket was the English paper with the circuit and a short description of the results obtained with a set which had been constructed.

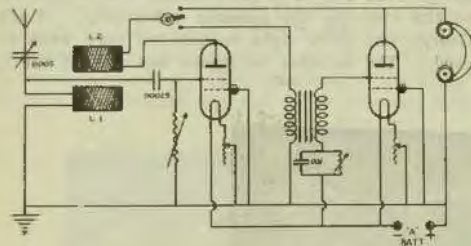
I read the article through once or twice and set to to construct the set. My hopes were very high and the result of my labours can be seen by referring to the photographs.

Looking at the back view the most of the components may be seen. Immediately above the valves are the variable grid leaks, while the two terminals for the A battery are situated on the same piece of bakelite which supports the valve sockets. The transformer and variable condenser are easily recognisable, as are the rheostats. This is how I laid out my panel: I set to and wired up and then hooked on to the aerial and earth and connected my battery and phones. Tuning in with the condenser I found 2BL, using a 50 turn coil in the primary and 75 in the reaction. The switch was on the stud for the detector valve only. Uncle George was there right enough but very weak indeed. The variable resistance was altered but no



Back of Panel Wiring.

difference in signal strength was obtained irrespective of the position of the resistance. The English journal pointed out that the relation of the resistance and the proximity of the reaction coil to the primary altered the signal strength greatly. I must confess that I didn't find this to be the case at all. In fact, no difference was noticed even when a 250 turn coil was inserted as reaction. Throwing the switch on the second stud and thereby bringing the amplifying valve into circuit, a small increase in signal strength was noticed. Certainly not nearly the same increase as an ordinary amplifying valve would give. The second variable resistance was juggled with but once again no appreciable difference was noticed. Playing about with the set don't help matters either, as even when the resistances were shorted no particular difference was created. This, of course, was disappoint-



ing, and caused me to wonder if I hadn't made a mistake in wiring. On checking over, however, everything was in apple-pie order, according to the circuit, so once again I tried, on Farmers this time.

Still the same weak results accrued comparable to the output of a crystal detector with one stage of audio behind it.

But there was one thing which appealed to me and that was the wonderful sweetness of the music and the absence of static. Switching over to the old crystal set produced static while the tetrode valve set registered nil in this respect. This at least was encouraging. Again the remarkable silence of the whole set was noticeable. The tuning was very sharp, in fact a vernier condenser is absolutely imperative. Unless dead on the wave length nothing whatever was heard. Eerie indeed, after being used to the noises set up by the B battery.

BUY RADIO FOR XMAS.

I certainly am disappointed up to the moment with the results achieved, but I know where there is 'something' in the tetrode valve which is going to be worth while. Consulting the handbook issued by the Philips valve people I notice that a small plate potential is advisable. I am going to try how it goes, and will certainly tell you about it. In the meantime—Cheerio.

BELOW THE BROADCAST BANDS

Radio 2XA.

STATION 2XA is owned and operated by Mr. H. K. James, of Summer Hill, and is one of the most consistent DX stations on the air. 2XA has been reported "QSA" in all States, and N.Z., while many N.Z. stations have been worked. A card has also been received from a South American transmitter, which checks up with Mr. James' log. There is no doubt as to the efficiency of the station, and all gear is laid out with a view to neatness and efficiency.

With regard to the station itself, the aerial at present is a four wire cage, and the cage lead in supported by two 40 feet masts a little over 80 feet apart.

Ambitious schemes are on foot however to erect an 80 foot stick. A counterpoise is used for transmitting and an earth for reception. The present transmitter is a Four Coil Meisner and the usual working wave is 180 metres with a power input of 9 watts, the radiation being 2T.C.A. The set employs tube modulation, and uses four five watt tubes, two oscillators, and two modulators. The high tension supply is derived from a transformer and is rectified by means of the usual electrolytic rectifier. However, some changes are about to be made here as an "Esco" Motor generator set is on the way from America.

