

## "Radiovox" Receiving Sets

In refinement of tone and simplicity of control, we are confident that in the RADIOVOX we have attained results yet to be equalled by any other Radio Receiver offering on the World's markets.



Model A—Three Valve

Made in Australia of the finest imported electric parts, and furnished in designs and at prices to suit every locality and purse, the RADIOVOX Series of Sets will reward your attention at the Exhibition and at our Showrooms.

Write for our Catalogue explaining in detail the patented features and advantages of our self-contained loud speaker construction.

### Quality Parts Make Quality Sets

In your Sets use UNITED Transformers and Condensers for results. The UNITED and SIGNAL line of Radio parts are for sale at all up-to-date Dealers. Ask for them

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We announce to all dealers that we have stocked the well-known line of REMLER Parts and Coils at most attractive prices. Our new Price List of REMLER Goods is now ready for dealers and manufacturers. Get it before you place your next Radio order

### Try a United Transformer

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OFFICIAL ORGAN OF THE AUSTRALASIAN RADIO RELAY LEAGUE.

Vol. 3.

January 18, 1924.

No. 15

## THE BROKEN LINK

According to recent announcements in the daily press, the Empire Wireless Chain is as far off as ever.

Fears were expressed in England that in the event of a Labour Government the project would receive a set back, inasmuch as such a Government would be opposed to private enterprise.

It was argued that the Government should have complete control of the scheme in order that in times of national emergency the plant could be used without delay.

That painfully weak argument can be blown to ribbons by the experience obtained

during the war when the factories were acquired by the Government to manufacture munitions.

It means, however, that Marconi with his organisation will not be given the contract and thus further delay is assured.

The beneficial effects of a chain of broadcasting stations throughout the Empire is apparent to all.

Mr. Bruce, like other Dominion Premiers, realised this, and vigorously denounced the muddling methods of the British authorities.

The Empire Wireless Chain must be built and as soon as possible.

### Roster for Week ending 23rd January, 1924

	7.30 to 8.0	8.0 to 8.30	8.30 to 9.0	9 to 9.30	9.30 to 10
Thur, Jan. 17	2 RA 2 GR	2 IJ 2 UW	2 ZG	2 YI 2 JM 2 ZN	2 YG
Friday, .....18	2 IJ 2 GR	2 DS ..	..	2 UR 2 YI 2 ZN	..
Saturday, ..19	2 RA 2 GR	2 IJ ..	..	2 YI 2 ZN	..
Sunday, ....20	2 RA 2 JM	2 DS ..	..	.. ..	2 JM
Mon., .....21	2 RA 2 GR	2 IJ ..	..	.. ..	2 YG
Tues., .....22	2 IJ ..	2 DS ..	..	2 UR 2 YI 2 ZN	..
Wednes., ...23	2 RA 2 GR	2 IJ ..	..	2 YI ..	..

# WIRELESS WEEKLY CUP

## DETAILS OF COMPETITION

The proprietors of Wireless Weekly, the first radio magazine in Australia, have decided to encourage the work of amateurs in Australasia in some concrete form.

With this object in view, two handsome silver cups will be presented, one for the best valve and one for the best

crystal set made by any amateur in Australia or New Zealand.

No other journal or country for that matter has ever offered such a prize.

The competition costs nothing to enter, and both cups will be of unique and appropriate design.

The handsome silver cups will be excellent ornaments and a source of pride to the owners.

They are at present being especially manufactured for Wireless Weekly, and photos, will be published in these columns in a forthcoming issue.

Any amateur may enter for both cups.

The competition will be decided by the popular vote of our readers.

As each nomination is received photos of the sets will be prepared and numbered, and published week by week.

When the competition closes the votes will be counted under the supervision of a committee whose names will be announced later.

The competitor whose set gains the most votes will be declared the winner. There are no other prizes.

The cups will be shown in the windows of each of the wireless firms advertising in this journal.

### Amateur Status.

For the purpose of this competition Wireless amateur will mean any person who does not deal or trade in or manufacture any apparatus required for radio sets or wireless broadcasting stations, and who is not employed by any person so dealing, trading, or manufacturing, or by any broadcasting firm.

The amateur must reside within Australasia, which comprises the Commonwealth of Australia, Dominion of New Zealand, and any of the islands or territory under British Administration or Mandate in Australasia.

The sets must be wholly made by the amateur in the area thus defined

and will be divided into two classes—crystal and valve sets.

### What is required.

Competitors are required to submit:

1. One photo, not less than 4in. by 3in., showing the set complete.
2. One photo not less than 4in. by 3in., showing the wiring of the set.
3. An ink diagram not less than 4 in. by 3in. showing the circuit and wiring.
4. A small paragraph of not more than 100 words explaining the set.
5. The nomination form shown below, witnessed by a member of the committee of a radio club or any trader (1) advertising in Wireless Weekly, or a local J.P.

**NOMINATION FORM**

I ..... of  
 ..... desire  
 to enter my ..... set in  
 Wireless Weekly Cup Competition. I  
 agree to abide by the conditions set  
 down by the proprietors, and I solemnly  
 declare that I am a wireless amateur  
 as defined in page 2 of W.W.,  
 No. 15, Vol. 3, of January 18, 1924.

(Signed) .....

Witness .....

**VOTING COUPON.**

To the Editor  
 Wireless Weekly,

I .....

consider Set No. ....

owned by .....

is the best set in the Wireless Weekly  
 Competition.

Signature .....

Date .....



## Crystal Detectors and Their Adjustment

By D. B. McGown.

