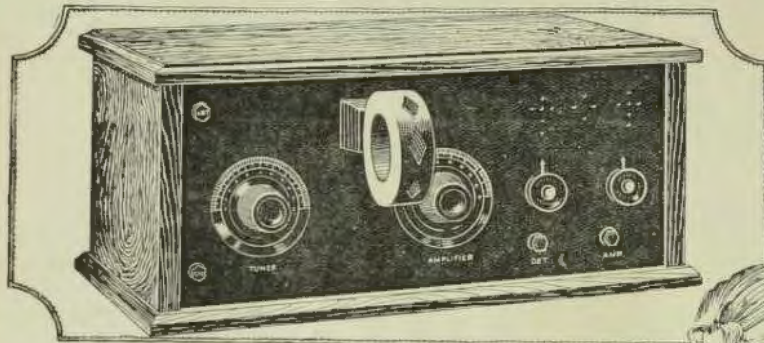


Friday, October 17, 1924.

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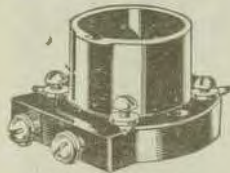
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Moulded Bakelite Vacuum Tube Socket No. 612, Bakelite Panel, maroon finish, for UV-199 Valves. 107 for standard valves.
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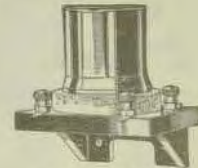


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Price 24/6



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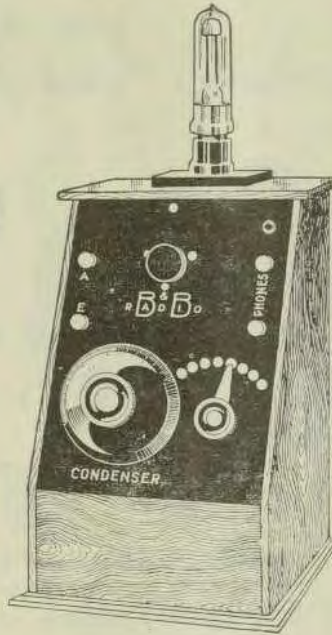
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RECEIVING SET
GIVEN AWAY **FREE**

For 10 simple Reasons
This Offer is
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16 years of age and under



All you have to do is to sit down quietly and write out briefly the five reasons why a valve set is better than a crystal set for the "listener-in." Then write five reasons why you consider it best to purchase a Radio Valve Set which has been built in Australia, in preference to a foreign imported set.

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Write plainly in ink, on one side of paper only, and address your entry to Bennett, Bridgland & Co., makers of B & B Radio Sets, 57 William St., Sydney.

All Entries must reach us on or before November 25th. It is advisable to sit down now and write out your ten reasons.

There is no catch—no spare parts to buy—we simply want your ten best reasons why it is better to buy an Australian made Radio Valve Set, and to the boy or girl submitting the ten best reasons, we are presenting the B & B Single Valve Radio Receiving Set, as illustrated above.

Name and address of prize winner will be published in this magazine on December 12th, 1924. Send us your reasons to-day.

 **Bennett Bridgland & Co**
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- 'Phone Condensers, from 1/3
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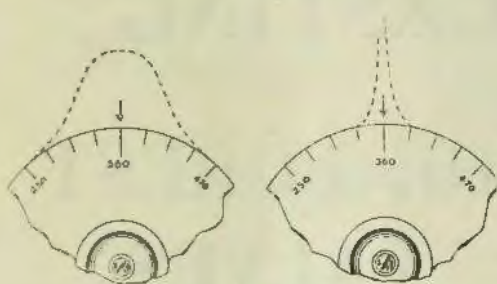
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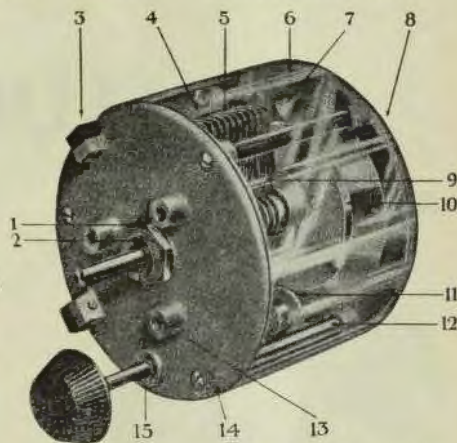
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4. Brass separator to which both rotary and stationary plates are soldered, making continuous circuit for each.
5. Brass silver plated plates; rotary plates log-arithmetic.
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ALL parts are of non-rusting metal, except steel bearings which is covered with nickel plated protective surface. End plate capacity is .000016 m.f., full capacity is .0005 m.f.

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Both types fit standard American Socket.

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TYPE D.V. 2.—Takes 5 volts at $\frac{1}{4}$ amp. on Filament 30/- each
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TYPE D.V. 3.—Takes 3 volts at .06 of an amp. on Filament 30/- each
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Plate Voltage, 60-120 volts, used as an amplifier.

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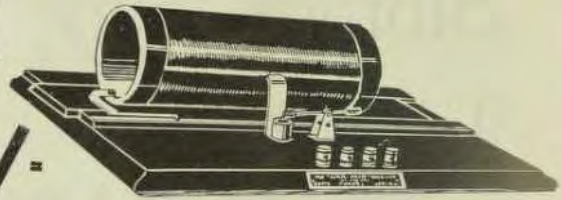
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All parts are stocked.

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The diameter of the coil being one-fourth of its total length maximum inductance is attained. Evidencing his faith in the public's reception of this set, Mr. Cullen has secured the wholesale distribution rights, and has laid in large stocks. Sets may be purchased at his store DIRECT, or from any of the following:

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1 2-coil Variable H.C. Mounting ..	0 15 6
1 .001 Variable Condenser, with Dial and Knob ..	1 0 0
1 6-ohm. Rheostat ..	0 4 6
8 N.P. Terminals ..	0 3 4
1 .00025 Grid Condenser and Leak ..	0 3 6
1 Valve Socket ..	0 2 0
Panel Wire ..	0 2 0

£2 17 3

ACCESSORIES

1 Mounted H.C. Coils ..	1 7 6
1 Detector Valve ..	0 15 0
1 4-Volt. 60-amp. Accumulator complete with Case and Carrying Strap ..	2 18 6
1 50-volt "B" Battery ..	0 14 0
1 Pair 4,000 ohm. Head Phones ..	1 10 0

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TWO VALVE RECEIVER — READY TO ASSEMBLE

1 Ashcoy Polished Panel, 13 x 9 x 3/16	0 9 0
1 2-Coil Variable H.C. Mounting ..	0 15 6
1 .001 43 Plate Variable Condenser with Dial and Knob ..	1 0 0
2 6-ohm Rheostats ..	0 9 0
8 N.P. Terminals ..	0 3 4
1 .00025 Grid Condenser and Leak ..	0 3 6
2 Valve Sockets ..	0 4 0
Panel Wire ..	0 3 0
1 Jefferson Star Transformer ..	1 2 6

£4 9 10

ACCESSORIES

4 Mounted H.C. Coils ..	1 7 6
1 Detector Valve ..	0 15 0
1 Amplifier Valve ..	1 0 0
1 4-volt 60-amp. Accumulator complete with case and carrying strap ..	2 18 6
1 50-volt. "B" Battery ..	0 14 0
1 pair 4,000 ohm Head Phones ..	1 10 0

£8 5 0

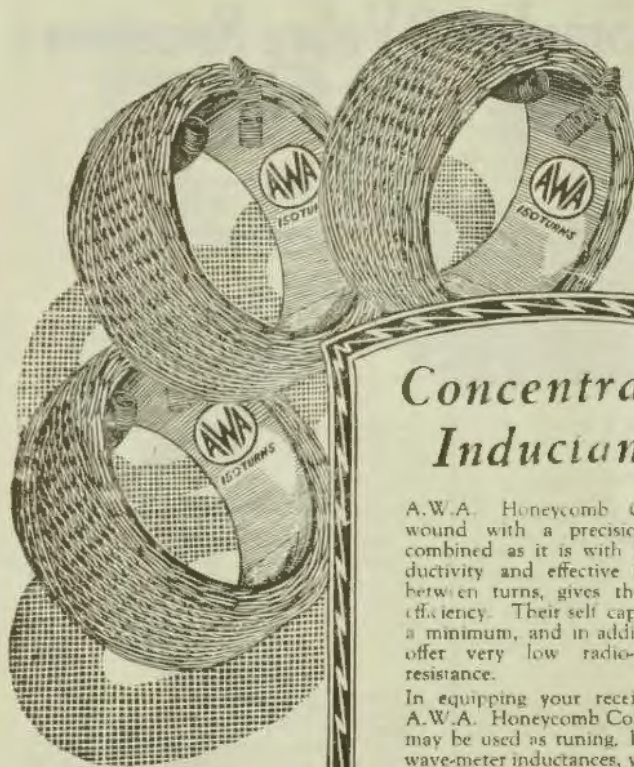
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A.W.A. Honeycomb Coils are wound with a precision which, combined as it is with high conductivity and effective insulation between turns, gives the utmost efficiency. Their self capacity is at a minimum, and in addition, they offer very low radio-frequency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

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VOL. 4. No. 27.

FRIDAY, OCT. 17, 1924.

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EDITOR: 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," 33/37 Regent Street, Sydney, N.S.W.

A. W. WATT

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EDITORIAL

TO BE OR NOT TO BE?

OVER in the States, where amateurs are alive and work well together, the members of the A.R.R.L. relayed a message from the East to the West and back again in something like four minutes. There seems to exist amongst the bunch over there, a fine spirit of camaraderie, a brotherly feeling that makes them all pull together and that has resulted in placing the League very high in the estimation of the Government and the people generally.

Our own Radio Relay League unfortunately, seems to be sunk in apathy, and the records of its achievements would scarcely merit being blazoned in red letters across the sky. To be quite plain, the Australian Radio Relay League has done absolutely nothing to justify its existence.

Before the Wireless Institute took over the management of the League, the executives found themselves eternally up against the stone wall of apathy; although a number of transmitters were members they could not be induced to separate themselves from the lighter and less enlightening side of their experimental work long enough to make a determined effort to get even one thing done. Like the Last Rose of Summer the League faded, and was almost gone when the Wireless Institute, with true courage, took hold of the shattered remains and endeavoured manfully to build it up again into a living thing. New executives were appointed, among them Mr. Phil Nolan (2 YI), in the responsible position of Traffic Manager. So far, the results of Mr. Nolan's efforts have been nil—that is, in the way of practical work. That he is simply up against the same old brick wall that confronted his predecessors. What say you, Mr. Nolan?

Now, the wise men have said that for every evil there is a remedy, and we believe that in this particular instance there must be some way in which the activities of genuine experimental transmitters can be co-ordinated, so that something better than the present aimless and spasmodic effort may be the result.

According to our information, there are approximately two hundred members of the Wireless Institute (N.S.W.) and every one of these may, without paying any extra fees, automatically become a member of the League, by simply recording his name with the Traffic Manager. If those members of the Institute who transmit have not already done this, it might be pertinent to ask 2 YI, whether they have been actually canvassed. If they have enrolled then it is necessary to get down to business and ascertain the actual reasons why they have not yet accomplished anything.

There are three good reasons which might stand investigation; first that the executive is not able to organise this important body; second that the work in connection with membership of the League entails inconvenience or hardship; and third that the work is devoid of that interest which alone makes for enthusiasm. In the first instance the remedy is obvious; the second may be dispensed with, with the remark that nobody who is not prepared to face a little inconvenience should be a member; if the third reason is the root of the trouble, then, as quickly as possible the organising brains of the League should scrap the present arrangements and endeavour to get something going that would appeal to every transmitter. After all, it is simply a problem which is encountered and overcome in business every day.

In all the States of the Commonwealth and in New Zealand there are dozens of transmitters who, provided the work were sufficiently interesting, would no doubt welcome the chance of doing relay work. The first step towards getting them interested, would be to arrange a definite test, and in this direction, why not for a start arrange a relay from South Australia to New Zealand and back? 5 A.D. could be the station of origin, 3 B.D. the first relay, 2 YI. the second, and as a suggestion, the message could be relayed via 4 A.D. Invercargill, N.Z., to 1 A.B. Auckland, thence to 4 C.K. Toowoomba; then via 2 G.Q. Armidale and by a further two stages, back to 5 A.D. Granted that several of these stages would be unnecessary, but as a test of how long it would take to relay a message through a given number of stations, it would be extremely interesting. If something more

weighty is required, why not attempt it in daylight? At least, something would be attempted.

The Australian Radio Relay League is an organisation that every transmitter should encourage. There are approximately two hundred active transmitters in Australia and if everyone of these could be induced to become an active member, then there would soon grow an organization of some considerable use to the country. As things are at present, it is a Relay League in name only, and is likely to remain so until some pep is put into it.

Notice to Readers

Before firing a letter in to us asking why some particular circuit won't perk, get the circuit drawing and check over your wiring carefully. It is next to impossible to cure the trouble by mail. We try to stick to circuits which we know will deliver the goods—in fact in many cases we try them out ourselves, and those that we can thoroughly recommend are published. When possible we stipulate what can reasonably be expected from each particular circuit — and we have proved that in almost every case where a reader complains that he can't get results after building a set as described in *Wireless Weekly*, the fault is in the wiring of the reader's set itself. To prove this, we hold dozens and dozens of letters telling us of splendid results. So, before putting the boot into us, run the tape over your set for something wrongly connected.

MORE PAN-AMERICAN TESTS.

The following communication has been received by 2CM from the American Radio Relay League:—

The amateurs of the countries of South America are so enthused over the success of the May Pan-American Tests that the Radio Club of Argentina asked the A.R.R.L. to arrange another series of tests for October.

Because of the unexpectedness of the request, it was not possible to make a preliminary announcement last month, but we hope the "gang" will "turn to" and poke some signals down south, and establish further two-way communication. Since the last tests the countries of South America have relaxed in their prohibition of amateur transmission, and many amateurs now hold licenses and are bubbling over with an eagerness to establish reliable communication—so, fellows, let's do our part.

Now, here's what we propose to the South American amateurs and our members:

Dates of the tests, October 14th to 24th, inclusive.