The receiver used in conjunction with this transmitter is, as our American friends aptly put it, "a low loss and one step." For broadcasting a five valve set is employed, and no difficulty is experienced in receiving the Melbourne station 3LO, any time he is going. Among other receivers, there is an eight tube super-heterodyne, a portable loop set for direction finding, and a combined transmitter and receiver. Practically every circuit has been tried, and latest set is one to go down to 15 metres. Very little has been done in connection with the transmission of music but plenty of code has been sent. Many attempts have been made to rebroadcast KGO from this station but owing to intense QRM from



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GRADE XX

Radio Christmas at R.A. Children's Hospital

A VERY fine radio set is to be presented to the Children's Hospital, and the little ones who will spend their Christmas in the Institution will have the weary hours enlivened by the entertainment of the broadcasting "Uncles."

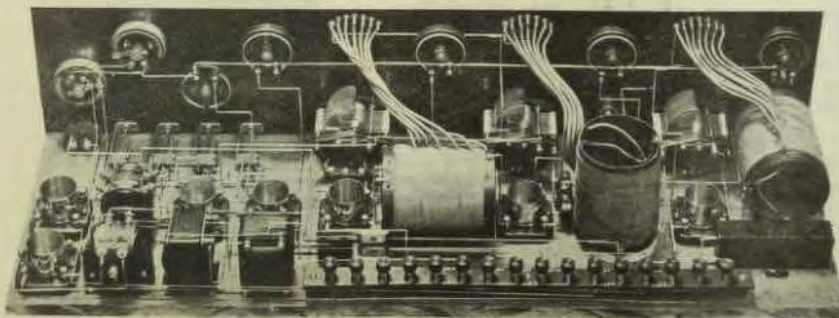
The idea originated a few months ago when Mr. Harrington had a party of children at his residence to listen-in to the bed time stories, and Mrs. Harrington was so struck with the pleasure afforded the kiddies and the looks of surprise and excitement in their faces when some were called by name over the air, that she thought what a benefit this form of entertainment would be to the little sufferers of the Royal Alexandra Hospital for Children, and suggested to Mr. Harrington that something should be done towards seeing that a set was provided.

The idea was mentioned to "Uncle George," of Broadcasters Ltd., who immediately and most graciously offered the assistance of Broadcasters Ltd., and suggested that nephews and nieces should be permitted to contribute to the installation of the set. Accordingly he told them all about it by wireless, and the result was an immediate and generous response from the small listeners-in, who were all given a special receipt which they could keep as a reminder of the pleasure they had helped to provide for the kiddies at Camperdown.

The result was the subscription of £135, and as Harringtons Ltd., had undertaken to subsidise the

subscriptions by value £ for £ a special set had been designed with all accessories, which with wiring and installation amounts to £280. The special wiring and connections necessary, in a large institution like the Children's Hospital, has proved a big job, but everything is now well in hand and will be ready within a week or so. The set itself is complete and ready for installation. It is a specially built Harrington's "Imperia" 7 valve set, capable of working loud speakers in every ward of the Hospital.

Although the subscriptions were generous they were not sufficient to provide loud speakers for all points, so to complete the happiness of the children it will be desirable that a loud speaker be installed in every ward so that every child will be able to listen-in at the one time. There are ten wards at the Hospital, and in all twelve points have been wired up into all of which a loud speaker can operate. Included in the £280 will be four loud speakers, but approximately £50 more is required from the public to enable a loud speaker to be permanently attached to all points. It is to be hoped that this amount will be raised long before Christmas and everyone is invited to send donations which will be thankfully acknowledged by Mr. Moss, the Secretary of the Hospital, Uncle George, of Broadcasters Ltd., or Harringtons Ltd.

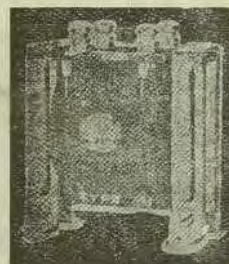


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WIRELESS WEEKLY

Page Forty-Three

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A Method of Mounting Basket Coils

By C. WALSH.

WITH some 1/8in. ebonite, some sealing-wax, and a few valve pins and legs there is little difficulty in mounting basket coils interchangeably so that they may be used in exactly the same way as the more expensive duo-lateral or honey-comb variety.

The Formers.