That the oft-despised crystal has certain inherent advantages is the subject of this article. The author tells how these may be adapted for practical reception.

How often you hear such a remark as, "Oh, he hasn't much of a set—it's only a crystal outfit!" which savours slightly of an attitude of gentle "raaz." How many of those who make such remarks realise that these same crystal outfits or at least these same type outfits, have actually made radio history?

The crystal detector came into general use in 1908, the first being carborundum, which required a local battery for operation. Other battery crystal detectors were molybdenite, titanium dioxide, copper pyrite, iron pyrite, and the "perikon" detector, a combination of zinc oxide and copper pyrite crystals.

The other type, which still survives in use to-day, did not require a local battery, nor such a heavy contact. In

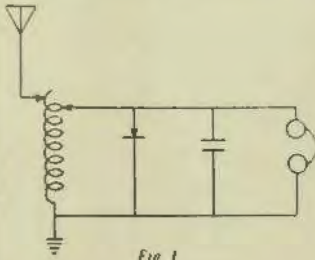


Fig. 1

this class we find several that were included in the former list, i.e., "perikon," and iron pyrites, and besides these silicon and galena.

In the hands of the average user, carborundum, galena, silicon, and iron pyrites were the best, in the order named, with the first two in a position where the actual constants of the particular crystals used determines their positions.

The battery type depend for their operation on their "unilateral conductivity," through certain directions in the crystal's formation, while the non-battery type depend on the "rectification" of the actual received energy. In other words, in the battery type, a direct current of small magnitude is passed through the crystal at all times; the re-

ceived energy, which is delivered to the detector by the receiving set either aids or opposes the flow of this direct current, due to the fact that the crystal conducts current better in one direction than the other, which results in a sound in the head telephones. The rectifying type acts as a valve which passes one-half the cycle of an alternating current. Half of the cycle that is held back will be pulsating direct current, and if properly connected a condenser can be charged, and from this a pair of telephones operated. The actual received energy, therefore, operates the head-set, and the actual signal received varies according to the way the energy is emitted from the transmitting station. It may be in the form of groups of oscillations, like in a spark set, or it may be in the form of continuously variable continuous oscillations, such as we have in a telephone station, and it will be reproduced at the receiving end with absolute accuracy.

A crystal is very much less sensitive than a simple vacuum tube detector. It is cheap, simple, not liable to damage, relatively easy to adjust, and self contained; it is ideal for a beginner, as it cannot be readily damaged and, if destroyed, can be cheaply replaced. It is not capable of remaining constantly in a sensitive condition; it is liable to oxidation and damage from dirt; and it broadens the tuning of the receiving apparatus.

Probably 90 per cent. of the present-day crystal sets are equipped with galena detectors. Usually, good galena has a rather "wavy" surface, which breaks, or shatters rather roughly. Ga-

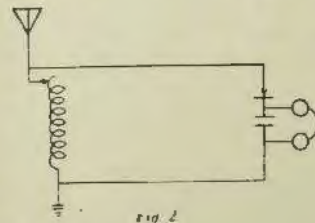


Fig. 2

lena which breaks in regular cubical crystal form, is usually poor, and may have no sensitive spots on its surface. The so-called "steel" galena, which fractures with a crystallisation resembling the grain of coarse steel is also good. It is entirely a matter of test to find out if a particular specimen is a good detector or not. Sometimes a very good looking piece will be found worthless, but on the other hand a piece from one large lump, if sensitive, will usually show whether or not the whole lump will likewise prove sensitive. Galena from various parts of the country sometimes shows this in a marked degree. The writer has had specimens from certain mines, which all proved to be worthless, although of very nice wavy appearance, while specimens from the same mine, but from a different vein, showed up as very good, although casual appearance showed but little difference. Although certain specimens do possess spots that are sensitive, it is not an absolute test. Many times specimens will be found that are very good as far as numbers

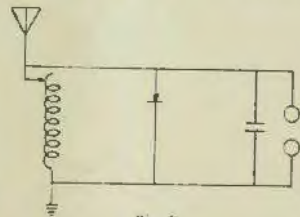


Fig. 3

of sensitive surfaces go, that are very poor as far as actual sensitiveness on weak signals, while another specimen, that has relatively few "spots" will be unusually good on these said spots, and will bring in much louder signals from relatively distant stations.

Carborundum, in almost all cases, is sensitive only in the light-green semi-transparent crystals found at the base of the large crystal masses. It is absolutely essential that carborundum be tested carefully, before a sensitive specimen is found, and often the user despairs of finding a really good piece.

The mounting of crystals is important. Galena should be held solidly in a cup, clip, or similar device, and a very light contact allowed to rest on it. This usually takes the form of a light copper wire, which can be moved over the surface of the crystal. Carborundum, on the other hand, must be used with a rather heavy pressure. It is best to mount the crystal in a cup, with soft metal alloy, and to press down with a steel point, which is us-



ually a phonograph needle, with considerable pressure, considering the size of the contact. This pressure may run up to as high as two or three pounds, and can best be applied with a spring, or screw.

Owing to the lightness of the contact, galena is more or less easy to get out of adjustment, and a pad of felt, rubber, or other soft material will help, if placed under the detector mounting. When transmitting, it is essential that a galena detector be disconnected, or short-circuited, as if left in circuit it will be burned so the sensitive spot is lost. It is better, by far, to open the circuit, either on one, or both poles of the detector, than to short it, as in the latter case a closed oscillatory circuit is set up, which may "knock" the point, anyway, while if disconnected, no bad results will be obtained on transmitting. No such precautions are needed with carborundum, as it will not be disturbed by vibration, so long as it is not jarred out of the contact position. It is proof against all damage from nearby transmitting stations, and even the strongest signals will not affect it in the least, although even moderate clicks of static might damage the point on a galena detector.