South American amateurs will transmit daily from 11.30 p.m. to midnight, E.S.T., on wavelengths between 80 and 110 metres.

American and Canadian amateurs will transmit from midnight to 12.30 a.m., E.S.T.

Code words may be used. You make up your own code and keep a record of it in your log; and be sure and keep an accurate log of your transmission and reception, forwarding a copy to A.R.R.L. Headquarters for verification.

Beginning at 12.30 a.m., E.S.T., attempts at two-way communication may be undertaken. We suggest the waves between 75 and 80 meters as being the most desirable from all standpoints.

DX

Thos. R. Anthony, Auburn, N.S.W., in sending us the DX list printed below, mentions that he would be glad to know the names and addresses of the owners of the stations 3XX and 3UY.

VIC.—3TM, 3UX, 3XN, 3EN, 3EM, 3ER, 3BM, 3AP, 3AF, 3AR.

STH. AUST.—5BG (tone), 5BF.

N.Z.—2BA, 2AD, 2AR, 1AO, 1YA, 4YA.

TAS.—7BK.

Mr. W. Henderson, Colac, Vic., using 1RF, 1 det. and 2 audio, has logged the following:—

N.S.W.—2FC, 2BL, 2RJ, Wagga Co-op., 2HM, 2CB, 2BE.

VIC.—3AR, 3FA, 3ZL, 3HM, 3BQ, 3BI, 3UI.

S.A.—5AD, 5DN.

W.A.—QWF.

N.Z.—4YA; and KGO, California.

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Wireless Weekly

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Phil Renshaw Hon. Sec.
Box 3120 G.P.O. Sydney
Phone B.2235
Art Perrett Publicity Officer

THIS week has been a very quiet one in the Institute's activities, and the only matter of importance has been the Delegates' Council Meeting, held on the 7th October, at Institute headquarters. While it is quite recognised that it may not always be possible for delegates to attend these meetings, it should be emphasised that they are of the utmost importance and every effort should be made for a representative from all Affiliated Clubs to attend. While it is highly desirable that one delegate should attend each meeting, on account that he will thereby have a better grip of the proceedings, it is better to send a substitute where attendance of the regular delegate himself is impossible, rather than leave the club unrepresented. Matters of considerable importance are dealt with from time to time and it would be indeed unfortunate were any decision come to which might be considered to adversely affect any club. If the representative was there he would be in a position to state any objections which may be raised and to have the matter threshed out on the spot. The matter of club lectures was dealt with at the meeting on the 7th inst., and it was explained on behalf of the sub-committee dealing with this matter that their apparent slowness was due not to any dereliction of duty but to a desire to present absolutely the best possible programme and to ensure matters being placed on a firm basis before a start was actually made. The first lecture on the roster will be delivered on Monday, 13th inst., and the Committee have arranged a programme extending from that date to practically the end of the year. This programme is by no means hard and fast, and it may be found desirable to alter it slightly and it certainly will be added to as opportunity arises. In this connection it would greatly facilitate the labours of the sub-committee if members of Affiliated Clubs who are willing to deliver lectures would communicate with Mr. W. L. Hamilton, Box 3120, G.P.O., stating what they are willing to do in this matter. The spirit of co-operation is one which it is essential to foster, particularly in these times when the experimenter is having an up-hill fight, and it is

necessary for all radio enthusiasts, both amateurs and experimenters, to put their shoulders to the wheel and do all in their power to further the interests of the movement. It can safely be said that the officials of the Wireless Institute have unstintedly given their time and energy to the good cause, and delegates to the Delegates' Council have likewise thrown themselves wholeheartedly into the movement—but there is room for every experimenter, and every club member should do his share in furthering the interests of the science.

A little story was related at the meeting, indicating how even the most retiring member can add much to the general knowledge of all: A member of a certain club who habitually sat in the back row and had never been known to open his mouth, was called upon one night by the President to speak on a certain subject. If possible, he shrank more into his shell than ever, but he was finally persuaded to get on his feet, and he said: "I'm not much good on talking, but I may be able to tell you something about . . ." and thereupon he gave them a rattling good talk on the subject involved, and added considerably to the store of knowledge of some of the most promising members of his club. Such little incidents should serve as an encouragement to everyone to take part in club meetings. While it is not advisable to talk just for the sake of talking, if you can add to the interest of the meeting, either by asking questions or by volunteering of a little bit of information, don't be backward in coming forward.—**DO IT NOW!**

Expedition to Central Australia.

A recent letter from Dr. W. G. Woolnough advises that he has been unable to record any signals from N.S.W. experimenters. Unfortunately the conditions have been extremely trying and as 2GW has been working in the midst of dust storms which must be experienced to be appreciated at their true value, it is little wonder that he has not been successful. He has now been obliged to abandon all his wireless gear as baggage has had to be cut down to a minimum and he desires to ex-

press this thanks to all those who have tried to get messages through to him.

Addresses Wanted.

The addresses of the following experimenters who were last known at the addresses given below, are required at Institute headquarters, as communications to them have been returned through the Dead Letter Office:

- C. A. Gorman, Segenhoe St., Arncliffe.
- R. H. Atkinson, Lismore and District Radio Club, Keen St., Ashfield.
- A. J. Connelly, Aquarium Buildings, Coogee.
- C. P. Thomas, 71 Nelson St., Annandale.

Voluntary Closing Down Period.

The response to the Institute's appeal to experimenters to voluntarily close down their stations between the hours of 8 to 10 p.m. each evening has met with splendid success. Those who have not yet fallen into line are urged to do so without delay so that a united front on this matter can be presented.

A. H. PERRETT,
Publicity Officer.



Mr. A. H. Perrett

A. H. Perrett, Publicity Officer of the Wireless Institute of Australia, N.S.W., who has been associated with activities of the Institute for a long time. An electrical engineer by training and profession, Mr. Perrett was responsible for the erection of the tower and aerial and earth systems used at Wahroonga, N.S.W. for the reception of the now celebrated tests from Carnarvon, N.S.W., in 1918. He also erected the masts and aerials on Wireless House, no small task considering the cramped space available. He is an enthusiastic wireless man. In private life Mr. Perrett is Chief Engineering Instructor to the International Correspondence Schools, Sydney.

UNITED DISTRIBUTORS

MOVE TO THEIR FINE NEW BUILDING.

MUCH interest has attended the removal of this popular wireless firm from their premises, 28 Clarence St., Sydney, to their central four-storey building at 72 Clarence Street.

Always noted for the promptness and efficiency of their service, they are now in a much better position to meet the ever-increasing demand for their reliable goods.

The Company states that they now have over £40,000 worth of radio parts and accessories, on the water, the greater part of which will be landed early in October, and that they expect to land from £30,000 to £50,000 worth each month for the rest of this year, so as to have ample supplies on hand



to take care of the demands of their 823 customers, all of whom are anticipating a large Spring and Christmas trade.

Many visitors have already made a tour of inspection of the various departments and have evinced approval and surprise at the care with which every detail has been considered to increase the convenience and comfort of selecting goods.

The floor space of the new building covers 1500 square feet and every inch of this has been carefully planned on the most modern lines.

The ground floor, with its handsome show windows, is occupied by the sales' department, with special facilities for the prompt delivery of radio goods over the counter and ample show space and demonstrating rooms for Radiovox Sets, an exclusive production of United Distributors Ltd.

On the first floor are found the executive offices and the book-keeping department, while the second floor is devoted entirely to stock; the third

floor is utilised for the manufacture of Radiovox Sets and Signal Home Assembly Sets, the output of which is now 285 sets weekly.

The stocks at the new building include every possible requirement in radio sets, parts and accessories and are so complete that all orders can be fulfilled to the moment. United Distributors Ltd. are issuing a cordial general invitation to all interested in radio, to pay a visit and to become acquainted with their excellent arrangements for most satisfactory service to their clients.

We understand that there are some very excellent Coronas to be sampled, but this is a mere detail in the interest which is certain to result from a visit to this very pleasant wholesale radio shopping centre.

In addition to their new quarters at Sydney, United Distributors Ltd., have offices and carry stocks at Melbourne, Perth, Adelaide, Brisbane, Hobart and Wellington.

A NEWCOMER IN THE FIELD.

The Sirius Electric and Radio Coy. has recently established business at No. 9 Macquarie Place. The store is entirely up to date and is well stocked with all types of wireless apparatus.

DX.

D. J. Mickle, Koo Wee Rup, Vic., sends his list. The stations were logged on one UV 199 valve.

VICTORIA—3UZ, 3JM, 3BU, 3XG, 3BD, 3EM, 3EF.

N.S.W.—2RJ (strength 6), 2YI.

S.A.—5AH, 5DN (strength).

BROADCASTERS, AUSTRALIA—2FG, 2RI, 6WF, 3AR.

BROADCASTERS, NEW ZEALAND—4YO.

BROADCASTERS, AMERICA—KGO (strength 3), on 29/9/24.

SOME WAITING.

He had reached the philosophical stage when he slipped into a restaurant for a bite to eat. Then he sat staring ahead, thoughtful in expression, and waited.

It is admitted he did do some waiting, too. What happened to his order couldn't be understood outside the peculiar restaurant kitchen, but he spent half an hour sitting there staring ahead of him.

At last it came. As the waitress put the order before him he started from his deep study as if he had forgotten he had an order coming. Then, looking at the fair transporter of edibles, he said: "You don't look a day older!"

LIGHTNING HAZARD

Do you know that your Fire Insurance Company is not liable unless you have a Lightning Arrester fitted to your Aerial? By using a "Control" Arrester, you conform to their regulations.

Outdoor pattern "Control" Arrester is _____

Retailed by all first class Radio Stores

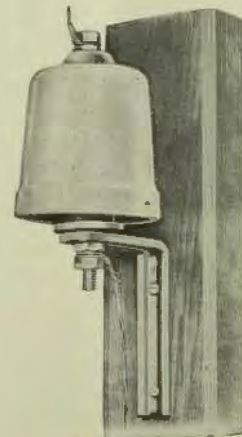
at 7/6 each

Wholesale only from the manufacturers:—

Electric Control & Engineering Ltd.

CHESTER STREET
CAMPERDOWN :: SYDNEY

(Makers of Lightning Arresters and Switchgear for Australian conditions for over 12 years)



"CONTROL"

The Construction of a Selective Crystal Receiver

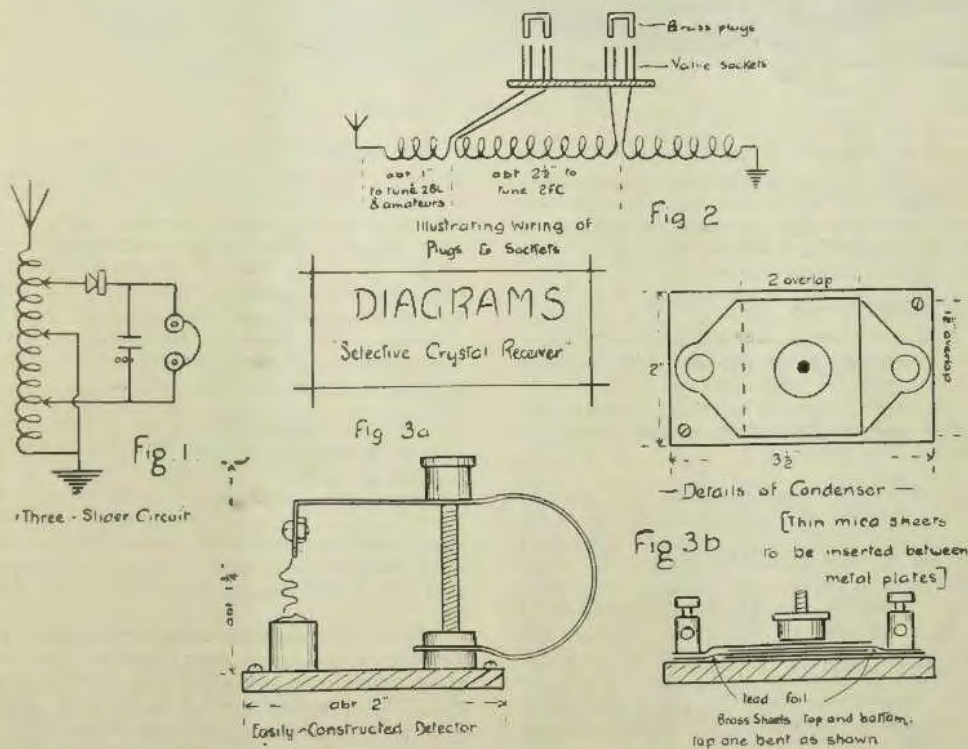
By JOHN RAE

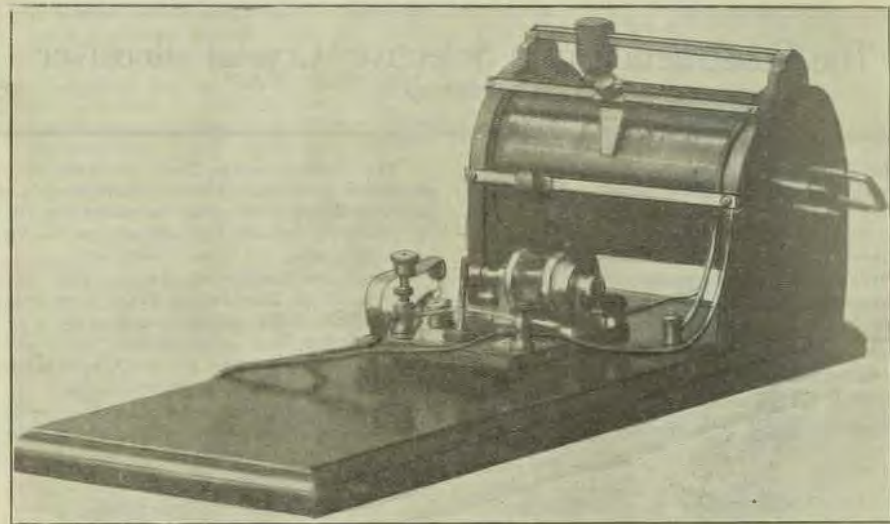
THOSE listeners who receive merely from our high-powered broadcasting stations are missing half the thrills of wireless reception; I mean the logging of amateur stations. Although the range of a crystal set is undoubtedly limited, the writer at Camperdown has logged 35 10-watters on the set about to be described, while 2FC and 2BL are often heard all over the room. Considering that the aerial on which these are received is 60 ft. long, with an average height of 30 ft. and is partly screened by iron roofs and electric mains, this performance reflects great credit on the set.