The first thing to do is to cut out the formers as shown in Fig. 1. Cardboard is the material which will suggest itself, although the writer has been fortunate enough to be able to get hold of some scrap 1/16in. celluloid, which answers the purpose admirably. The best number of slots is nine, but whatever you make it, let it be an odd number. For the sake of mechanical strength, to say nothing of electrical efficiency, the diameter at the bottom of the slots should not be less than 1 1/2 in.—turns of wire smaller than this are of practically no use. Mark out your material so that the tail is 1 1/2 in. wide and 3/4 in. over the diameter of the former, and when cutting out, see that the end of the tail is square with the centre line. Bore two small holes near the edges of the tail, as shown, to retain the ends of the winding, and cut two slots just wide enough to take the screwed ends of the standard English valve pins, which will be mounted as shown in Fig. 2.

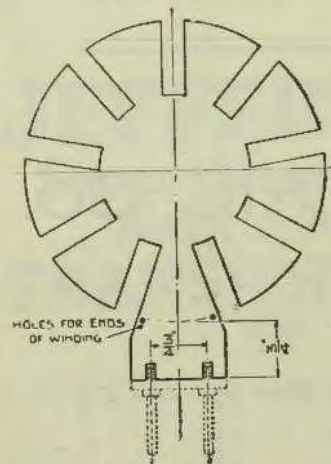


Fig. 1.—Details of Coil Former.

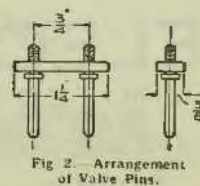


Fig. 2.—Arrangement of Valve Pins.

Pin Base.

The base for the valve pins consists of a piece of 1/8in. ebonite 1 1/2 in. long by 3/8 in. wide. The holes for the pins must be drilled square with the face, or the pins will not be parallel nor in line, and the mounts will consequently not fit the holder which is to be described further on. The idea is to mount your coils so that you can whip them in and out without any fiddling; so be careful how you drill these holes, and get them all the same distance apart. The pins must be screwed into the ebonite, the back-nuts being put on first. Do not screw the pins right home, but leave a couple of threads on which the nuts can be run back so that the ends of the winding may be attached.

Mounting.

Now for mounting. Press the ends of the valve pins into slots in end of the tail of the former, as shown dotted in Fig. 1. See that the former and pins are in line when viewed edgewise. Then carefully run hot (really hot) sealing wax on to each side of the tail, nearly up to the small holes. It is advisable to perform this operation in stages, allowing each quantity of sealing wax to get just below the "runny" stage before applying the next. The result, when viewed edgewise, should be something like Fig. 3.

Should the wax filling be somewhat lumpy it may be smoothed down while still soft with a wet
(Continued on page 55)

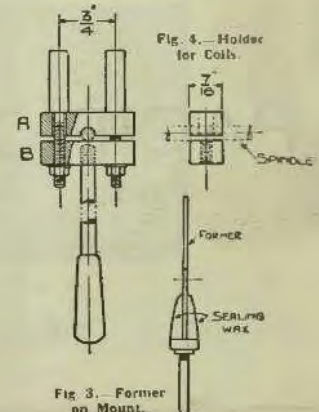


Fig. 3.—Former on Mount.

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Write for Catalogue W16, also Catalogue on Complete Sets.

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WIRELESS RADIO SETS AND REQUISITES ARE OBTAINABLE AT LOWEST PRICES FROM **SWAINS' 119a-123 PITT STREET, SYDNEY** A FEW DOORS FROM THE G.P.O.

CRYSTAL OUTFITS.. From 25/- Operative within a radius of 25 miles.
 ONE VALVE SETS .. From £5/10/- " " " up to 100 miles.
 TWO to SIX VALVE SETS From £28/0/0 " " " 5000 miles.

IMPROVE YOUR CRYSTAL SET BY ADDING

OUR ONE VALVE AMPLIFIER—COSTING ONLY £7/7/-—READY FOR CONNECTING UP—
 IT WILL INCREASE THE VOLUME TREMENDOUSLY—AND THE RANGE UP TO 100 MILES.
 OR OUR TWO VALVE AMPLIFIER AT £10/10/- COMPLETE—OPERATES A LOUD SPEAKER

—WE SELL—

The Famous FROST Parts and Fittings—All Makes of Valves, Phones and Loud Speakers.

The **Sterling** Sets - Loud Speakers - and Phones. Every kind of Crystal-
 JUST ARRIVED, THE FAMOUS STERLING CONDENSERS AND VARIOMETERS

All the Latest Books and Magazines on Wireless.

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Wireless Concerts and News, daily from 12 till 5.30 p.m.