With all crystal detectors, the signal in the telephones depends on the current the crystal receives, rather than its potential. In a vacuum tube set, the signal depends entirely on the voltage as it is a trigger-effect device, but this does not hold in a crystal set. A single-circuit crystal set, as illustrated diagrammatically in Fig. 1, is the basic circuit of most of the sets of this type sold to-day, or the circuit shown in Fig. 2 may be used instead. Numerous other combinations are of about equal efficiency. In either case, we have an oscillatory circuit composed of the antenna, variable conductance and ground. The crystal is connected directly across this, and all the energy received by the antenna is impressed on the crystal, even if it is of a very different frequency than the antenna is tuned to. Thus it is often impossible to do any tuning with such a circuit, although signals of considerable volume may be obtained. The addition of a second slider, as shown in Fig. 3, will remove the detector from the antenna circuit, but as it forms a partial short-circuit across the turns connected between the ground and slider, it actually broadens the tuning, to an objectionable value; furthermore, as the resistance of the detector varies greatly, and is never the same, probably, even if adjusted to the same "point," it will

cause detuning of the antenna circuit. In all cases the crystal is getting, however, a maximum of energy from the antenna circuit, which alone is enough

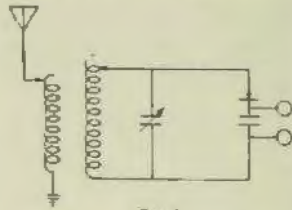


Fig. 4

to give broad tuning. Fig. 4 shows the connection for a loose-coupled crystal set, which is the best.

The resistance of the crystal, when adjusted for reception, is quite high, probably 2000 to 10,000 ohms. This

### Radio While Motoring

Using a top aerial on a three valve Sleeper Monotrol Set, Mr. Harry Wiles, of Goulburn St., Sydney, achieved some remarkable receptions while motoring between Sydney and Penrith recently.

A loud speaker was used and an excellent programme received from Broadcasters (Sydney) Ltd. Station.

Even when the car was travelling at 25 miles per hour, the reception was clear, considering the conditions.

Mr. Wiles is constructing a set, especially adapted for motoring, for use on a tour of the South Coast.

will roughly approximate its impedance, at ordinary spark or voice frequencies. Furthermore, the current delivered from a crystal is of very small magnitude. If we use low resistance telephones, we will have very little current flowing in them, and a weak response for two reasons: In the first place, because their impedance does not match the impedance of the crystal, so little current will flow, and besides this, the actual effect on the diaphragm by the small current will not be very great, unless sufficient ampere turns are used. Telephones for crystal reception should be anywhere from 2000 to 3000 ohms, d.c. resistance, per pair.

The opinion exists that crystal reception is very limited, and that the usual range of crystal sets is about 15 to 25 miles. This is simply the range that is absolutely certain, with inexperienced listeners, and actually is a matter to be regretted. For many years crystals were used for commercial radio work, and many are the records that were established with them. The patience of the average operator using a crystal or "hunk of coal" as it was termed, was a matter that deserves much praise. When it is considered that more or less regular commercial communication was kept up over thousands of miles, with spark sets transmitting, and crystal sets receiving, usually connected as shown in Fig. 4, the more wonderful it is. To-day someone thinks he has done well, when he hears a broadcasting station of 500 watts antenna input 250 miles away. He is only to be pitied in his ignorance. Take some of the old commercial and ship stations such as Manhattan Beach, Hatteras, Hillcrest (San Francisco), East San Pedro, and the like. In those days commercial work was handled, and messages sent and received that would make the distance (?) of the average crystal hound of to-day look sick.

In the days when crystals were used exclusively, it was not an uncommon thing for ships to handle business with Manhattan Beach (practically New York City) when the said ships were off Honduras! Similar, or better records were hung up on the Pacific Coast. Ship stations have been known to handle business with Hillcrest (KPH, San Francisco) when 2500 or 3000 miles west of Honolulu!! (4500 or 5000 miles from KPH). The said KPH station has even worked Japanese stations with spark transmitters of about 5kw. input (probably not more than 2kw. in the antenna), with crystal detectors at both ends! Traffic was handled with ships between San Francisco and Honolulu, rightly, all the way both ways, from San Francisco to Honolulu. The claim that crystals are suited only for local or short distance work is certainly knocked flat by the above records, which are not exceeded greatly in these days of vacuum tube receivers.

The fact that these records were established by radio telegraph stations does not matter a great deal, as there was no chance to try any telephone tests—because there were no telephones going, but, if there had been, they would have been heard at great distances, as well, without doubt.



**Broadcasting News**

By Daily Papers.

The few newspapers in America which have installed broadcasting stations have not, up to the present time, used them in a way which we believe will become customary a few years hence.

It would be worth while for the wide awake programme manager to notice how many men, on their way to or from work, read their daily papers; they scan the headlines hurriedly and note whatever topics are interesting to them. They do not then throw away the paper, but keep it for further perusal when more leisure is available, and the items which are then first read are those which are headlined in such a way as to attract attention during the first cursory examination. That is, a man does not use the headlines primarily to get the news from the paper, but to determine what columns are worth reading. The front page is what sells the newspaper, and the headlines are the selling agents.

Now, if this is so, why should not an enterprising newspaper take ten minutes a day in the evening when

most people are at home, to put the important news items of the day on the air. They don't, because, so the sceptics say, if the people already have the news via radio they won't bother to read the paper. This is certainly not so; if the radio news items are properly worded, they will convey not only news, but also the impression that it is well worth while to buy the paper to get the rest of the facts.