The circuit, shown in Fig. 1 is known as the three-slider, and from all the loose and vario-couplers, variometers, etc., which the writer has tried, for selectivity, volume, and efficiency on the very low wave-lengths, this circuit stands alone.

If you are experiencing jamming either from spark signals or from 2BL or 2FC's wave length, as often happens up to a distance of three or four miles from 2BL, my advice is: don't add a wave-trap; don't scrap your set and make a loose-coupler, but add another slider or two.

To those who already have a single or double-slider set the modification of the circuit should





The Completed Instrument

present no difficulties. Let it be stated at the outset, however, that this type of tuner is rather more difficult to handle and the beginner would be well advised to build a single or double-slider set, and to make the alterations when some experience has been gained.

Constructional Details.

The dimensions of the tuning coil are: diam., 3½ in., length 6 in., wound for 5½ in., with 26 gauge enamelled wire; the cardboard tube might with advantage be well shellaced before winding, but only sufficient to keep the windings in place, should be applied to the finished coil.

From the photograph it will be noted that two plugs and sockets are mounted on the end of the coil; Fig. 2 illustrates the connections. When these plugs are withdrawn from the sockets the advantages of a small tuning coil are obtained when working on low wave-lengths; i.e., the choking effects of the large dead-end are eliminated, although this may also be effected to a certain extent by connecting the end of the coil to earth. At any rate, the sockets, although not essential, are a very handy refinement and contribute to the general efficiency of the set.

Two detectors are shown mounted, although only one is in circuit at a time; the writer prefers the home-made type shown in Fig. 3a. the components of which are: 1 large terminal, 1 strip spring brass, 1 small nut and bolt, and a crystal cup. Although with the ball and socket type it is easier to search the surface of the crystal, it will be found that, if Hertzite is used with a silver contact, very little searching is necessary, and that when the correct pressure is obtained, this detector will stay in adjustment for considerable periods.

The phone condenser is of the semi-fixed variety, the construction of which is shown in Fig. 3b. capacity is varied by releasing or increasing the pressure between the brass sheets by means of the ebonite knob. The semi-variable feature is somewhat superfluous across the phones, but is useful when the condenser is used in series with the aerial or as an electric lighting adaptor.

Insulation must now receive our attention. The baseboard should be cut away around each terminal and a square of ebonite about 1½ in. square screwed on. The slider rod attached to the aerial should be mounted on pieces of ebonite as shown in the illustration. There are great differences in the

smooth working of sliders; the plunger type is best avoided.

A good aerial, earth and pair of headphones are now required. The two former will depend largely upon available accommodation, but everything depends upon their efficiency. Headphones should preferably have a resistance of about 4000 ohms, and before purchasing them test them as follows: Hold one tab between the wet thumb and index finger of one hand and touch the other tab with the wet finger of the other hand. If a slight click is heard in the phones you may rest assured that they are sensitive. Some expensive phones with elaborate head bands, do not stand much scrutiny of their interiors, so if possible, unscrew the ear-cap, slide off the diaphragm and if it looks a workmanlike job, and passes the sensitivity test, you will probably get good and faithful service from them. Remember that after all, the phones are the heart of a crystal set.

Now get busy and enjoy the thrills of amateur reception bearing in mind that the range of a station varies with the square root of its power, so that even if your farthest amateur is only 15 miles away, that is equivalent to receiving from a 5 kilowatt station 300 miles away.

So dig in and let "W.W." have your DX report.

LONG DISTANCE COMMUNICATION

By "Aerial" in the Star (Christchurch)

IT was not with any expectation of hearing anything unusual that I sat down at my receiver, and switched the two valves on last Sunday evening. But I experienced a pleasant surprise. Giving the dials a preliminary twirl the first station I heard was 2AC, of Gisbourne, in communication with his Argentinian friend CB8. It will be remembered that these two stations made a world's record a few months ago, by communicating with each other over a distance of 7000 miles.

Giving the dials another twist to listen for the South American, I heard Mr. Bell, of 4AA, Palmerston, South calling 6BCP, in Santa Paula, California. "Hullo, is old 4AA stil on that forlorn hope," I muttered to myself as he signed off.

No forlorn hope about it, however, as the next thing I heard was a faint station calling 4AA. Eagerly I strained my ears for the faint fellow's call-sign, and could scarcely credit the fact that 6BCP was actually replying to the New Zealander.

All excited I kept on listening to the exchange of signals, which for the first time in the history of amateur radio, have brought the New World in actual touch with New Zealand.

A message from 4AA to Yankee 6BCP ran:—"You win the boomerang, being the first Yank to work New Zealand." Just at this time another American, well-known 6CGW, then butted in and called 4AA, saying:—"Your signals QRK here on detector, please QSL."

A little later Mr. Bell was in Communication with 6CGW at Longbeach, California. A message from 6CGW was:—"Congrats, You are the first New Zealander to get here." At this juncture, many New Zealand and Australian stations were listening to the exchange of signals, and many commenced calling America in the hope of being next over.

The next message from 6CGW to Mr. Bell was: "Please ask 4AG to wait a few minutes," showing that Mr. Ralph Slade, of 4AG, Dunedin, had also been heard.

Then came my bad luck. My treacherous A battery petered out, and I missed the rest of the fun. However, I have since received a message stating that 4AG had a shot to California the same evening. Among the good work done the same evening was some communication between 2AC and 3AA. 3AA is Mr. Orbell, on board the Port Curtis, and he was nearly 6000 miles out on Sunday. His set is indeed remarkable, as his input power to the two five-watt tubes is only 30 watts. Speaking to 3AM on the subject, he admitted that he would trade his whole set, to have been in 4AA's shoes on Sunday evening. So would the local ham with the "busted fifty-watter."

A simple method of finding the natural wave length of a single wire inverted L aerial is to add together the length of aerial, lead-in and earth lead. Add half the total to the total and the result will be the natural wave-length of the aerial length of lead-in, 40ft.; length of earth lead, 10ft. in metres. For instance: Length of aerial, 100 ft.; The total is 150 ft. Divide this by two, which gives 75. Add 75 to 150 and the result is 225, which is the natural wave length in metres. If a twin aerial is used add one-third the length of the aer-ing to total of length of the aerial, lead-in and earth lead. The length of a T aerial is measured from the point where the lead-in joins it, to the furthest end of the longest side of the aerial. Both sides are not counted.

AN S.T.-100 RECEIVER

By "INSULATOR"

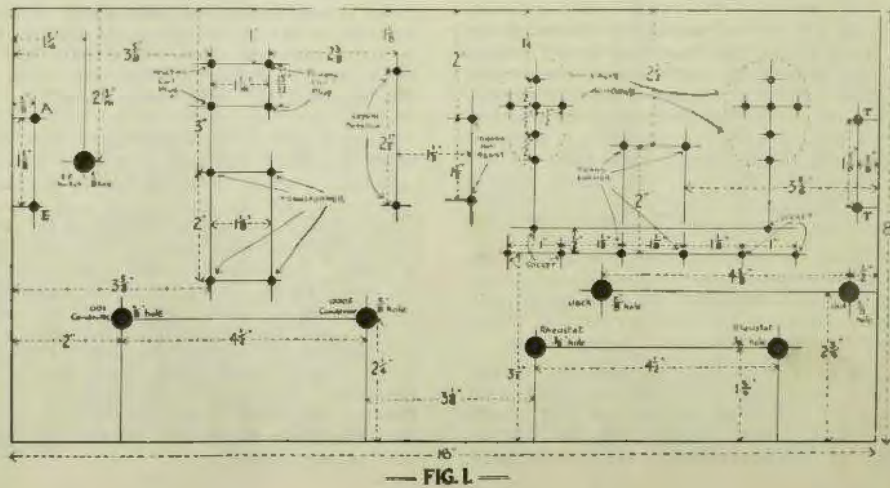
FOR some time I have been inundated with requests for the constructional details of Mr. John Scott Taggart's most famous receiver. In March last I made my debut in "Wireless Weekly" by describing my experiences with the circuit.

The S.T. 100 is, in my opinion, one of the finest all round broadcast receivers to date. The purity of reproduction—thanks to the crystal detector—is unexcelled—the harsh grating noises of the forced valve detector are entirely eliminated—the remarkable volume resulting cheers the hearts of all the family, and yet only two valves and a crystal are used. Actually, the first valve amplifies at radio frequency (for bringing in distance), the crystal detects and the rectified impulses are carried back through the first transformer to the first valve again, which now amplifies at audio frequency and sends the impulses along to the second valve to be amplified again at audio or low frequency. Is that clear? One stage of radio frequency amplification, detector, and two stages of audio frequency amplification—the output of practically four valves, yet only two are employed. Do you wonder why this is such a popular receiver the world over?

By employing honeycomb coils the receiver can be made to respond to all wave lengths. Frequently I am to be found in the early hours of the morning listening to Morse from the high power stations in many different parts of the globe. Although perhaps I don't understand the languages there is a peculiar fascination in receiving a Jap. or a Dutchman; it sort of "gets you" somehow. The mainspring in the whole set is the crystal detector. It often causes trouble. I, myself, experienced considerable difficulty in the early days, but after studying the principles of dual amplification I must now state that no difficulty is encountered from this source. While I don't propose to give here a theoretical treatise of Reflex or dual amplification circuits, I at least will talk to you on the practical side, which I feel sure will be more satisfactorily received.

Here's the components used in my set:

- 1 Bakelite panel, 16in. x 8in. x 3/16in.
- 2 Remler panel plugs (moveable type).
- 1 series parallel switch (improved).
- 1 .001 variable condenser.
- 1 .0005 variable condenser.
- 2 Jefferson Star Transformers.



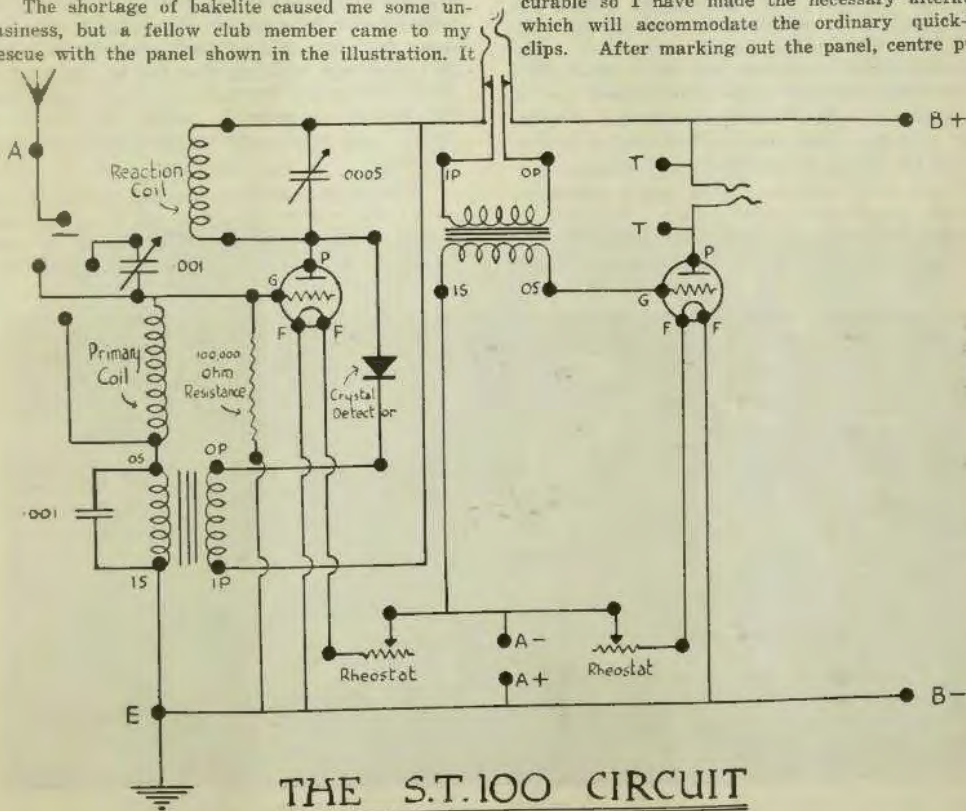
— FIG. 1 —

- 2 Remler sockets for U.V.-199 valves.
(complete with screws)
- 2 30 or 35 ohm. Frost rheostats.
- 1 Crystal detector.
- 1 Double circuit jack.
- 1 Single circuit jack.
- 2 Terminals.
- 6 Binding posts.
- 1 100,000 ohm. resistance and clips.
- 2 3-inch dials.
- 2 2½ inch rheostat dials.
- 1 Bakelite strip 5½ x 1¼ x 1/8 in.
- 1 Baseboard 16in. x 7in. x 3/8in. or 1/2in.
- 1/2lb. No. 16 tinned copper wire.
- 10 3/4in. x 1/8in. round head nickel bolts and nuts. (8 for fixing transformers to panel and 2 for brackets.)
- 2 small brass brackets.
- Sundry wood screws, etc.

The shortage of bakelite caused me some uneasiness, but a fellow club member came to my rescue with the panel shown in the illustration. It

will be seen that on this occasion I have pressed into service one of those pretty colored detectors. Of course the variotector which I used last week a very good detector for all reflex circuits, so if you desire, a variotector may be substituted without any great alterations to the panel. The terminals for the batteries I have again placed at the back of the receiver on a small subsidiary panel which is supported by two small brass brackets screwed to the baseboard. Small wood blocks may be substituted for the brackets at will.

The bakelite panel has to be trimmed and squared. I emphasise squared as for some unknown reason or other it seems a difficult matter to purchase a correctly squared panel. That's true, isn't it? Fig. 1 will assist you in drilling your panel. It varies slightly with the illustrations inasmuch as the clips which I pressed into service for the 100,000 ohms. resistance are now unprocurable so I have made the necessary alterations which will accommodate the ordinary quick-heat clips. After marking out the panel, centre punch



THE S.T.100 CIRCUIT
— FIG. 2. —

your markings before drilling. You will require a 5/32in., a 1/4in., a 3/16in. and 3/8in. drills—only four, so I advise you to drill all the one size holes while you have the drill in the chuck. This saves time. Now that you have this completed, the components will be found to fit snugly into their respective spaces. Pretty compact, don't you think so? Oh! by the way! Watch that the top screw for the valve socket doesn't proceed too far into the socket. They sometimes are a wee bit too long and require to be nipped or sawed shorter, or they will hinder the valve from entering the holder. No other difficulty will be met with.