PRICE LIST FREE.

Make it a Wireless Christmas

Make Sure of Getting Good Results

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Everywhere

Don't Swear at your Crystal Set — Get a J.B., and you will swear by it

Your Dealer can supply you... If not, write direct to

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Telephone: Padd. 1228.

Member of Radio Traders' Association.



Masts, wood and steel, any size from 20 ft. to 200 ft.; Aerial Wire; Insulators; Spreaders; Ash and Metal Hoops, all sizes; Rigging Wire; Screws; Halyards; Anchor Pegs; Trucks, etc.; Wireless Cabinets, any design; Portable Poles and Aerials, a speciality. Flags of all Nations and designs.

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W 1005

If you use a crystal detector and want to hear signals and speech louder and clearer than you ever have before you should buy Sacrystal.

Sacrystal

is not an ordinary detector mineral; it needs care and intelligent handling, but the results from such attention will repay you a hundredfold.

Sacrystal

gives the very best results with any metallic springy contact when the point is flat or blunt, and, once secured, adjustment is permanent. Buy a piece to-night at your Wireless dealers, but be sure the container is stamped

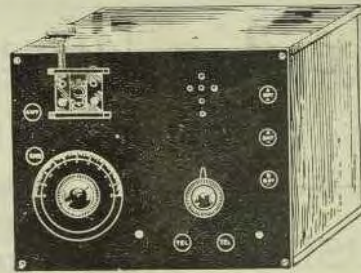
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Retailed at 1/6 a box

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"Simolian" Valve Receiving Set Model 5

To those who find the constant crystal point finding a bugbear when listening-in, we offer the above model. The workmanship is of the highest order, and the results obtained leave nothing to be desired.

Cost complete, including Valve, Batteries, Headphones, Aerial, Lightning Arrester, etc. £14/10/-

Model 6. Same Set, with Dry Cell Valve Equipment, £11/11/-

Model 8. With English Dry Cell Valve £9/10/-

Call and see one of these Sets in operation.

Remember our motto: "Quality consistent with reasonable prices"

Mick Simmons Ltd

Headquarters: HAYMARKET, SYDNEY
THE WORLD'S GREATEST SPORTS STORE

Let's all be glad!
 NOW THAT ALL RADIO DEALERS CAN SUPPLY
"Pico" Head-phones
25/-

These strong but very sensitive Headphones will do your set full justice. They are light and comfortable on the head, but they will give you years of service. They are as delicately precise as a valuable watch, but they are made for durability.

When at your dealers, see the
SIGNAL HOME ASSEMBLY SETS
 Put your own together — Have the cost!

United Distributors Limited (Wholesale Only)
 72 Clarence Street, SYDNEY 592 Bourke Street, MELBOURNE
 And at Brisbane, Perth, Adelaide, Hobart and Wellington.

Why not give
"PICO"
 Headphones
 for
 Xmas?



BUY

**Radio
 Gifts**

*For
 Xmas*

(Continued from page 38)

howling valves the experiments were not a startling success. 2XA looks a very efficient station, and judging by results, it surely is.

Key Clicks.

The last few weeks have been a surprise to many experimenters; not content with working America last week, 2CM has been getting out of bed in the "wee sma hours" to try and get through to England and on Tuesday morning this was accomplished. 2DS and 2CM have both got through to 2OD, an English experimenter. The results can be regarded as consistent as the signals were heard at both stations with ease.

There is no doubt as to the efficiency of the short waves, and this latest feat proves conclusively that they are the "berries". Both stations used a wavelength below 100 metres. Besides sending messages to the English experimenter, a message was sent to His Majesty the King, from Australian Experimenters.

2GR has been transmitting some very good pianola selections, and at times I have almost mistook him for 2BL, on account of his wonderful strength.

2JM has been receiving quite a lot of DX wall-paper. Soon he'll have no more room for them.

This station's transmissions have been very clear and loud lately.

2YI is still as loud as ever and has been doing quite a bit of DX work.

2CS has also been coming in good on code but the phone is a little husky.

2WPF has been booming in lately—I wonder what he is using?

It is quite a simple matter to hear Yanks of a night now. Numbers of them may be heard on a decent low loss receiver and a stage of audio.