This use of radio, putting real news on the air, is as yet practically untouched, although it is probably one of radio's most promising fields. The possibilities of the service were apparent in New York City recently when practically every paper had to suspend publication because of an unexpected strike in the press rooms. Had the radio news service been developed, the principal news items of the day would have been disseminated almost as well as if the pressmen had not walked out. And we are perfectly sure that this radio news service, instead of cutting down the circulation of the newspaper carrying it on, would rather augment it—that is, if the items selected comprised the really worthwhile news of the day, the kind of items used for the headlines of the successful paper.

**Copenhagen-Bornholm Radio Link**

Following the example of the American Telephone and Telegraph Company in its installation of the radio telephone link to Catalina Island, Denmark has started to use the radio equipment which puts Copenhagen in touch with Denmark's island, Bornholm, about 100 miles out in the Baltic Sea. The radio link is arranged for two-way communication, and is installed in the regular duplex fashion: at each end of the channel is a transmitting station and a few miles away from this is the receiving station.

We are led to believe that Poulsen arcs are used for generating the high-frequency power. If this is so, it would seem that the station is far behind modern practice, for water-cooled triodes are now generally used for installations of this kind. While we have in America several Poulsen arcs operating satisfactorily in trans-Atlantic stations or for spans of a thousand miles or more, an arc would hardly be considered as suitable as a tube outfit for the few kilowatts needed in the Denmark radio link.

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WE HAVE A SUPPLY OF VALVE FUSES AT 1s. EACH

**Kellogg Radio Equipment**  
*Use is the Test*

*and when you have used "KELLOGG" material you will never use any other. All the leading writers of the world advise you to use the best, and this means "KELLOGG" NONE BETTER. WE ARE SOLE AGENTS FOR N.S.W.*

We can supply all your Wireless needs. Farmer's Broadcasting Service Fee can be paid through us.

**BURGIN ELECTRIC CO.**

WIRELESS ENGINEERS & SUPPLIERS

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## A Compact 2-Valve Receiver

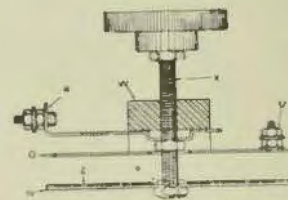
With the set here described, broadcasting stations may be received on a reasonably good aerial, writes E. J. Barty, B.Sc., in Wireless World.

The principle behind the design of the aerial circuit is novel so far as I know, an aerial inductance being chosen of such size and its distance from the secondary adjusted to a point at which there is a satisfactory balance between the energy received by the aerial and the energy transferred to the secondary circuit.

It is sometimes found that a tuned aerial used in conjunction with a tuned secondary circuit, owing to the resistance of its coil and the resultant damping actually passes on to the secondary less energy than does a smaller untuned coil, especially on rather weak signals. After all, there is a very good foundation in theory and practice for the use of different inductance values to fit the strength of signal received. Thus, in winding alternating current transformers we adjust the number of turns to suit both the periodicity, which is the equivalent of the wave length, and the voltage, which is the equivalent of the signal strength.

For loud signals we thus use a larger aerial coil, say 100 turns, and for distant signals a smaller coil, say 30 turns, connected direct to aerial and earth without any condenser in the primary circuit. The secondary circuit is tuned in the usual way, and the coupling between primary and secondary is variable.

With this system of aerial and secondary, the secondary can oscillate and heterodyne incoming signals without any sign of oscillation in the primary



The variable condenser. Q, N the plates. Z nut and shellac. Y holding-down collar. W insulating mounting piece. S 2BA spindle. R, U terminals. A copper slip, insulated with mica, secured to the screw leading to the terminal. B, screw as a grid condenser.

(aerial) circuit. Tightening the coupling both increases the tendency of the primary to oscillate and decreases the oscillations in the secondary circuit, and it is very easy with slow movement of the coupling to strike any point of oscillation desired.

The coupler itself consists of two coils on two hubs on the same spindle. The first hub is secured to the panel by two set screws only. Rotation of the spindle causes movements of the second hub which is tapped 2BA to fit the spindle. Rotation of the second hub is prevented by two guides fixed on the first hub, passing through clearance holes in the movable hub.

The set tunes from about 300 to something over 600 metres. All three coils (including the plate circuit inductance) are uniform and consist of 90 turns of 32 D.C.C. wire.

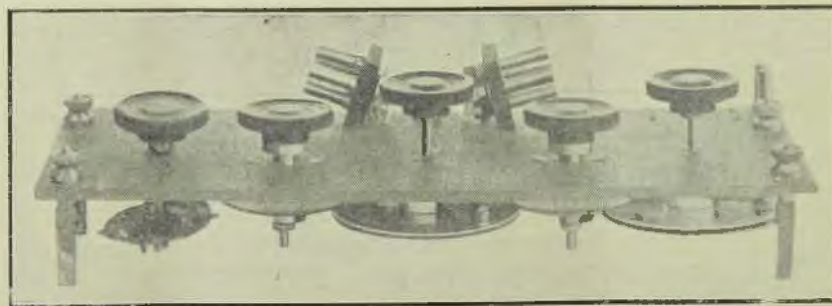
The condensers are of an unusual type, consisting of two 3-inch aluminium discs, one fixed and one movable. The fixed disc is secured to a vulcanite hub which is in turn secured to the panel, the fixing and hub being uniform with those of the aerial and secondary coils.