You have now before you, people, that most difficult of all jobs in set making—the wiring. The illustration shows you just how mine is wired.

Fig. 2 is the circuit and the set can be wired from it. To assist you I have placed a black dot to represent the terminals at the back of the panel. I am sure this will be clearly understood. The improved series parallel switch has a small piece of insulating material directly underneath one of the spring contacts. This is represented in the diagram by a small black line. Do you see it? The rest of the wiring should be straight out.

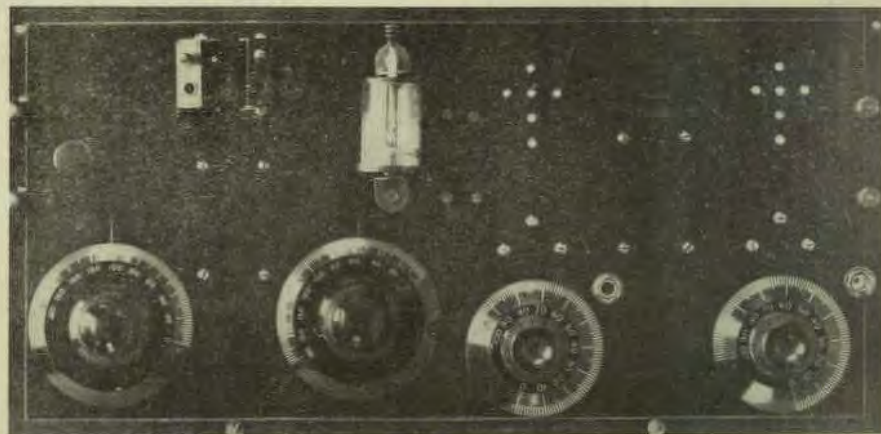
Some folks don't seem to be able to straighten the 16in. gauge wire for the wiring. I myself accomplish this by twisting the wire round the door knob, unrolling up to 12 feet and pulling the length

so unrolled until a slight give is felt. An excessive give means that you have pulled the door knob off and you yourself will give vent to many and varied bad words while reclining on your back in the middle of the floor. So be careful, as perhaps the door knob doesn't belong to you. Provision has been made to allow the first valve to be plugged into, and also there is accommodation provided for telephone terminals as well as the loud speaker plug.

The fixed condenser which is shunted across the secondary of the first transformer may vary with the actual transformer used. Try different capacities from .00025 to .002, although I find .001 to be perfectly satisfactory. A fixed condenser across the telephone terminals is optional, although I haven't shown one in the circuit.

After having wired up and checked over to see that everything is correct, effect the necessary preparations for listening in. Keep the re-action coil away from the primary, and gradually rotate the .001 condenser until you hear the broadcasting station. Bring the re-action coil nearer and tune on the smaller condenser. Adjust the crystal detector to its most sensitive point while the signals are faint.

Now, if your ears are assailed with most weird noises you may be sure that the circuit is growling at audio frequency. This can be eliminated by detuning slightly or finding another spot on the



Front View of Panel.

crystal. If it still persists, reverse the connections of the primaries of the transformers — one transformer at a time. The 100,000 ohm. resistance is provided to stop this audio frequency growling so make sure that it is making a tight contact.

Some people find that when the catswhisker is raised off the crystal no appreciable difference is noticed in signal strength. John Scott Taggart tells us that this is overcome by slightly lowering the filaments of the valves, or increasing the value of the "B" battery. I find 100 volts to be just ideal, although I have obtained louder signals by increasing up to 160 volts.

When playing about with voltages of the order of 100 or 160 volts, be careful that you don't get a "kick" from it. It is somewhat nasty. Ask Mrs. Insulator—she used to disconnect my set at the end of each evening, but now I do—Mor'se the pity (vide 2CM).

Sometimes it will be found that when the reaction coil is brought nearer to the primary the

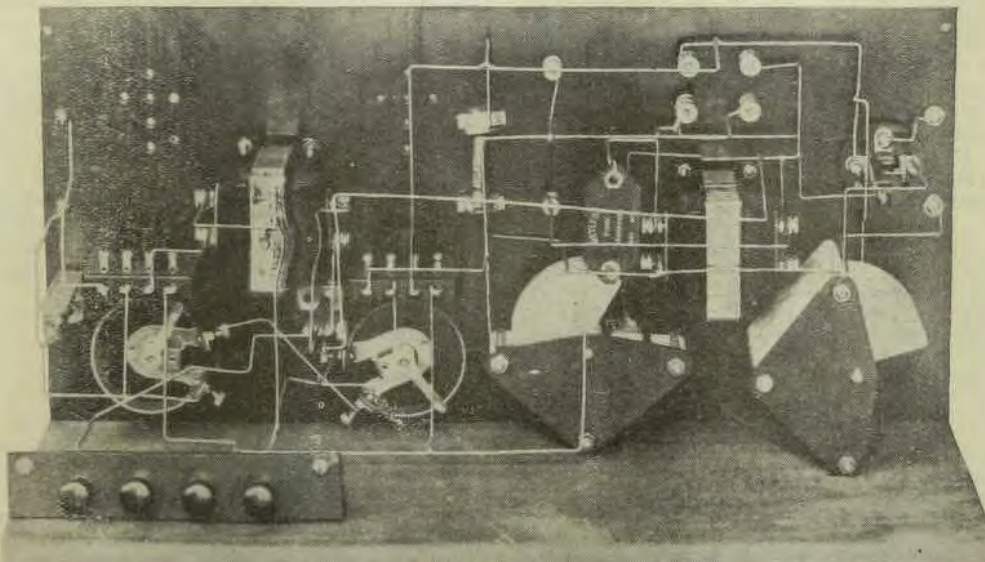
signals instead of increasing actually decrease in strength. This points to the fact that you have the re-action coil running in the wrong direction so take it off the plug and reverse the connections and "everything in the garden will be lovely."

The coils I use are as follows:—

	Amateurs	2BL	2FC
Primary	25	35	150
Reaction	35	50	100

You may find yours vary slightly.

I could write a whole "Wireless Weekly" full about this most wonderful receiver, but the Editor takes an outsize in boots, so I'm not game. Write or bring any queries you have along to me — I will receive you with a smile—Yes! One like that and I won't mind if you call me "Willie"—like the Editor did. Cheerio, all S.T. 100-ites—next week, like Comic Cuts, I shall blossom forth with a stage of radio frequency to be added to this circuit. And, understand clearly that the credit for these circuits belongs to that unexcelled English radioist—Mr. John Scott Taggart.



Back View of Panel.

LONG DISTANCE COMMUNICATION

By I. PODLIASKY, E.E.

Some practical receiving and amplifying circuit embodying a zincite oscillator. Last week we published particulars of "The Crystodyne Principle," embodying the principle of the oscillating crystal formed of a zincite-steel combination. We are now indebted to our contemporary, "Radio News" for further particulars of this interesting discovery.

It was pointed out last week that the zincite-steel contact behaves as a negative resistance, that is to say, it may be used to compensate partially or totally the damping effect of the circuit resistance. It is well known that an artificial reduction of the resistance in a circuit produces an amplification effect, since a given current induced in a circuit will be greater in amplitude if the resistance is less. If an inductance coil or a condenser is connected in this circuit, the difference of potential across these instruments will be equal or even greater when the resistance is reduced. The effect is equivalent to an increase in the voltage or intensity of the circuits similar to the compensation of the inductance by capacity when the circuit is tuned, although the difference between the two methods of compensation is rather great. The compensating effect in the case of a circuit occurs only at one frequency while the compensation of ordinary resistance by negative resistance is effective over a wide band of frequencies or wavelengths.

Regeneration

If the resistance of a circuit is reduced to zero or becomes negative, continuous oscillations are produced. This phenomenon of oscillation and am-

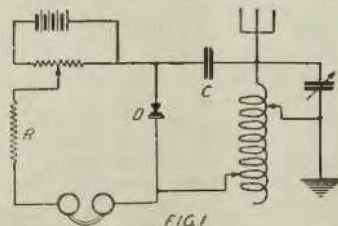


FIG. 1
Regeneration may be obtained in this circuit by adjusting the tuning coil and variable resistance.

plification is exactly the same as in a regenerative circuit using a three electrode tube. In both cases a local source of energy is necessary. With os-

illating crystal this energy is supplied by a battery of about 15 or 20 volts.

In the last article we mentioned the fact that sometimes crystal detectors oscillated without any local source of energy; however there must have been some continuous current flowing through the detector, possibly produced by a bad contact acting as a thermo element.

In Fig. 1 is shown an oscillating crystal receiver using an auto-transformer arrangement for tuning it. The detector D, condenser C, and part of the tuning coil constitute the second oscillating circuit, the resistance of which may be reduced by adjusting the potential of the battery connected across the crystal through the resistance R. It is possible to obtain regeneration in such a circuit by adjusting the potentiometer until the voltage across the crystal is such that oscillations start. Just before the oscillating point the resistance is decreased to such an extent that radio frequency amplification and detection are obtained.

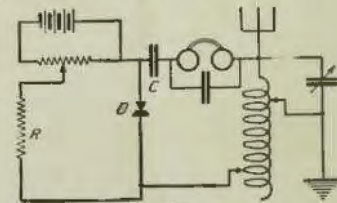


FIG. 2
Another circuit for the reception of spark signals and radio telephony.

In this case the contact functions only as a resistance compensating device for very weak oscillations, the detector effect being obtained for oscillations of greater amplitude. The detector effect is due to the bend in the characteristic curve of the crystal. This effect is similar to that noticed when increasing the voltage applied on the grid of a vacuum tube until the bend in the curve is reached.

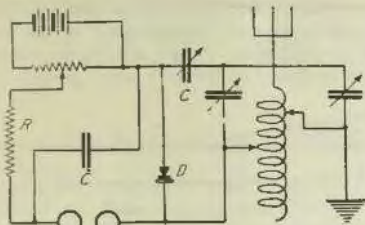


FIG. 3
A practical circuit for the reception of continuous waves.

The hook-up of Fig. 1 is suitable for the reception of spark signals or radio telephony. If the crystal is operated too close to the point where it starts to oscillate, radio-phone signals are distorted, this effect being similar to that caused in a regenerative receiver when the feed-back coil is coupled too tightly to the grid circuit. Another practical circuit is shown in Fig. 2, but in this case, as well as in any other crystal oscillating circuit, low resistance telephones should be used. For the reception of continuous waves, the oscillating crystal may be used as a separate heterodyne, the frequency of the circuit being adjusted so as to produce a beat note with the incoming signals. It may also be used as an audio frequency oscillator provided the oscillations are strong enough to utilise the modulation of the incoming oscillations by the audio frequency currents produced in the local circuit. In this case a tikker or chopping effect is produced at musical frequencies. Fig. 3 shows a hook-up in which the audio frequency oscillations produced by the crystal stops the incoming waves so as to make them audible. If high resistance telephone receivers are used in this cir-

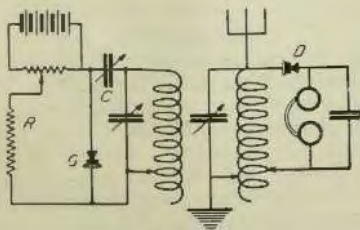


FIG. 4
The oscillating crystal circuit used as a separate heterodyne for the reception of continuous wave signals.

cuit, the resistance, R, of 1500 ohms and the condenser C of .01 mfd. are not necessary.

Some Observations.

It is interesting to note the following facts in the operation of the zincite-steel oscillating crystal:

1st. The stability of the oscillations increase as the value of the series resistance R is increased, and also as the value of the inductance is increased and the capacity decreased.

2nd. The point on the crystal producing oscillations is not the one producing best rectification when the crystal is used as a detector without any battery.

3rd. The oscillating crystal may produce simultaneous oscillations at two different frequencies.

4th. A light contact is not always a good one, as in the case of galena, since in some instances best results may be obtained by pressing the steel point against the crystal.

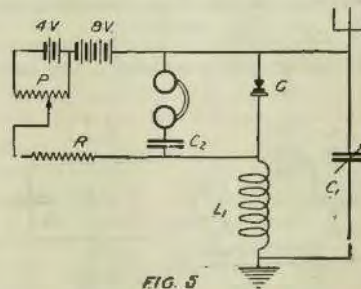


FIG. 5
The potentiometer may be connected across a few cells of the battery only as shown here. This circuit is more adapted for long wave reception.

5th. If a good, sensitive piece of zincite is used in the oscillating detector, the contacts producing oscillations are generally steady and may be kept for a long time if the detector circuit is mounted on a spring or rubber arrangement preventing vibrations being transmitted to the steel point.

6th. The use of the potentiometer across the battery is useful not only to vary the strength of the oscillations but also to tune or control the regenerative effect obtainable with the circuit. It should be noted that the frequency of the current produced by a zincite oscillator varies with the

value of the negative resistance so that the frequency increases as the value of this resistance is increased.

7th. When the zincite oscillator is used just below the oscillating point, weak oscillations are amplified more than strong ones. Figs. 5, 6, and 7 are practical circuits developed by Mr. Lossev, the inventor, in which two batteries are used in order to decrease the current consumed by the potentiometer. A potentiometer of about 400 ohms or more may be connected across a four or six volt battery connected in series with a second battery of about eight series with a secondary battery of about eight volts. Fig. 5 shows a receiver more particularly adapted to the reception of long wave lengths above about 1000 metres. The condenser C2 has a capacity of 2 mfd., the telephones a resistance of 100 to 150 ohms. For the reception of short wave-lengths, the circuit of Fig. 6 is preferable, especially if an antenna of large capacity is used. The condenser C3, of .0005 mfd., increases the stability of the oscillations. With such circuits it is possible to receive radio telephone signals without distortion by properly adjusting the circuit and the potentiometer.