Things are looking more promising for an "Around the World Relay" and 2CM's latest achievement will go a long way towards making it practicable.

MR. MACLURCAN WANTS STATION REPORTS.

Mr. MacLurcan again requests owners of experimental stations to send him brief notes of the activities of their stations by the first of each month for inclusion in his "D.X. Notes."

Of particular interest would be: Stations worked, alterations contemplated, effected, and results obtained. Reports on the tones and signals strengths of stations from other States. Any other items of interest.

The "SIGNAL" AUDIO FREQUENCY TRANSFORMER
A MOST APPRECIABLE CHRISTMAS GIFT TO ANY-
ONE WHO OWNS A VALVE SET



It is a gift they will appreciate every time they tune-in for the programmes—because it ensures full volume while eliminating howl and distortion.

21/-

SECURES IT AT ANY RADIO DEALER'S.

The "Signal" Transformer is strong and reliable—made in Australia exclusively for United Distributors Limited. That is why it costs only 21/-, although it is equal in every way to the most expensive imported varieties. Compare it.

5 to 1 and 3½ to 1 and 2½ to 1 ratios.

United Distributors Ltd.

(WHOLESALE ONLY)

72 CLARENCE STREET,
SYDNEY.

592 BOURKE STREET,
MELBOURNE.

And at Adelaide, Perth, Brisbane, Hobart and Wellington

4/- in the £ = 4/- in the £

20 per cent. Off

RADIO HEADPHONES, CONDENSERS, VALVES,
CRYSTAL SETS, Etc.

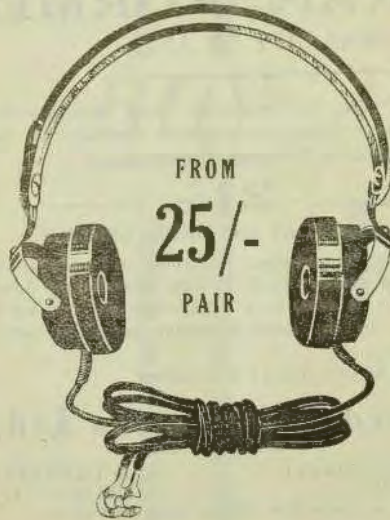
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25/-
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Loose Coupler Set
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Single Slider 25/-

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IMPERIA 32/6

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37/6

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Jefferson 41 Transformers	25/-	Radiotron 201a Valves	25/-
Jefferson "Star" Transformer	29/-	Kellogg Variocouplers 120-2000	55/-
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Murdoch 2000 ohm Phones	22/6	Signal 11 Plate Variable Condenser	11/-
Murdoch 3000 ohm Phones	25/-		

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Brand, Best British Polished

EBONITE PANELS

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Each packed in a sealed envelope.

Stocked in all the Standard Sizes for
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Edges ground true to size.

ASK YOUR RADIO DEALER

Full Stocks of British Ebonite Sheets,
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Variable Condensers table type .001 or .0005	17 6
Receiver Cabinets, Polished maple	11 6
Filament Rheostats 6-ohms	5 0
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Vario Coupler, with knob and dial	15 9
Audio Frequency transformers open core type. Ratio 3 to 1	19 0
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Calibrated dials less knobs 0 to 10	9
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Also quantity of other Wireless Apparatus.

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GRODAN SPIDER WEB FORMERS
Easy to wind up to 350 turns of 26 gauge d. c. c. wire. More efficient than honeycomb coils
Less than half the price
1/3 each

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and obviate that plugging-in nuisance.
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Stocked by all the principal dealers
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15/6 and 16/6 complete







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COLUMBIA Radio Batteries are the result of constant study and experimenting in the largest laboratory of its kind in the world. They have been accepted everywhere as absolutely the best radio batteries made and they will give far more satisfactory results than any others. They will sell quickly and yield a good profit.

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COLUMBIA "Three" Batteries are suitable for use as an "A," "B" or "C" Battery. They are made of extra large sized cells and last unusually long time.

Write for an illustrated, descriptive circular.

NATIONAL CARBON COMPANY, Inc.
30 EAST 42nd STREET, NEW YORK, N. Y., U. S. A.



(Continued from page 44)

finger, and a final glaze may be put on it by holding over a small spirit or other lamp until the surface of the wax begins to run. (If your formers are celluloid, when carrying out the final operation remember that this material flares up very easily.