The fixed hub of the condensers is 7/16 in. in length and there is thus sufficient clearance between the fixed plate of the condenser and the underside of the panel for part of the filament rheostat which can thus be dovetailed in between two three-inch condensers fixed at 4 in. centres.

Capacity effects between the fixed condenser plates and the rheostats do not cause ill effects, as the fixed plates of the condensers are connected to the filament and the high tension positive respectively, and the moving plates which are connected to the first and second grids respectively are completely shielded by the fixed plates at all positions.

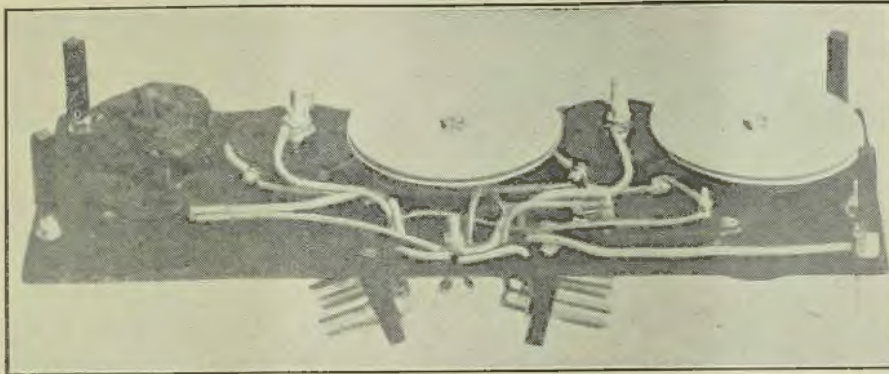
The coils used are all standard, wound on vulcanite formers and screwed to hubs which can be fitted either to the tuner coupler as fixed or moving coils, or they may be fixed behind the tuned anode condenser between the rheostat and the panel, making a very compact construction. The wave length and damping of the coil is not appreciably affected so long as the distance between the coil and the condenser plate is at least 1/4 of an in.

Variation of the values of the con-



Complete 2-Valve Receiver of Simple Construction





*Underside view. The arrangement of the variable coupling between the inductances can be seen, and also the construction of the variable condensers. In this instance a grid condenser of the usual type is employed instead of the insulated clip on the condenser lead.*

condensers is effected by turning the spindle on which is affixed the moving plate. This spindle is threaded 2BA and held firmly between the screwed hub and a lock-nut sunk into the hub with a spring washer between the two to prevent backlash.

The increase of strength of signal when using these condensers is probably due to the small amount of metal used in their construction.

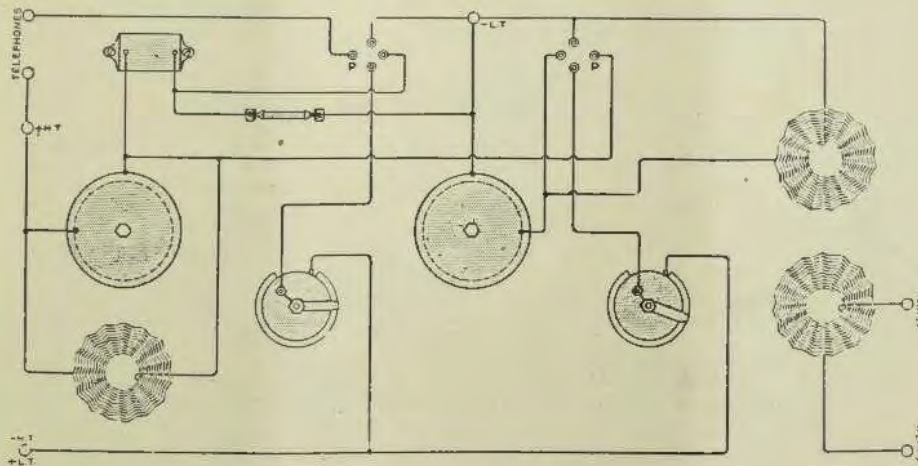
The minimum value of the conden-

sers is very low, enabling a range of wave lengths from 300-700 metres to be obtained by the use of one coil and condenser only.

The terminal of the moving plate of the condenser is on an arm of spring copper held between the spring washer and the lock nut, and is for convenience brought out to the edge of the condenser plates.

If a piece of 1in. copper strip is bent over one of the terminal arms of

the condenser with a piece of mica for insulation between the two, a grid condenser will be formed which is both mechanically strong and very efficient. The value of the condenser is small (0.0002 uF), and with "A.R." valves signals may be rather better without a leak. There is nothing unusual as re- however, more stable when using a leak. There is nothing unusual as regards the connections: no reaction is used.



*Practical wiring diagram.*



The condensers may be used either with a 90 turn coil as mentioned are required to cover the whole broadcast wave length, or a smaller coil of 50 or 60 turns may be used, in which case the condenser plates are much closer together and a broadcasting range is covered by half a turn, enabling an ordinary dial to be used.

Tuning is a little bit tricky at first, but results are well worth the slight extra trouble.

There are three adjustable features, the coupler between aerial and secondary condenser and the tuned anode condenser.

The easiest procedure is as follows:

Start with loose coupling, say  $\frac{1}{2}$  inch between aerial and secondary coils; then screw both condensers up to high values until the click of starting oscillation is heard, making sure that the aerial itself is not oscillating. Then screw down both condensers together, keeping just on the oscillating point until the carrier wave is heard with maximum modulation—not of necessity with maximum strength.