It is also possible to use the zincite crystal as an audio frequency amplifier. The circuit of

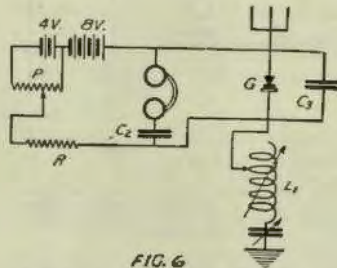


FIG. 6

Another circuit for short wave reception.

such an amplifier is shown in Fig. 7. In this circuit the rectified oscillations from an ordinary galena crystal detector or vacuum tube are applied to the primary of the audio frequency transformer TR, the secondary of which is connected to the telephone and the resistance compensating circuit composed of a zincite-steel detector. By adjusting the potentiometer an audio frequency whistle is produced. The potentiometer is then turned back until the oscillations just stop when the antenna is

disconnected. Then the antenna may be connected, and audio frequency amplification of the rectified signals is obtained. Since a certain rectification effect is produced in such an arrangement the sig-

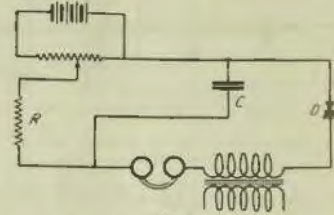


FIG. 7

An audio frequency amplifier using a zincite crystal instead of a tube.

nals may be somewhat distorted if loud, but it is possible to have clear reception by readjusting the potentiometer slightly.

It is needless to say that in all the circuits it is necessary to find a sensitive spot on the crystal exactly as with a regular crystal detector and it is also advisable to try several samples of zincite in order to determine which one is the most sensitive and produces the most steady oscillations.

A suggestion has been made that the music by the very fine dance orchestra at the Ambassador, Willis St., Wellington, be broadcasted by the Wellington Associated Wireless Traders. The proprietor of the Ambassador, it is understood, is quite agreeable to the proposal, and more is likely to be heard about the matter at an early date. A line to station 2YK from the Ambassador would be only 250 yards in length, and as the posts are favourably positioned it could be run up with very little trouble.

South Africa has already its pioneer woman "broadcaster." Mrs. Selina Hirsch, B.A., has been appointed to the staff of the Johannesburg Broadcasting Station, and is in charge of the women and children's hour each day. She will be known as "Aunt Davey," and will tell folk-lore and fairy stories for the children, with interesting little bits of history interspersed. To the women she is to talk on art and music, home decoration, fashion, child welfare, hygiene, and other matters interesting to the housewife.

WHO DISCOVERED "WIRELESS"?

THE CLAIM OF A DUNDEE SCIENTIST.

WE have the opinion of experts of all nationalities on the great discovery of wireless telegraphy but a few of them have informed the world of science that such telegraphy was practised in Scotland before Marconi was born. In giving an account of any discovery or invention, it is but right to give "honour to whom honour is due." The man to whom we refer is James Bowman Lindsay, who was born at Carmyllie in the year 1799 and died in 1862. Not only did Lindsay suggest but he also carried out successful experiments in proof of his theories. James B. Lindsay was a man of Smile's own heart and one whose biography would have supplied the writer of "Self Help" with splendid material. Certainly, few if any, have accomplished so much during a long lifetime of penury.

A Romance of Poverty.

All his life he had to pinch himself to the utmost limits in order to purchase materials, for his numerous experiments. He worked alone on the border of starvation. All the habitation he had consisted of one room, all he could afford; but that solitary room had in it more than any palace in the world could boast of at the period to which is referred. It was lit up by an electric light of his own installation—in the year 1835. It is difficult to realise that seventy-nine years ago a room in Scotland could have been so illuminated. But the room was famous for other reasons. It was here that Lindsay wrote several of his works, and that there was compiled a portion of his marvelous Dictionary in fifty different languages, which, in his own handwriting is to be seen to this day in a glass case at Dundee Museum. He applied his linguistic knowledge first of all to the translation of the Lord's Prayer, in fifty languages that figure in the Dictionary. This was published in book form in 1846. The small thin book, which is now scarce, is a marvel.

The First Wireless Message.

In 1845 he suggested the possibility of extending the electric telegraph to America. In 1853 he maintained that it was possible to establish electrical communication through water without

wires. In 1854 he patented his invention and in the same year he conducted experiments in London and Portsmouth, where he successfully telegraphed without wires across a stretch of water 500 yards wide. In 1859 he telegraphed in this manner across the river Tay at Glencarse, where it is about half a mile wide, and also read a paper on the subject before the British Association at Aberdeen. In the presence of the members Lindsay conducted experiments at Aberdeen Docks, when he proved conclusively the correctness of his theories.

That Lindsay's was a prescient mind will be seen in the remarkable words inserted in the advertisement announcing the opening of his science classes, which appeared in the Dundee Advertiser of April 11th, 1834:—"Houses and towns will in a short time be lighted by electricity instead of gas, and heated by it instead of by coals, and machinery will be wrought by it instead of steam, all at a trifling expense." Fancy all this foretold by a poor Scotsman seventy-nine years ago.

Why was it not Boomed?

After repeating his experiments across a two mile stretch of the Tay, between Dundee and Woodhaven it was thought something would result from the achievement. But nothing was done to give them a practical bearing. This was not Lindsay's fault. The business of the philosopher is to find out the mysterious forces in nature and simply to indicate their application. It remains for others who have the necessary capital and practical ability to adopt the ideas and suggestions, and shape them to a useful and profitable end. The philosopher's part was done and done well by this Dundee mechanic and linguist. Apart from his scientific knowledge, it would have made a reputation for him, rivalling all before him or since.

FOR SALE, Complete 4 Valve Receiving Outfit, including large Magna Vox Loud Speaker and 6 volt 100 amp. Accumulator, Headphones, etc. Mounted in oak case and enclosed in pine travelling case. The outfit is new and guaranteed in perfect order. Seen and heard Room 11, 5th Floor, 178 Castlereagh St., Sydney. Price, everything included, £50.

The Care and Maintenance of Accumulators

By W. A. STEWART.

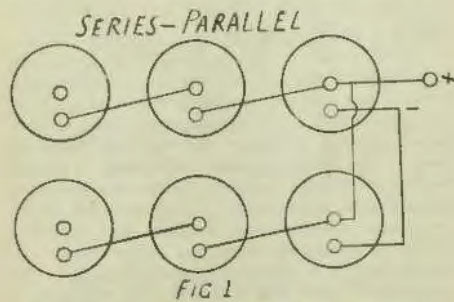
ALTHOUGH dry cell valves are becoming very popular, there are quite a good proportion of listeners-in using accumulators as a means of filament lighting, and it is with this important component that I intend to deal.

There are two classes of accumulators that can be used, the first, and by far the more popular, although not the better, being the lead acid type, which uses lead plates, in a solution of sulphuric acid. The second is what is known as the Edison battery.

This class of battery uses nickel steel plates, in an alkali solution, and is extremely efficient. It will give a constant output over long periods, and is almost indestructible.

Accumulators are composed of cells, and in the lead acid type, each cell gives two volts when charged, irrespective of its size.

In the case of the Edison Battery the voltage is only 1.2 volts per cell.



It will be seen that in the former three cells of two volts each will be required to deliver 6 volts as is required for most valves. These are connected in series, that is, the positive terminal of one cell is connected to the negative terminal of the next and so on. When cells are connected in series, the resultant voltage is the sum of their voltages, and when connected in parallel the voltage is only the voltage of one cell, while the amperage is the sum of the amperage of each cell. The amperage depends upon the size of the cell, the surface of the

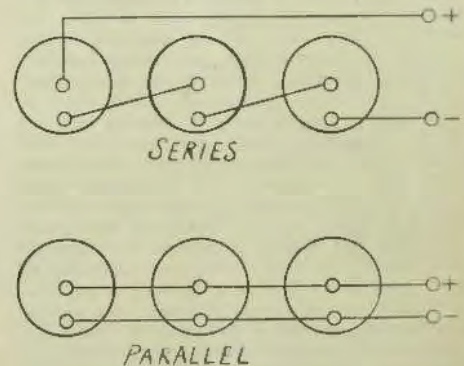
plate etc. When connected in series, the amperage is only the amperage of one cell. Cells can be connected in series-parallel, and in this case, both amperage and voltage are increased. These connections are shown in Fig. 1.

An accumulator does not generate current, and has to be charged from a source of D.C. current.

To give consistent results on any set an accumulator must be kept in good condition, and following are a few ways in which this may be accomplished.

An accumulator should not be called upon to deliver greater current, than its actual rated capacity, in amperes, divided by ten, and for the best results should never be charged above this rate.

It must be recharged at the normal charging rate as soon as it is discharged, and the tops of the plates must always be kept covered with electrolyte.



As was said before, the electrolyte is composed of dilute sulphuric acid, having a specific gravity of 1250. This is acid broken down with distilled water; after a while the water in the solution evaporates, and is given off in the form of hydrogen and oxygen, owing to electrolysis set up in the cell, by the current passing through it. When the water evaporated, the level of the elec-

trolyte falls below the top of the plates, and consequently has to be replaced with distilled water, so that the acid is brought up to normal; on no account should acid be added to a cell. If it is thought that the acid is getting weak, the old solution should be tipped out and a new one put in. This should be done every nine months.

Cells have a habit of shedding portion of the paste with which the plates are coated, and this forms a deposit on the bottom of the cell. If this deposit becomes very great there is a chance that it will affect the plates, causing an internal short, and if not attended to, will ruin the cell. Most of the better makes of accumulator have plenty of space between the bottom of the cell and the plates, and for this reason they are very desirable, as any deposit is readily detected, and steps can be taken for its removal. One of the greatest troubles with accumulators is sulphation, and care should be taken to guard against this trouble. It is here that the Edison cell scores, as it will not sulphate, no matter how badly it is treated.

If a cell is left discharged the active material will form white lead sulphate, and once a cell sulphates it is hard to remedy the trouble. Sulphation is due to a cell being left in a discharged condition, and this should always be avoided. When a cell is sulphated it will not hold its charge, and if very badly gone may not charge up at all, sulphation can be often cured by means of a long slow charge of about half an amp or so; this has a tendency to cause the sulphate to leave the plates and settle on the bottom of the case, from which position it can easily be removed. A cell when it is fully charged should read 2.3 volts and should never be discharged below 1.75 volts per cell.

A battery should be frequently tested with a hydrometer, which shows the specific gravity of the cell. This instrument is usually conveniently marked, and little trouble should be experienced in observing the reading. A cell when fully charged will show a reading of 1.210 on the hydrometer, and when discharged will show a reading of 1.180. It is best to leave the charging of an accumulator to people who are well up in that line, as accumulators have to be looked after, otherwise they will soon deteriorate.

If a battery is sent out for charging the user has no trouble as far as charging is concerned, and is only suffered the inconvenience of having to wait till it is charged. On the other hand it can be charged at home by means of a suitable

rectifying device to convert the A.C. into D.C. and step it down to make it suitable for charging the battery. There are two types of rectifiers in use at present, the magnetic, and the valve type. An electrolytic rectifier can also be employed, but is rather a messy device.

The two type of rectifiers are usually put up in suitable containers, will work quite well off the average lighting circuit, and will charge the battery while you sleep.

If the average radio battery is given a charge for one night each week, it will never be discharged and can always be relied upon to give satisfactory service.

After a battery has been charged, it will usually be found that a little acid has collected on the top of the cell; if not wiped off, this will cause the terminals to corrode, and is often the cause of noise in a receiving set. The terminals of any accumulator should be smeared with vaseline to prevent corrosion, and the top of the case should be kept free from acid and dust.

Remember that the accumulator is not a piece of apparatus which can be forgotten, and if a little care and attention is paid to it the results will be better, and the accumulator will have a longer life.

TRADE NOTES.

A DEPARTURE from their widely known and varied engineering activities, is the entry into the radio and electrical world of the Clyde Engineering Company Ltd. of Granville, N.S.W. This firm has been engaged in the manufacture of storage batteries for motor cars, home lighting and power schemes for the past 12 months, and having now proved absolutely, the quality and efficiency of their battery, they have recently opened an up to date battery service station in Goulburn Street near Wentworth Avenue, to facilitate the efficient marketing of their products, and to give the wireless enthusiast particularly, the service which spells success in any industry of to-day.

They are now manufacturing a very efficient battery for radio work both in glass jar containers and ebonite jars, both types of which they advise having supplied to both the Postmaster-General's Dept. and the Naval Dept., Garden Island, for both wireless and telephone work. They also advise having an extensive stock of all types always on hand; every battery is guaranteed for 12 months.

We wish the Clyde Engineering Co. Ltd., every success in their new enterprise.

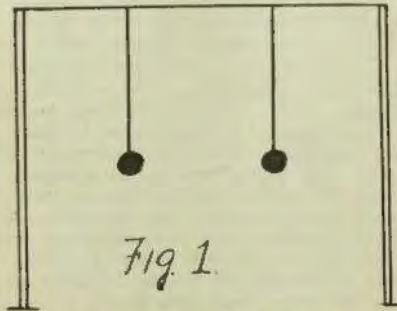
ABOUT RECEIVERS

By KWAT.

A few words about "wireless" generally and "receivers" in particular. I know that I shall pull a storm of abuse and very adverse criticism about my ears. However, after reading such a number of contributions in the various magazines it seems to me that the science of "wireless" is not only losing its fundamental characteristics, but is being distorted into a hobgoblin, freakish, unscientific monstrosity.

Now to start—"receivers"—quite a number advocate (and get reasonable results from) aperiodic circuits, i.e., untuned circuits, their mode of employment being an aperiodic open or aerial circuit and a tuned secondary circuit, or vice versa, apparently, as the fancy takes one.