When the sealing wax has set the coil can be wound, the ends of the winding being taken through the small holes in the tail and fixed under the nuts on the pins. As a precaution against having no spare wire to re-connect should the extreme ends break off, give each end of the winding an extra turn round the tail. Coils so mounted will stand up to the job extremely well, as the writer can testify after using some for several months.

The Holder.

The holder for these coils presents no difficulty. Each holder consists of two pieces of 5/16in. ebonite 1 1/4in. long by 7/16in. wide, drilled as shown in Fig. 4, to suit the spacing of the valve pins. The holes in A are drilled to clear the threads on the valve sockets, those in B being tapped out. A groove is cut on the inner face of A to accommodate the spindle, this groove being of just sufficient depth to leave the spindle slightly proud of the surface. Cut the groove square with the edges

of A. This arrangement allows of any required degree of tightness on the spindle, the grip being adjusted by screwing the valve legs in or out as required. The act of tightening up the back nuts when making the necessary connections will lock the valve legs and will prevent the holder from becoming loose on the spindle. Fixed holders can, of course, be locked up solid, but be careful not to screw the legs up too hard, as this will result in altering the spacing slightly to the detriment of the coil mounts. Handles can be fitted to moving holders as shown. Pieces of aluminium knitting needle, screwed 2 BA at one end and fitted with black sealing wax knobs, can be used.

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The wireless industry by reason of its highly complex technical problems is one which from its early conception has called forth the need of technical specialisation. Provision for coping with this phase was early made by the commercial interests, and the progress that has been early made in every branch of wireless in Australia, can be very largely attributed to the excellent work carried out by the trained research and engineering staffs maintained by the commercial interests.

Wetless Duo Lateral Coils

MOUNTED
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Obtainable
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Suppliers.



These Coils are
attractive in appear-
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structed as to ensure
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**Your inspec-
tion of the
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**37/6
AT ALL
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**Western Electric
Head Receivers with the new
"COMFY" PAD**

World-wide in popularity, "Western Electric" Head Receivers have a considerably increased value by the addition of a new "comfy" pad—light in weight and made of soft leather and flannel. The wearer is thus assured of the utmost comfort and ease.

TRY A PAIR FOR COMFORT'S SAKE
British-made throughout

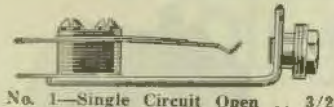
In the mind of the man who judges a thing by its sources "Western Electric" Head Receivers have a sponsor. The sponsor is the name "Western Electric," a name inseparably associated with telephones the world over.

Any Radio dealer will supply you with "W.E." Head Receivers. Always insist on "Western Electric."

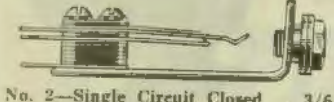
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"WIRELESS DAYS and NIGHTS"**
It is Post Free.

Make it a Radio Xmas!

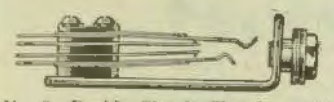
PRODUCTS TRADE MARK **OF QUALITY**
SATURN PRODUCTS



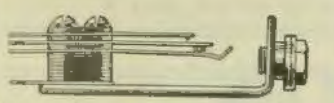
No. 1—Single Circuit Open .. 3/2



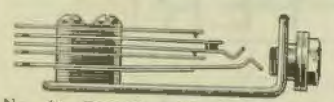
No. 2—Single Circuit Closed .. 3/6



No. 3—Double Circuit Closed 4/5

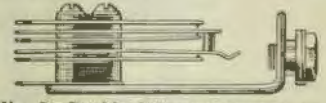


No. 4—Single Filament Control, 4/9



No. 4a—Second Audio Jack .. 5/4
 (For Neutrodyne Receivers)

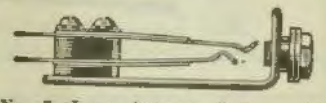
THIS Jack is an improvement on any other Jack on the market. It is made entirely of non-ferrous metals — therefore no magnetic influences. The bracket is made of specially prepared brass strip with rounded edge, bent against the grain, insuring extreme strength and good appearance. Nipples, washers, screws, all made of brass, highly nicked and polished. All blades are made of high-grade German silver of spring temper, having tension springs where needed. The contact tips are made of pure silver, the best substitute for platinum. The ends of the blades are made with the crowfoot offset, allowing easy access for all wires; they are tinned and charged with a Non-Corrosive soldering flux, thereby preventing acid corrosion and consequent short circuits. They are of standard dimension and fit any standard plug, and can be mounted on any panel.