Then leaving the tuned anode condenser alone, tighten the coupling and alter the secondary condenser until oscillation stops. The position of the secondary condenser is now fixed so long as no alteration is made in the high or low tension volts, the aerial, or

the number of telephones in circuit. Other stations may be tuned in by variation of the coupler and the tuned anode only.

The setting of the tuned anode condenser is constant for any given wave length, and its dial can consequently be marked off in actual wave lengths.

*Subscribers are asked to notify Wireless Weekly of any change of address. Communications should be addressed to "WIRELESS WEEKLY," 33 Regent Street, City.*

## NEW ELECTRAD DIODE

CONVERT YOUR CRYSTAL SET INTO A VALVE SET. USE A DIODE 2 ELEMENT VALVE, A SINGLE 1½ VOLT DRY CELL, AND PRESTO! YOU HAVE A VALVE SET AT A COST OF NOT MORE THAN 30/-. GIVES YOU THE CLEAR PRODUCTION OF A CRYSTAL, WITH A STEADINESS AND RELIABILITY OF A VALVE. TAKES No. B. BATTERY—AND IN AN HOUR MAKES A VALVE SET OF ANY OUTFIT.

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**Electrad Radio Products.**—"Diode" 2 element dry cell vacuum tube and socket, variohm, high resistance unit 1/10 to 3 megohms. Electrad lead in "Indorarial," Electrad B Batteries.

**Radio Improvement Company's.**—Anti-capacity jacks and switches—made specially for Radio use, a new departure—eliminates soldering, less than half as long as ordinary jacks, will take all standard plugs—jacks, 5 different styles—switches, 5 different styles.

Springfield Braided Antenna, 16 strands of 3/64 flat high grade copper, braided into hollow cable with a tensile strength of 100lbs. Recommended primarily for loop, indoor and portable antennas.

"Woodchorn" Loud Speaker, Deveau Gold Seal Headphones, Ciel Telephone Plug, "Autostat," Morrison Loud Speaker, for attachment to Gramophone.

Newman's Radio Plans and Radio Constructors. "Telerradio" Equipment. Henley's Radio Publications.

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### Continental Radio and Electric Coy.

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Phone B 2467.



2 FC

Broadcasts "Southern Maid"

The wireless station—2FC—which has been erected for the broadcasting service which has been inaugurated by Farmer's, was officially opened on Wednesday.

The opening was not marked by any ceremony, but took the form of a broadcasting by the courtesy of J. C. Williamson and Company of the musical comedy, "The Southern Maid," from Her Majesty's Theatre. The manner in which the transmission by wireless of this play was effected constituted an Australian record, and also provided a distinction for Australian wireless engineers.

For some considerable time past careful experiments have been made concerning the placing of sound collecting instruments, or microphones, as they are termed, on the stage of Her Majesty's Theatre, and towards the end of last week a test was made under actual working conditions. The results which were achieved exceeded expectations, and made possible the official commencement of this class of broadcasting.

The microphones, placed at specially

selected points on the stage, were connected to an amplifying panel in the basement of the theatre, and the sound collected by them and transformed into electrical currents was "stepped-up" in volume, and carried by land line to the studios situated on the roof garden of Farmer's premises, in Pitt Street. There it was passed through another panel and taken by another land line to the wireless station at Willoughby, and then radiated by wireless telephony.

Prior to the actual commencement of the play, at Her Majesty's, the announcer at the studio at 2FC gave a general call, which was followed by a peal of chimes rung on tubular bells. These chimes enabled "listeners-in" to tune their stations accurately, and at their conclusion a story of the play, "The Southern Maid," was briefly given. The end of its announcement synchronised with the commencement of the play at the theatre, and the studio was then switched from the station, and the amplifying and collector panels at the theatre were brought into operation, and connected to 2FC.

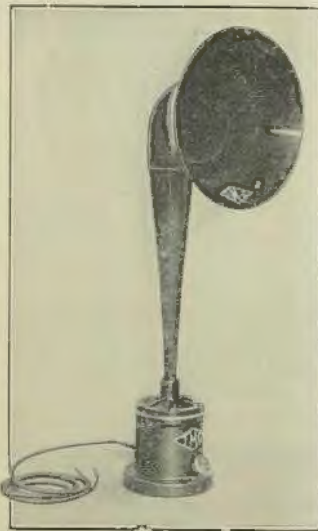
A number of eulogistic reports have been received from enthusiasts who "listened in" to the performance.

"Freak" Receptions.

Freaks are by no means the prerogative of the golfer or the angler; the wireless amateur may justly claim his share, and the approach of winter conditions undoubtedly increases the possibilities of such exceptional results.

Listening-in on a recent evening with a two-valve set at Eastbourne, Mr. A. Roach was impressed by the remarkable strength of several of the broadcasting stations. Accordingly he switched over to a simple crystal circuit and was surprised to hear London (usually very faint) at considerable strength. More astonishing still, Cardiff (5WA) could be heard jamming, and on tuning in, this station was clearly received. Newcastle (5NO) was next heard though fading was rather pronounced. A soprano voice was then heard jamming, and, on altering tuning, our correspondent was in time to hear the familiar words: "Glasgow calling!"

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Phone Central 1701



*Swimming Race*

*Result Broadcasted.*

On Saturday afternoon the result of the swimming match between Arne Borg and "Boy" Charlton, was made known over the whole State within a minute of the swimmers passing the post, the news service of the "Evening News" and Farmer's Wireless Broadcasting Station being used to achieve this result.

The race was timed to start at half-past 3, but was delayed for some little time, owing to a diving championship occupying longer than was expected. An announcement was made from 2FC (Farmer's Station) to this effect, and listeners were asked to stand by and wait further information. In order to keep in touch with the station, and also to occupy their time during the wait, a musical selection was given from Farmer's Studio, but this was suspended when the result became known.