Now, let us see what is being done—using the pendulum experiment to explain myself. Suspend two weights as shown in Fig. 1, and set "A" swinging. It will be noticed that "B" commences to swing with a similar amplitude, but in the reverse



direction. Reduce the length of string attached to "B" and you will notice that the amplitude of its swing is considerably reduced. Now if "A" represents the transmitting station and "B" the receiving aerial by having your receiving aerial aperiodic, i.e., open circuit untuned, an exactly similar effect takes place. Your aerial is forced to swing when the string is short, which is at a much more reduced amplitude than if it was tuned correctly. The correct procedure for maximum results then, is to tune your aerial correctly. Again

revert to the pendulum parallel, but this time consider weight "A" as being your receiver aerial circuit and "B" as the secondary. Tie a piece of fluff or down on "A" so that it just brushes "B." What happens? The amplitude of its swing is reduced, likewise that of "B" although both strings are the same length. This time they have the same amplitude, which is, however, damped down as it were by the action of the fluff. This damping is equivalent to having the coupling between the coils too tight, the field of one interfering with that of the other, the phenomenon called "damping" setting in and reducing efficiency, although the circuits are synchronised. Now, in operating your set, taking a crystal set as an example (the trigger and heterodyning effect of the valve are too lengthy in explanation). First tune your primary; (it can be considered as receiver No. 1) until the amplitude of the swings are at a maximum, then tune the secondary likewise. How can you tell when you get your circuits in this desired state of synchronism? Well, by results only; persevere in the fineness of adjustment, while gradually loosening your coupling and note results. Not only will an increase in signal strength be noticed, but also owing to the fineness of tuning, there will be a considerable reduction in the jamming and static nuisances. In well designed tuners, either valve or crystal, this effect will be most marked.

The next wireless trouble is the head phones. In a local dealer's the other day I was offered a pair of phones which were stated to be 3,000 ohms, but on examining them saw that they were 1,500 each ear piece. Now this is a case of the dealer unintentionally trading on the ignorance of the public. Resistance as referred to in "fones" is purely a term of proportionate expression. Take as an instance an electro-magnet—while we know that its magnetic attraction varies in the reverse proportion to the square root of the distance from the pole to the object to be operated upon, its designed strength is governed by the number of turns of wire in its make up, its strength being in direct proportion to the number of turns, known as ampere-turns. The telephone is an exactly similar instrument, so the same law applies. The greater number of turns round the pole pieces the great-

er their attraction on the diaphragm. Increasing number of turns naturally increases the resistance, hence, referring to the sensitiveness of the "fones" as their resistance, is purely an expression preferred to making reference to the number of turns of wire around the pole pieces.

Now if a resistance is placed in series with the phones but does not envelop the pole pieces, it cannot possibly increase their sensitiveness, in fact, it reduces it, so on no account can two ear pieces of 1,500 ohms each, whether they be connected in parallel or series, be considered as 3,000 ohm. fones. The next item of complaint is the "aerial," the instrument that stamps the home with the hall mark of wireless. I have in mind a little receiving aerial that I saw recently, two nice little 40 feet masts, each supported by 8 guys and they in turn decorated with three Insulators each. The masts supported one lonely little wire.

Now reason this out for yourselves—when using a minimum aerial, i.e. a frame aerial, umpteen valves are required to obtain results. Next refer to the Coastal Radio Station Aerials; I know of one quite 600 miles from 2 FC, able with one valve, to receive him on a loud speaker. Now, where was the sense of that lonely little wire? The fundamental principles of an aerial are (1) to intercept the wireless wave; (2) to be part of, and help tune the primary circuit.

I don't profess to know how wireless waves are propagated, but for reception, I am emphatic on height in the aerial. Don't be gulled by the single wire 40 foot long, 20 foot high stunt, as some people advocate. Shove her up in the air as far as possible. Of course length and number of wires have their limitations, but the usual amateur, with his limited back yard, is not going to reach these. It is, however, a simple matter to perfect the aerial system by experiment, gaining some idea also, of its electrical length and capabilities. Proceed as follows: First tune the set as mentioned in the first part of this article—now go out and put another 20 feet on to the end of the aerial (it won't matter if it is necessary to change the direction on the new piece). If it is not possible to increase the length, just add another wire to the system, come back and note your tuning. It will be found that considerably less inductance, or capacity is required in accordance with whatever method of tuning variation is employed. Keep on experimenting in this matter, until the inductance, or capacity, as the case may be, is at a minimum, and signals are at their maximum. Some inductance, of course, is required in the primary for the neces-

sary transfer between the circuits, but, a marked improvement will be found by having your wave length taken up in the aerial, over having it in the primary coil.

All tests, of course, should be made on weak signals. Two important items should be borne in mind when designing an aerial: (1) elevation is to some extent lost by running the wires directly over a building and the capacity will be increased far above that required, hence, it is possible to effectively employ a minimum wire in the system, possibly an L wire; (2) the higher the aerial the greater the number of wires that can be used in the system, which all goes for efficiency.



83 Cabramatta Rd., Cremorne,
Sydney, 6/10/24.

To the Editor, "Wireless Weekly."

Dear Sir,—Since the appearance of my D.X. list in last week's "Wireless Weekly," for which I thank you, I have received the following U.S.A. amateurs:—6APC, 6GN, 6CC, 6CU, 6NOH(?), 5ABG, 6BCP, 5AKN, 6ASE, 6CTO. This addition may be acceptable.

Also, I would like to tell 2GQ and others interested, through your paper, that I have heard ABC being called by 2XD several times. His signals are of fair strength, but no intelligence can be gleaned from solely "ABC de 2XD," as he uses "de" and not even the country is specified.

I should be glad to hear from others who have heard him, with a view to locating his station.

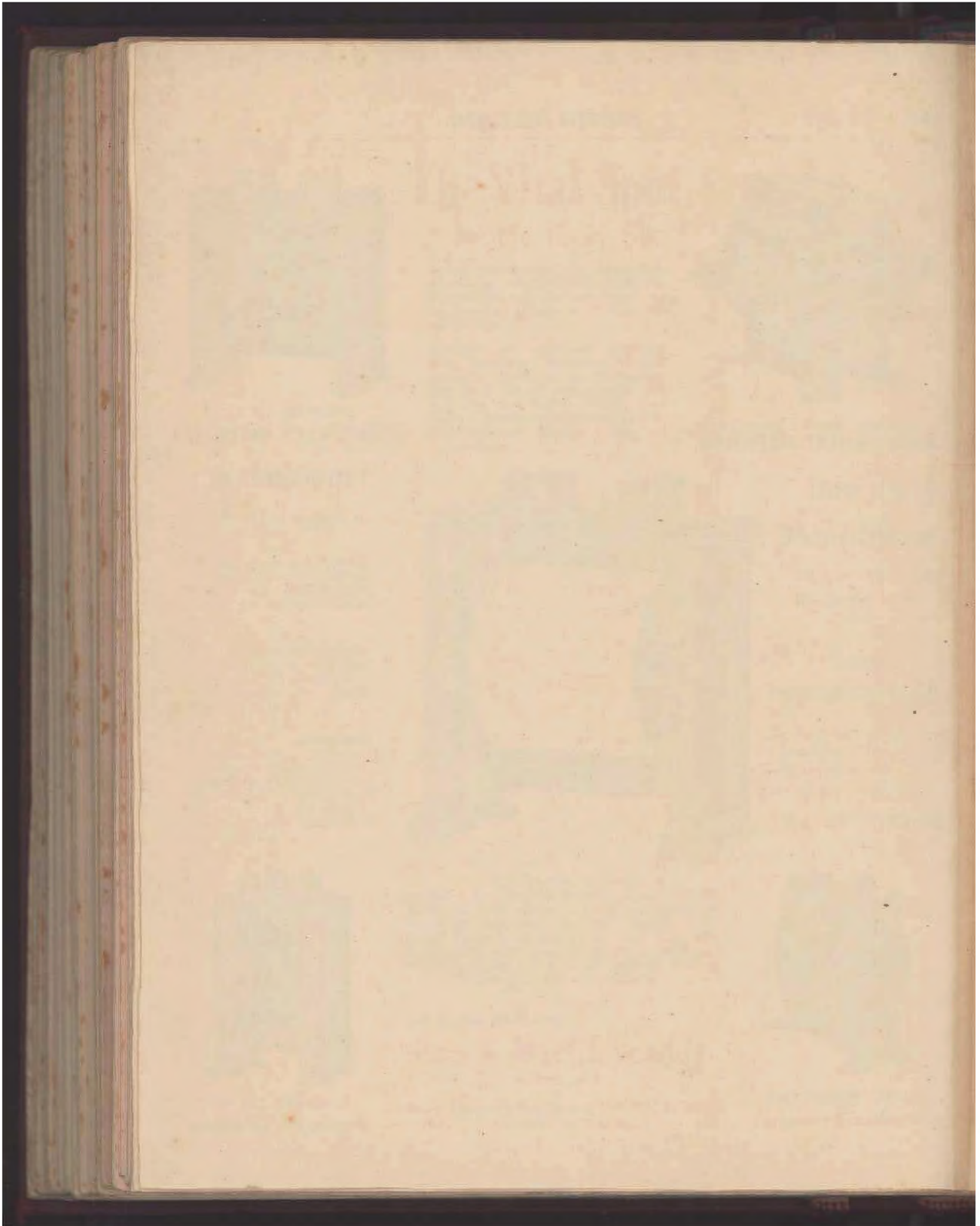
If your space is not too congested, would you please announce that my present wave is 130-140 metres, and that since no fixed wave is necessary I have reduced same.

I must thank you for the publication of the N.Z. transmitters. We have had a lot of trouble in getting their Q.R.A.'s previously.

Wishing you every success,—Yours truly,

C. PRESTON-SMITH,

A-2ZZ.



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Table with columns for item names and prices. Includes items like '1.1K three clipper, 100L', 'KERN QUAY PRICES', 'Tubes, 4000 ohms', 'SPECIAL ADVISEMENT'.

- 33 Tubes - 250/1150 Metres... 4/3
140 Tubes - 450/1150 Metres... 8/6
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REINARTZ ALL-WAVE TUNER

In the issue of "Wireless Weekly" of Sept. 5th we published an article entitled "Another Short Wave Receiver," by W. A. Stewart. Quite a number of amateurs built this receiver and report splendid results. Mr. Stewart has himself obtained some extraordinary results on this one-valve receiver, and, as will be seen from his DX list printed below, this type of set can be well recommended:

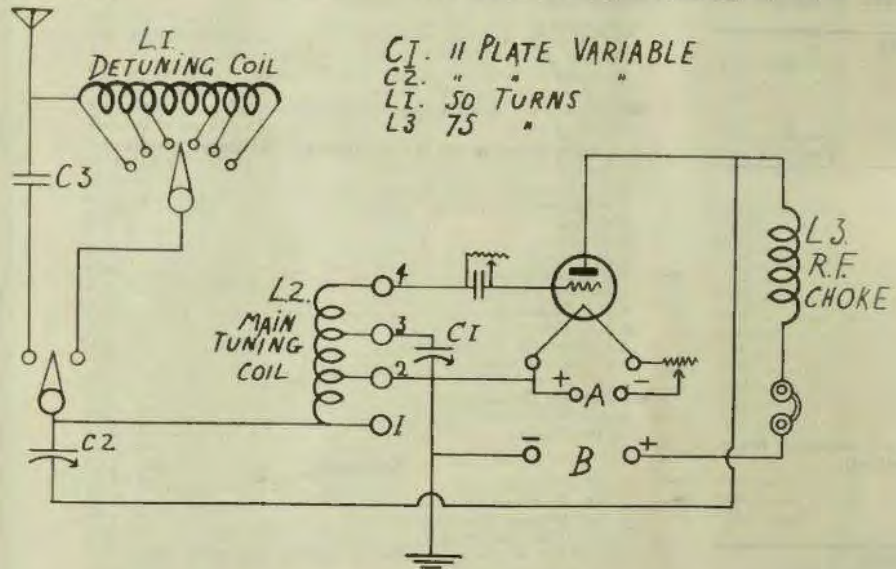
VICTORIA.—3AR, 3BD, 3IP, 3OT.

NEW ZEALAND.—1AO, 3AM, 4AF, 4IA, 4AK, 2AP, 2AC, 4AG (very strong), 2XA, 3ZA, 2YF, 2CJ, 4AA, 4YA, 3AA.

U.S.A.—KGO.

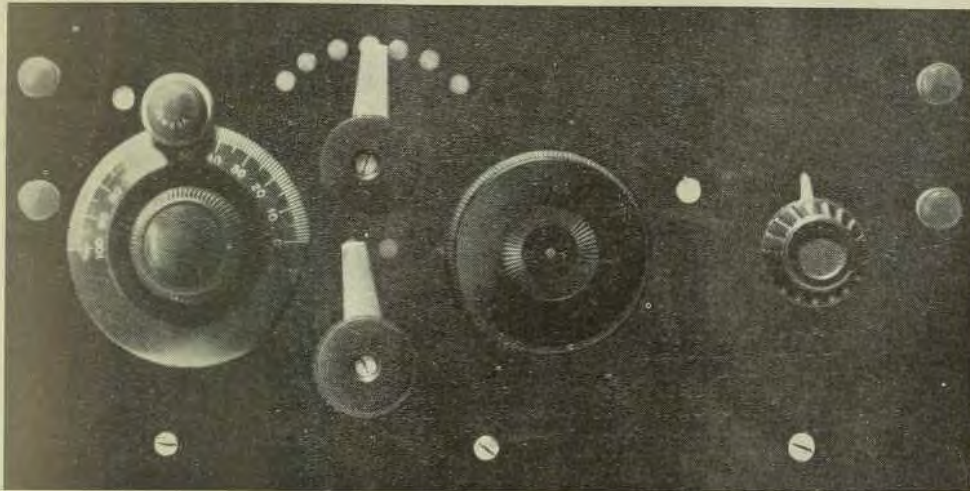
Code words were heard on 50 metres, but no call sign was attached. Three harmonics of 2BL and one of 2FC have been heard around 100 metres, together with harmonics of nearly all of the local transmitters, which are almost as loud as their correct wave.

For the convenience of those who contemplate building this excellent receiver we are reprinting the circuit, and, so that the mounting of the various parts may be quite clear, the photographs of Mr. Stewart's set will be found helpful.