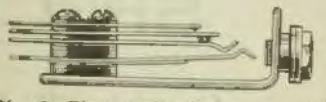
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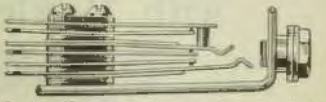
No. 6—Detector Jack .. 6/-
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No. 7—Loop Antenna Jack .. 4/5



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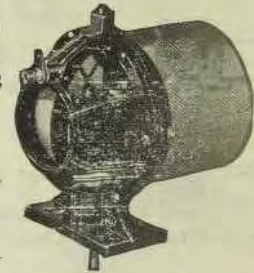


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New Thrills from Order Radio—Out-distance all your friends.
USE GILFILLAN PARTS in your Set

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Aerial Wire, 2 Insulators,

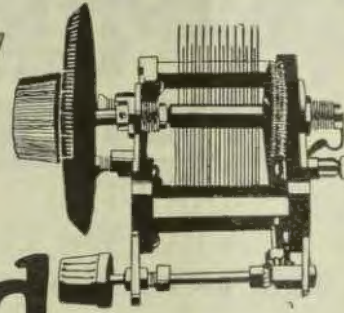
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Complete with Head-phones, Aerial Wire and Insulators

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The inclusion of headphones, aerial wire and insulators with the Harmid, for 40/-, constitutes a wireless bargain that is sensational in the value offered.

Such an offer cannot last indefinitely. Early inspection is advised.

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American Brand Low Loss 100 to 1 Worm Drive Vernier Condenser for LONG DISTANCE

As a special feature this condenser has a hundred to one worm drive ratio geared vernier adjustment of the entire set of movable plates.

With this adjustment the plates may be moved so slowly that the motion is hardly noticed by the eye. This is specially important for the radio enthusiast who is seeking distant stations.

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Two Capacities

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D.V.3 D.V.2
Filament, 3 volts Filament 5 volts
.06 amp. .25 amp.
Both Types Fit Standard American Socket.

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Read the coupon carefully—All it is—send mail to-day. It may mean £500 to YOU!

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The Finance Secretary,
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I should like to maintain one little Aussie Baby at St. Margaret's Hospital for Three Weeks. Please send me 20/- worth of tickets in the Christmas Box Art Union which I will quickly sell for the benefit of the babies. I understand that when I return the pound you will post me one reserved Stall or Dress Circle ticket for any performance I desire except Saturday night.

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Radion also has a fifth very important characteristic—its workability. Even the amateur with ordinary house tools can saw, drill and otherwise work Radion Panels without the slightest danger of their chipping or cracking.