The "News" representative at the

**AN EXCEPTIONAL RELAY TEST.**

*A remarkable radio experiment is reported in "The New York Evening Post." Under the direction of Dr. E. F. W. Alexanderson, Chief Engineer of the Radio Corporation, a wireless signal was recently transmitted direct from Radio Central, on Long Island, to Poland. At Warsaw the signal was made to actuate the transmitter, and thus send itself back to New York, the entire operation occupying the merest fraction of a second. At New York the "tick" again transmitted itself, this time to Warsaw, and the cycle of operations was continued 40 times before the "ticks" had died down inaudibly.*

baths held a special line to the office, and another special telephoning line was held from "News" to Farmer's Studios.

As the race finished the result was telephoned through. Without any delay the announcer communicated the results to hundreds of listeners in all parts of the State, in less than one minute after the swimmers had completed the course.

It was a great achievement for wireless telephony.

*Broadcasting in Schools*

Mr. Bruntnell, Minister for Education will meet representatives of the Teachers' Federation for the purpose of discussing with them the question of introducing broadcasting into the schools of New South Wales.

During the past few days Mr. Bruntnell has been studying broadcasting and so impressed is he that he will ask the Teachers Federation to submit to him a scheme for application to the schools of the State.



*Radio Company*

Limited

15 LOFTUS STREET

Circular Quay

SYDNEY



*Of importance to Experimenters and to those about to enter the field of Wireless*

**D**URING the month of January **LARGE REDUCTIONS** will be made of our stocks of **EXPERIMENTAL SETS and PARTS** at **COST** and under **COST PRICES**, all of which will carry our guarantee to give satisfaction.

A Small Transmitter with Tube Modulation complete with Valves and Batteries ready for use at £25 is just one of our many bargains.

*Stocks limited. Send your Order as early as possible*



# NEWS IN BRIEF

Station 2MU (J. Nangle) will be closed for a month, commencing from the 12th January. Time signals will therefore not be issued on Saturday and Sunday evenings until the expiration of that period.

The feasibility of organising a wireless broadcasting service for farmers was recently discussed at the Annual Congress of the South African Agricultural Union, when the desirability of having the latest market information, etc., broadcast, was emphasised.

That he had a wireless set installed at his house was submitted as proof of a debtor's means at the Clerkenwell Court (England) recently.

At the Royal Society of Arts, in England, recently, M. Edouard Belin gave a lecture and demonstration dealing with the process of transmitting and reproducing writing, drawing and photographs without wires. Mr. Alan A. Campbell Swinton presided.

As testifying to the value of wireless direction-finding apparatus on board ship, it is interesting to learn that the Marconi International Marine Communication Co., Ltd., have been instructed to fit direction-finding apparatus on all passenger ships of the Cunard fleet.

Probably one of the most popular singers associated with broadcasting during the past two years has been Madame Lily Payling, the Australian contralto. Madame Payling will be remembered for her success at the inauguration of the "Daily Mail" wireless concerts from Holland, in July, of last year, more recently, for her broadcasting experiment at the Royal Albert Hall, in April last. On that occasion her singing, broadcast from 2LO, was received on three loud speakers in the hall, and there accompanied on the pianoforte by Mr. L. Stanton Jefferies.

Commenting on 2FC's broadcasting of the "Southern Maid," the "Sydney Sun" says:—"With plays in which the chorus plays a leading part, broadcasting has a great and obvious defect. You cannot yet send legs by wireless. When television is perfected that difficulty will be overcome. For the rest there are certain performers on the stage who would, so to say, look their parts better when the audience could not see them. But it might not be easy to break the news to them."

Mr. Bruntnell is proposing to introduce wireless and cinemas into the State Schools.

He also has a scheme ready for launching, which will mean the establishment of junior technical colleges catering for the whole State.

Before the end of 1924, wireless and cinemas may both be permanently established as part of the educational facilities at our State schools, the Minister said recently.

Mr. A. E. Wright, who has an experimental wireless station at Scarborough, South Coast, reports having distinctly heard from 8.30 p.m. to 10.35 p.m. on Sunday by wireless from California, pianola music, and a baritone solo. A soprano solo was proceeding when an induction compelled him to close down. The music was supplied, as distinctly announced by the Electric Company of California. Mr. Wright has the ordinary two-valve set.

It is reported from Greece that a national wireless service has been agreed upon, to be installed by the Marconi Company. The agreement will be ratified by the National Assembly.

Negotiations are also pending for the installation by a Franco-Greek Company, of a wireless telephone system between the principal towns of Greece and the Eiffel Tower.

On Saturday, November 24th, the Belgian Minister of Railways opened a new broadcasting station at Brussels. "Radio Electrique de Bruxelles," as the new station is called, transmits regular programmes commencing at 8.30 p.m. daily, on a wave length of 410 metres.

## WIRELESS APPARATUS

New or Second-hand,  
Bought, Sold or Exchanged

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To  
**Amateurs**  
We want Your  
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Watch our prices drop. First-class Apparatus at rock-bottom Prices

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COME ON IN**

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**FEDERAL GEAR**



## An Efficient Groundless Receiver

By Frederick J. Rumford

During a series of interesting experiments recently carried out at Pelham, N.Y., by a staff of radio engineers from Columbia University, while investigating "dead spots," they found that with a short antenna and with no ground they could obtain remarkable results in conjunction with the ordinary single circuit regenerative receiver, using a variocoupler with tapped primary, of which the secondary functioned as a feed-back coil. In place of the usual type of aerial, they used a fishing reel upon which was wound

about 50 feet of bare wire, whose effective length could be varied with little or no trouble.