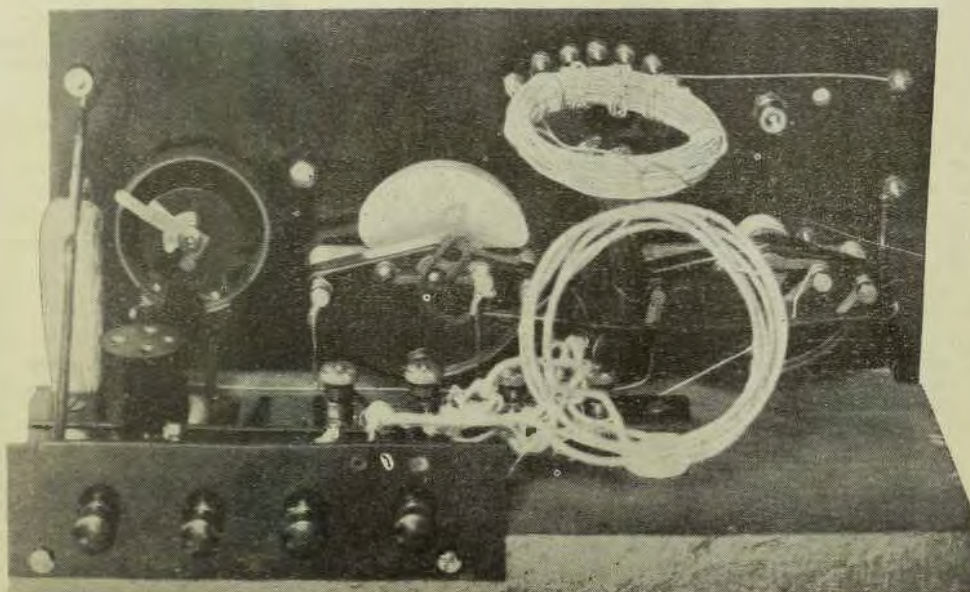


THE REINARTZ CIRCUIT.

Condensers C1 and C2 are 11 plate variable. C3 (fixed) is composed of two feet of ordinary lamp-flex, one wire of which is connected to the aerial and the other to the switch point. The other ends are left disconnected.
L1 consists of fifty turns of 24 D.C.C. wire wound in the following fashion. Get an ordinary drinking glass of about 2½ in. diameter. Wind the wire on jumble fashion, slide the coil off and wind a few turns of thread round it. L1 is tapped every ten turns and the taps taken to a 6 point switch.
L2. Use the same drinking glass, and wind on No. 14 or No. 16 D.C.C. wire as follows. Wind on five turns, take a tap; add fifteen turns, take another tap; five more turns and another tap. Take the ends to four terminals mounted on a strip of bakelite.
L3 is wound as above, and consists of 75 turns of 24 D.C.C. without tappings. This coil should be mounted at right angles to the other coils.



Front of Panel .



Back View of 12in. x 6in. Panel.

M.A.R. 1924

CORRESPONDENCE.

Box 423, G.P.O.,

7/9/24.

To the Editor, "Wireless Weekly."

Dear Sir,—Follows an account of, to me, a rather strange occurrence. Somewhere round 8.30 p.m. on Monday, 6th Oct., I was combing my hair with an ordinary xylonite comb, when I noticed a rather pronounced "crackling" sound apparently coming from said hair. Of course, I immediately thought of static electricity, as most of us are familiar with the school-boy stunt of rubbing an old pipe stem vigorously on the seat of the trousers to cause it (the pipe stem) to pick up sundry small pieces of paper; also the practice of rubbing the pet cat's fur the wrong way in order to see the sparks. Out of curiosity I switched off the light and ran the comb through my hair, when lo! and behold! a great fireworks display took place.

Can you deny that I was the centre of some strange disturbance when I tell you what happened further?

Experimenting again, I passed the comb through my hair a few times, and then brought it near one of Mr. Whiddon's income returns which was lying on the table, when, to my surprise, this well-known piece of paper jumped joyously up to meet the comb!

No, sir! This is Australia—not U.S.A., where wood-alcohol could be justly blamed, perhaps.

I am curious to know if static was causing much interference with wireless reception on this occasion, as my own set was, unfortunately, out of commission at the time.

Perhaps some "bug" whose set was operating could give information.—Yours truly,

L. FRANCIS GERARD.

CONCORD AMATEUR RADIO CLUB.

This club held its annual meeting on Thursday, October 2, at the clubroom, "Euripedes," Wallace Street, Concord, at 8 p.m. The attendance was excellent.

The vice-president, Mr. Stephenson, occupied the chair.

The minutes of the previous meeting having been finished, and the correspondence read, the business arising out of it was dealt with, this being the matter of the club's transmitting license under the new regulation.

The half-yearly balance sheet was then presented and accepted. This showed a creditable balance after the lay-out of the last few months.

The secretary then read the annual report.

This being finished, the election of officers for the next twelve months resulted in the following being chosen:—President, Mr. J. Stephenson; vice-president, Mr. E. Wetton; secretary-treasurer, Mr. W. H. Barker; committee, Messrs. A. C. Smith and Gray; auditors, Messrs. Denner and Maenamara.

After this had been finished the members discussed the position for the next twelve months, after which Mr. Gray gave a very interesting lecture on "Waves."

The meeting then adjourned, time being 10.30 p.m.

Any persons interested in the activities of this club are asked to communicate with Hon. Sec. W. H. Barker, "Euripedes," Wallace Street, Concord, who would be pleased to answer such communications.

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INTERSTATE NOTES

TASMANIA

A VOICE THAT FAILED.

AT the beginning of last week the Hobart Radio Experimenters' Club arranged something in the way of a novelty for the entertainment of the members of the Club and those interested in wireless. It was announced in the press that a big surprise was in store for persons attending the next meeting of the club and as a result curiosity was aroused and a large number of people turned up at the Club's hall at the University.

The "surprise" turned out to be a lecture on tuning by Mr. T. Watkins to be broadcast from his experimental station 7AA at West Hobart. The tests conducted on the previous day had been remarkably satisfactory and it was thought all would go well on the official night.

Disappointment, however, was in store for the energetic organisers.

Owing to interference from listeners-in who had got wind of the event and a considerable amount of static the lecture was entirely spoilt. It was a bad day for wireless in Tasmania. The impression given to the prospective licensee was not an encouraging one.

Wireless in Schools.

The first official move in connection with the wireless schools' scheme formulated by the Minister for Education (Hon. A. G. Ogilvie), was made last week when a large party of parliamentarians and educational officers attended the inaugural demonstration at the West Hobart State Schools. An efficient four valve Home Assembly apparatus had been installed and tests had proved most satisfactory.

Blind Spots.

The controversial question of the why and wherefores of "blind" or "dead" spots has again been raised in Tasmania, this time by a report from the West Coast to the effect that wireless communication in that area is impossible. It has been suggested that the immense metal deposits on the West Coast are the cause of the trouble. This conjures up comparisons, and in speaking to ship operators who visit Hobart, I learn that there exists in the South Pacific Ocean a number of such "dead" areas. In the region of the Mal-

dive Islands a moving "spot" is supposed to exist which shifts at the rate of hundreds of miles per second. Another "spot" exists on the Peruvian Coast and yet another in the vicinity of Wrangle Island, North Pacific.

I think it was Professor A. M. Lowe, the noted English scientist, who stated recently that "blind spots" were undoubtedly radio "shadows" cast by some radio-active substances the nature of which could only be surmised. In the case of Tasmania it is quite conceivable that on the West Coast such substances do exist, but there arises the question as to how similar "spots," and particularly "moving" spots can exist in ocean areas.

Worth Investigation.

Surely here is a scientific problem worthy of research; for no one has yet offered any solution to the mystery which can be regarded as a satisfactory one. A Midland (Tas.) radio man suggests a relationship between water divining and dead spots, referring in the course of his argument to "air-water" currents.

The West Coast at any rate will be grateful to the man who can offer some solution to the problem—or better still, overcome the difficulty by the employment of very short (or long) waves.

Tasmanian Broadcasting Station.

In reference to the proposed scheme to establish a broadcasting station in Tasmania, mentioned in my last notes, a letter has now been received by the Secretary of the Hobart Radio Experimenters' Club (Mr. D. Chesterman) from the Secretary to the Agent-General (Mr. A.A. G. Ogilvie).

"In further reference to the establishment of a broadcasting station in Tasmania," says the letter, "I am directed by the Attorney-General and Minister of Education to enclose herewith copies of letters received from Mr. D. K. O'Keefe, M.H.R., for Denison. The Minister is again writing to Mr. O'Keefe requesting him to continue his activities and also asking him to look into the matter of the license fees for receiving sets in Tasmania being charged as Zone 1."

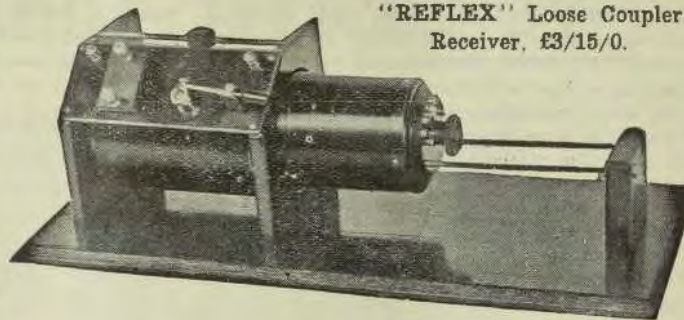
Senator O'Keefe is evidently making "enquiries" in regard to the matter. "I shall keep asking for information," he says, "and shall keep you

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posted with anything worth while . . . I asked the following question of the Minister representing the P.M.G.: Whether the Department would decide without undue delay as to the person or persons who would be granted permission to establish a broadcasting service in Tasmania and I pointed out that the officer controlling broadcasting had told me it would be some weeks before a decision was arrived at. The Minister . . . stated that he was not aware that there would be any undue delay, but he would immediately bring the matter under the notice of the Department."

"They're Off."

The unique broadcasting event which took place last week when Sydney broadcasters forsook their usual daily programme to broadcast particulars of the motor cycling races at Penrith, caused considerable interest in Tasmania. With a good wireless set it was possible to hear the roar of the racing engines and the splutter of exhausts.

2RJ.

The Sydney station 2RJ is almost as popular as Farmer's or Sydney Broadcasters in Tasmania. His modulation is amazing and the strength of

his signals good enough for loud speaker work. Recently 2RJ called up a number of Australian stations for reports including Mr. F. W. Medhurst, of Sandy Bay, Hobart. Mr. Medhurst is the inventor of the field telephone, used so widely during the war, and an old hand at wireless.

A Pioneer in Wireless.

... He has seen the development of the science from its very birth. Years ago he concluded experiments with parallel wires on either side of the Thames, England, and it was thought at the time that wireless had been accomplished. It was purely inductance, of course.

In the early days of Tasmania, Mr. Medhurst and his friends erected a mast at Sandy Bay and managed to get signals through to the only ship in Southern latitudes equipped with wireless—one of His Majesty's warships, come to Australia on the occasion of the visit of the Duke of York.

An interesting lecture on the early days of wireless was recently delivered by Mr. Medhurst to members of the Hobart Radio Club.

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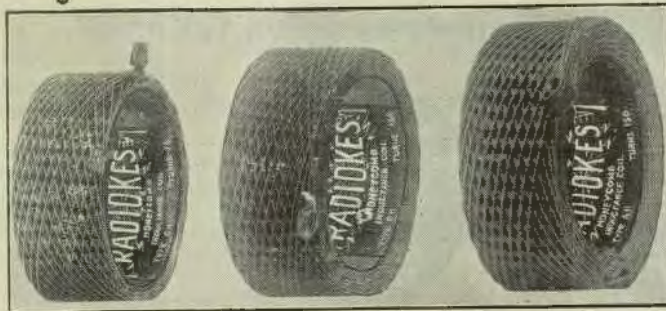
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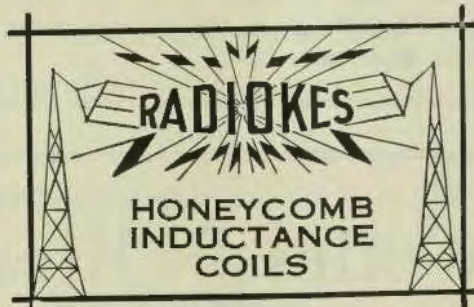
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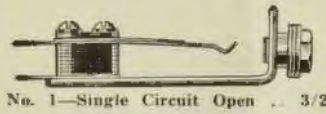
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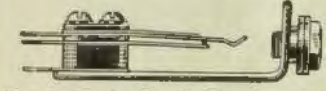


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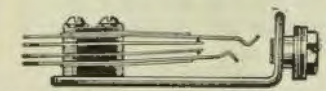
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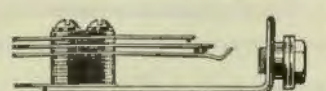
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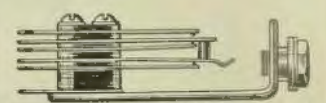


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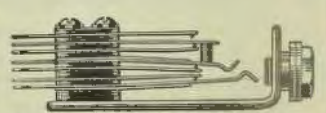


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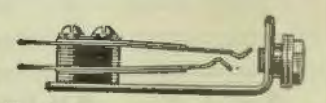
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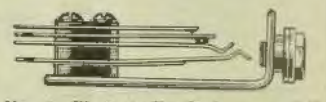
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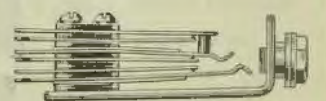
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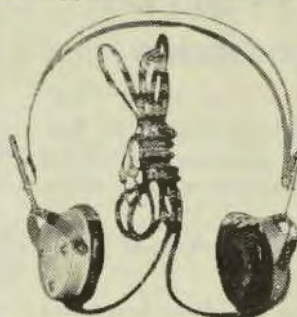
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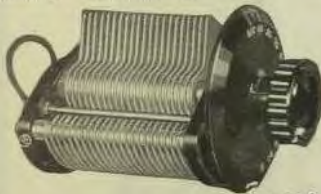
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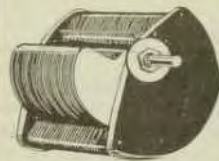
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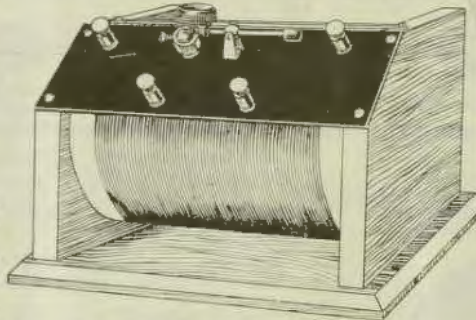
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25	5/3	2/5
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100	5/9	3/-
135	6/3	3/4
170	6/3	3/4
200	6/6	3/9
225	6/6	3/9
250	6/6	3/9



Slide Complete, 1/3.