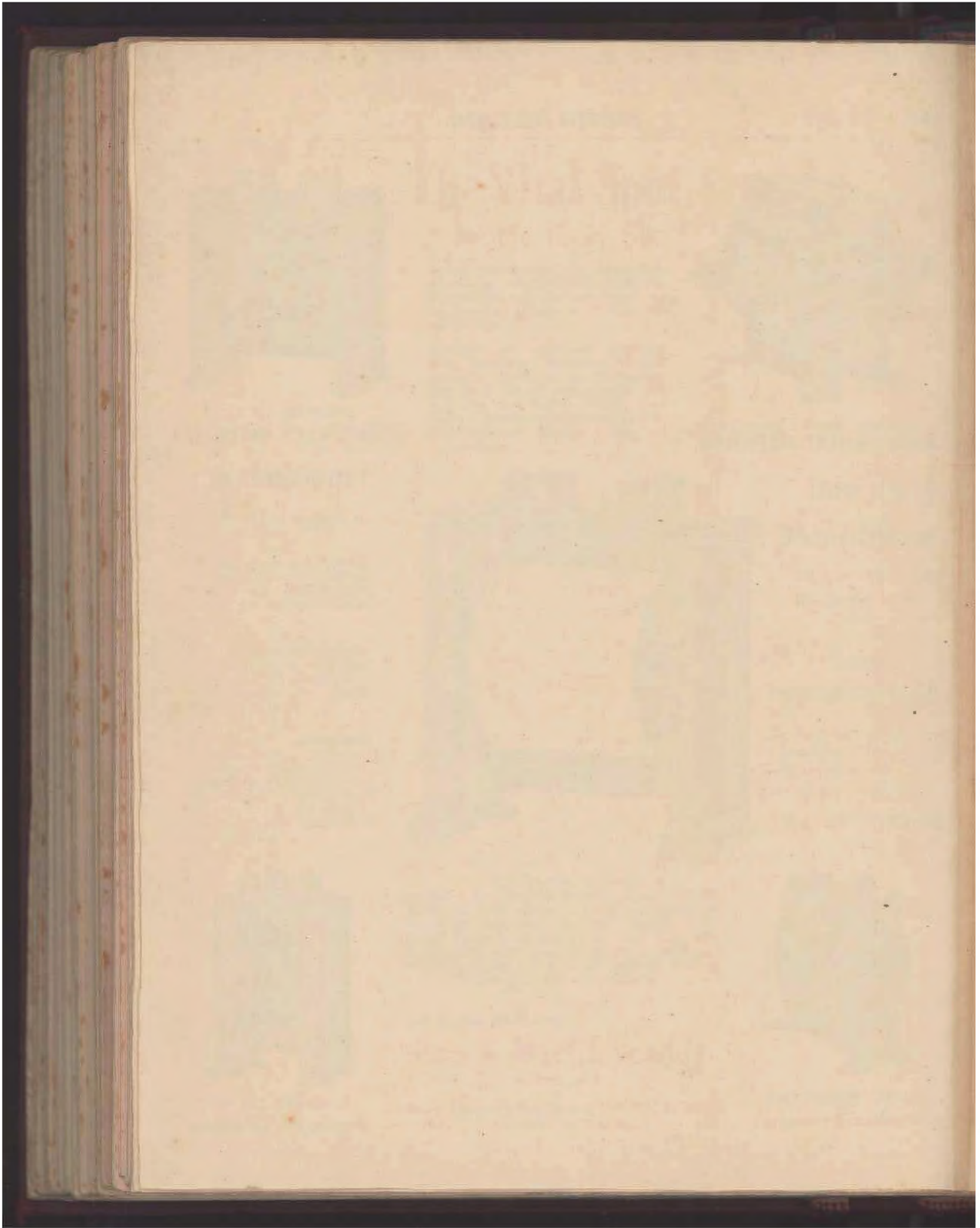
Radion Panels and Parts (dials, knobs, sockets, insulators, etc.) will greatly improve your radio set. Don't be satisfied with inferior substitutes when you can get genuine Radion.

Look for the trade mark stamped on every piece.

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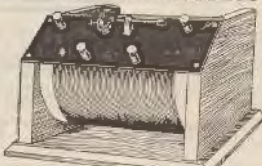
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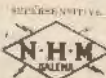


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Coils	Mail	Order
10	3/3	2/6
20	5/6	5/0
30	7/3	6/6
40	9/0	8/6
50	10/6	10/0
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75	15/0	14/6
100	18/0	18/0
125	21/0	21/6
150	24/0	24/6
200	30/0	30/6
250	36/0	36/6



10 Crystal Sets, Standard, 1/6



1/4, No. 8, 1/2



Adjustable Mount, 1/2



Crystal Tap, 1/4



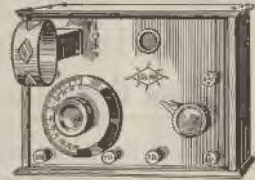
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Mount	1 5 0
Inductron Valve	1 10 0
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Battery	0 3 0
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Colvin Phonos, 4000 ohms	3/0	Phonos E. Amp.	10/6
Colvin Phonos, 2000 ohms	2/6	Phonos G. Double Grid Dual Section	12/6
Triode Phonos, 4000 ohms	3/0	100 Ohm Resistor	1/6
Triode Phonos, 2000 ohms	2/6	100 Ohm Resistor	1/6
Haloid's Phonos, C	2/6	100 Ohm Resistor	1/6
Brown's 2000 ohms set	2/0	100 Ohm Resistor	1/6
Brown's 4000 ohms set	2/0	100 Ohm Resistor	1/6
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