Condenser Dial, 2/-.



Bushed Switch, 1/6.



The Super-Sensitive Guaranteed Crystal 2/-.

COLVILLE-MOORE
WIRELESS SUPPLIES, LIMITED.
 10 ROWE STREET (NEXT HOTEL AUSTRALIA) SYDNEY

MEL - O - PHONES



You cannot do better than purchase a set of MEL-O-PHONES

The high resistance Head Set of Reliable Construction and Good Appearance. ——— Guaranteed British Make

The price is low 25/- per Set
Weight only 10ozs.—4000 ohms resistance.

Wound to give maximum number of turns proportional to resistance. Stalloy Diaphragms Aluminium Head Bands. Self alignment to the ears.

Our stock of Head Phones comprise other well-known makes, all at COL-MO PRICES.

COL-MO 4000 ohms	32/6
PICO 2000 ohms	25/-
BRANDES 4000 ohms	35/-
TRIMM'S DEPENDABLE 2400 ohms	32/6
TRIMM'S PROFESSIONAL 3000 ohms	45/-
BROWN'S ADJUSTABLE 2000 ohms	£5/10/-
BROWN'S SUPER-SENSITIVE 4000 & 8000 ohms	£5/15/-

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WIRELESS SUPPLIES, LIMITED,
 10 ROWE STREET (NEXT HOTEL AUSTRALIA) SYDNEY

Trade inquiries for MEL-O-PHONES from Mr. Keith Stokes, Montana House, King St., Sydney, Manufacturers' Representative.

Putting
QUALITY
into
RADIO



JEFFERSON
Super - Sensitive
Amplifying
TRANSFORMERS



FOX & MacGILLYCUDDY LTD.
DAILY TELEGRAPH BUILDINGS, SYDNEY.
Brisbane Agents: Wireless House, Adelaide Street, Brisbane.

Friday, October 17, 1924.

WIRELESS WEEKLY

Fifty-Seven

For Your New Receiver

USE THESE FAMOUS PARTS
Your dealer will show them to you



Framingham Vernier Rheostats.



Framingham Potentiometer.



Framingham "All Tube" Universal Rheostats.



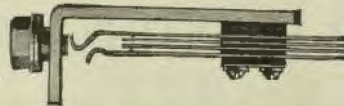
DeVeau Gold Seal Radio Head Set Cat. No. 843



Framingham Inductance Switch.



Framingham Series Parallel Switch.



DeVeau Two-Circuit Radio Jack Cat. No. 25.

WHOLESALE ONLY ANNOUNCEMENT.

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Jefferson Elec. Mfg. Coy.
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Electrad Grid Leaks.

SOLE N.S.W. SALESMEN FOR—

Baldwin 'Phones, Loud Speakers and Units.

New York Coil Coy.—Condensers.

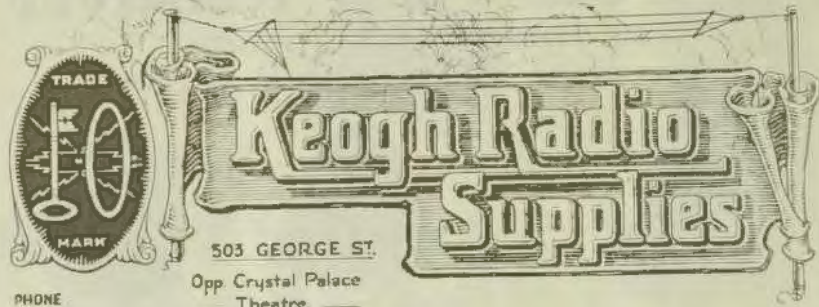
Complete Stocks of all Radio Goods.

FOX & MacGILLYCUDDY LTD.

DAILY TELEGRAPH BUILDINGS, SYDNEY.

BRISBANE AGENTS: WIRELESS HOUSE, ADELAIDE STREET, BRISBANE.

MAR. 1926



SPECIALISING IN VALVE SETS. Our long years of experience in Radio make us first and foremost in this particular branch. IS MR. KEOGH'S AMERICAN EXPERIENCE WORTH BEING AVAILED OF? We have the Technical Knowledge. Call and See Us. "SERVICE" IS OUR WATCHWORD. We are landing a big shipment of goods on 4th October. Call and inspect.

THE HOUSE
OF RADIO

503 George Street

Opposite Crystal
Palace Theatre

A RADIO XMASTIDE FOR EVERYONE BUT—!

It may not be possible at that time to lay out sufficient to purchase materials essential for a single or multi-valve Receiver.

Price's Radio Lay-By System is the Solution!

A small deposit and equally small weekly payments, and

A Radiant Radio Home at the Festive Time

Your inquiries are welcomed.

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Valves, Headphones, Crystal Parts,
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- Pico Phones 25/-
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- Western Electric 44/-
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- Magnavox Loud Speakers, £8 8/- and
£10 10/-.
- Sterling Loud Speakers (Baby) £4 15/-



HOMOTONE VALVE SETS :: that give Satisfaction!

- One Valve—Complete £13/10/-
- Two Valve—Complete £26
- Three Valve—Complete with Loud Speaker £35
- Four Valve—Complete £43/15/-

Just Arrived : Atlas Valves, 15s. each - Atlas Coils

Visit Our Showrooms and get the benefit of our
REDUCED PRICES OF ELECTRICAL EQUIPMENT

The
Home Electric

Radio and Electrical Supplies

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Phone B 5565



Anticipation



Realization
"with a Homotone Set"

10% RADIO 10% Bargain Sale

Get Ready for Melbourne High Power Broadcasting
of 1720 Metres, and take advantage of the low prices
during our 10 Days' Sale.

Rheostats	2/6	Loud Speakers	30/-
Dials	1/8	3 Coil Mounts	27/6
Phones, Picos	25/-	Terminals	4d.
Phones, Mellos	24/6	Crystals	6d.
Transformers	22/6	Crystal Sets	25/-
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Call and see our bargains.

The Radio Company Ltd.

HEAD OFFICE 9 LOFTUS ST., CIRCULAR QUAY, SYDNEY
No. 1 Branch . . 15 Loftus St., Circular Quay No. 2 Branch . . Bondi Junction
No. 3 Branch 66 King St., City

Friday, October 17, 1924.

WIRELESS WEEKLY

Page Sixty-One

ASK YOUR DEALER FOR OUR

Elsie Vernier

—2 - Coil Holder—

AT 16/-

PACIFIC ELECTRIC CO.

87 CLARENCE STREET,

SYDNEY.

Phone B 5891

SOLE AUSTRALIAN DISTRIBUTORS

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Before placing your orders, get in touch with us.

WE SUPPLY ALL PARTS FOR

CRYSTAL SETS

SLIDERS, DETECTORS, CRYSTALS, WIRE, WOOD-WORK (Highly Finished), RODS, etc., H. T. BATTERIES, ACCUMULATORS, CONDENSERS.

OUR PRICES ARE COMPETITIVE

Geo. Matthews & Emery

DAKING HOUSE,

PITT ST. (opposite Railway Station),

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Put a Stage of **Amplification** on your Crystal Set

for **£5 5s.** or *Two Stages* for **£10**

A Demonstration will Satisfy You

Crystal Sets - - from 30/-
Valve Sets - from £14 10s.

STURMAN LIMITED

Tel. B1745 68 CASTLEREAGH STREET (Next Usher's Hotel) SYDNEY

FULLY GUARANTEED CRYSTAL SET
Complete in every detail, £3 15s.

Here is volume and value—a Set that comes to you absolutely complete and ready for use. All you have to do is to adjust the aerial and ground wires.

Everything furnished is supplied with the

METRO JR.
Crystal Radio Receiving Set

Included in the Set are one set of head phones—which are very sensitive—all aerial equipment, leading wire, ground plant, insulators.

It offers you the highest perfection at the lowest possible price

Your dealer has it.

United Distributors Limited

(Wholesale Only)

72 Clarence St., Sydney.

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and at Adelaide, Perth, Brisbane, Hobart, Wellington.

FOR SALE.

Second-hand and Damaged Wireless Aparatus :---

<p>Variable Condensers, Table Type, .001 or .0005 17/6</p> <p>Telephone Transformers, 150, 1000 and 3000 15/-</p> <p>Transformers, Audio Frequency, ratio 1 to 3 15/-</p> <p>Calibrated Dials, 0 to 10 9d.</p> <p>Valve Holders for "V-24" and "QX" Type Valves 6/-</p> <p>Honeycomb Coils, 300 turns 2/-</p> <p>Honeycomb Coils, 400 turns 3/-</p> <p>Honeycomb Coils, 500 turns 3/6</p> <p>Honeycomb Coils, 600 turns 4/-</p> <p>Honeycomb Coils, 750 turns 4/6</p> <p>Honeycomb Coils, 900 turns 5/-</p> <p>Quantity damaged, 137 turns 1/6</p>	<p>Variable Condenser Plates (Brass) 9d. doz.</p> <p>Aerial Tuning Unit, with Variable Condenser, mounted on panel, vario coupleh, inside Cabinet, Type No. 1 . . £2</p> <p>Aerial Tuning Unit mounted on panel, vario coupler inside Cabinet, Type No. 2 . . £1</p> <p>Auto Coupling Valve Receivers, single slide Inductances, Valve Holder V24, one fixed Condenser and Variable Filament resistance £2</p> <p>Valve Receivers in Mahogany Cabinets, 1, 2, 3 and 4 Valve Receivers, prices on application</p> <p>Single and Double Slide Inductances, Valve Panel, Filament resistance and Fixed Condenser £1/10/-</p> <p>Also quantity of other Wireless Apparatus.</p>
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Open for Inspection at 218 Kent St., at 4 p.m. week days — Saturday mornings, 9 till noon.

Address all communications to Department "S", 218 Kent Street.

AMALGAMATED WIRELESS (AUST.) LTD.
SYDNEY

Give your Crystal Set a Fair Chance!

A Crystal Set when properly equipped is the ideal method of Radio Reception; but the best crystal set ever made will not reproduce properly with a poor crystal.

CLEAR, MUSICAL and ECONOMICAL.

Results are obtainable with "CLARION CRYSTALS" which has made the Crystal Set successful.

CLARION GALENA & IRON PYRITES

are all tested and fully guaranteed.

Obtainable from: Wiles, Nock & Kirby, Wireless Supplies, Squires, Levenson, Wallace, Electricity House, Home Electric, Radio House, Radio Company, Farmers, Swains, Humphries, Keogh Radio, Railway Radio Co.

Wholesale Enquiries: "CLARION CRYSTALS," 141 Booth Street, Annandale.

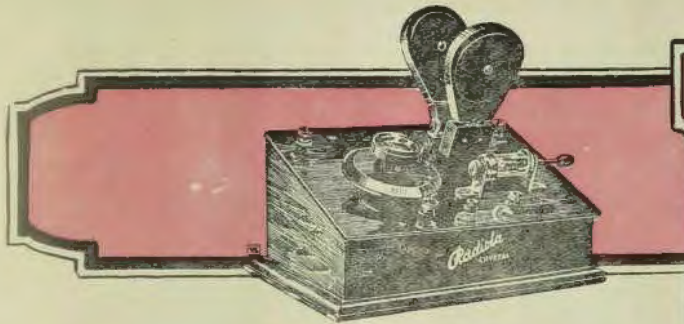


VOLUME WITHOUT NOISE

The TUNATALKER is radically different in theory and construction from any horn type Loud Speaker, neat in appearance, possessing a deep, rich tone, absolutely free from distortion, it is in fact—

THE SPEAKER OF COMBINED EXCELLENCE
PRICE . . . £8

The Continental Radio and Electric Co. Inc. (Wholesale Only)
GLADSTONE CHAMBERS, 90 PITT STREET, SYDNEY.
CHAS. R. GABB & CO. WILLS & CO., PTY., LTD.
14 Chessal St., Adeladie. 7 Quadrant, Launceston.
Corbett, Derham & Co. Pty. Ltd. (Wholesale Only), Manufacturers, 573-85 Lonsdale-st., Melbourne



Radiola Crystal Receiver

This set is of the highest quality workmanship and design, while the trade mark "A.W.A." on each instrument is a guarantee of performance. It can be depended upon to give good results over a distance of about 12 miles when used with a good aerial.

The crystal and spiral contact wire are enclosed in a glass tube, which protects them from dust and dampness and ensures permanent adjustment.

The use of variable inductive coupling ensures selectivity and freedom from atmospheric disturbances.

The tuning coils are interchangeable, so that by using coils of suitable values, any required wave-length may be obtained. The cabinet is of handsome appearance, while the instruments are mounted on best quality bakelite, thereby ensuring high insulation.

The set is self contained and only needs connection to an aerial and earth system, and the attachment of a pair of telephones to be ready for immediate use.

Special Features

Can be operated by anyone not possessing technical knowledge.

Glass enclosure protects Crystal from dust and dampness.

Spring clip crystal holder allows quick changing of crystal and ensures perfect electrical contact.

Highly selective tuning by reason of coupled circuits.

Price :

£4.5.0

with one set of special ebonite covered coils, or £4'15/- with an additional coil.



Procurable from all Radio Dealers

Amalgamated WORLDWIDE WIRELESS **Wireless**
(Australasia) Ltd.

Clarence Street,
Sydney

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RADIO DEALERS KINDLY WRITE FOR TRADE PRICE LIST

Friday, October 17, 1924.

WIRELESS WEEKLY

STERLING LOUD SPEAKERS



ARE FAITHFUL TO AN ECHO IN REPRODUCTION - - - CLEAR, MELODIOUS AND PERFECT IN TONE - - - AMPLE IN VOLUME WITHOUT A SIGN OF DISTORTION

- The Dinkie £3
- The Baby £4/15/-
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- The Magnavox 14in. . . £10/10/-
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Sterling { Lightweight Headphones, 4000 ohms, 44/-
Valve Sets 2, 3, 4, or 5 Valves

Large Stocks

PHILIPS VALVES

Immediate Delivery

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Published by A. W. Watt, "Keira," Alfred St., North Sydney, for the proprietors and printers, Publicity Press, Ltd., 12/16 Regent Street, Sydney.