The table shows that the best results were obtained with no ground or counterpoise, and with the aerial anywhere from 38 to 50 feet long, and a height of from 6 to 10 feet from the ground.

Fig 1 shows the hook-up from which a portable set suitable for the vacationist could be easily and inexpensively made up. It would be advisable to use one of the dry cell tubes.

TEST RESULTS					
Aerial		Ground	Counterpoise	Tuning	Signals
Height	Length				
10 ft.	50 ft.	Pipe . . . .	None . . .	Broad . . .	Faint . . .
10 ft.	50 ft.	None . . .	Wire on ground .	Better . . .	Doubled .
10 ft.	50 ft.	None . . .	2' below aerial . .	Critical .	Louder . .
10 ft.	50 ft.	None . . .	None . . .	Average . .	Same . . .
10 ft.	38 ft.	None . . .	None . . .	Critical . .	Same . . .
10 ft.	37 ft.	None . . .	None . . .	Critical . .	Less . . .
6 ft.	50 ft.	None . . .	None . . .	Sharp . . .	Strong . .
2 ft.	50 ft.	None . . .	None . . .	Critical . .	Less . . .

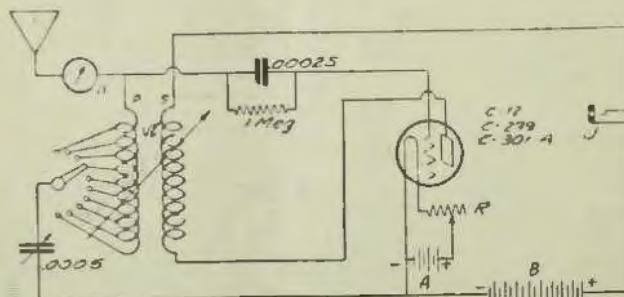


Fig 1 Hook up for Groundless Receiver

## Electrical Supply Shop

E. R. Cullen's

Everything Electrical Supplied, Installed, and Maintained, also Complete Sets for Listening-in on Farmer's & Co., and also Broadcasters (Sydney) Ltd. Stations.

A splendid range of Globes and Electric Fittings.

Call and Inspect our Stock of Useful Gifts.

E. R. Cullen

Late A.I.F.

96 Bathurst Street  
Sydney

Phones: City 869 and 2596



# RADIOCULOUS

*What Wireless Can't Do.*

"Think of it, Amelia," remarked Peter, as he read his Sunday paper, "the radio age is here! By television we'll be able to see all round the world."

"Yes," said Amelia, "but radio won't tell me where to find that thimble I lost."

"Broadcasting," continued Peter, "will go on for 12 hours a day; and there will be a special wave length for the proceedings of Parliament."

"Well, anyhow," said Amelia, hopefully, "we can cut that off."

"We shall merely have to turn over a lever and we can call up a friend at the other side of the world."

"Yes, Peter," said Amelia, "and the radio exchange will put us on to the wrong number, and the wireless waves will be crossed, and we'll find ourselves listening to an Eskimo trying to raise the local Iceland exchange."

"Power and light for household use will be distributed from wireless stations."

"Yes, dear, and the chops will be short-circuited and the porridge will oscillate."

"Think of aeroplanes controlled by wireless, Amelia."

"Yes, you may be able to control aeroplanes; but I'll still have to control the children in the good old way that grandma did—over her knee. And wireless is not going to sew on trouser buttons, or clean out the sink, or feed the baby."

And Amelia plucked a woman's pre-wireless weapon—a hair-pin—from her hair and proceeded expertly to mend the gas stove.—*Sydney Sun.*

\* \* \*

"I say, old chap, what's the difference between a hen with one wing and a hen with two?" asked the wag.

"I should say it was a matter of opinion," retorted the wit.

—"Korsaren" (Norway)

*Aerial Wires.*

A distinctive feature of the outfit is the two aerial wires, one at an angle from the pole, and one lying parallel to the ground. This method is used when communicating with a similar station, the lower "aerial" being a counterpoise, which dispenses with the earth connection, a great source of trouble in dry country. The instruments are shown set for sending "directive," that is, transmitting in a given direction. If necessary the poles can be discarded, and the wires laid in a similar position, but at right angles to the earth wires, but this considerably lowers the efficiency. When good earth is available, the two aerials are connected as one, and suspended as high as possible. For aeroplane work, one set of wires are fastened beneath one of the planes, and the other is allowed to hang down by its end forming a sort of inverted letter L.

**ABIE THE AGENT**



**By HERSHFIELD**

—N. Y. Journal



## How to Use a Two Element Vacuum Tube

By H.B.T.

Everyone who builds his own radio outfit desires to receive over a maximum distance with a minimum expenditure. The writer recently constructed a receiver which is far more sensitive than a crystal outfit and is more satisfactory and reliable in its operation. In fact, the writer's results have been so pleasing that he thought he would let his brother fans know how to do the same thing.

Nowadays everyone wants a vacuum tube set and yet everyone cannot afford to invest in the necessary storage battery, "B" Battery and other accessories that go to make up receivers of this type. While shopping recently I came across a new Fleming type of vacuum tube called Diode, which I purchased complete with socket at a very reasonable figure. This was a two-element tube operating from dry

heard before, but the quality of the reception was every bit as good as that obtainable with a good crystal set, and there was an entire absence of circuit noises and howling. In fact, one cannot make a two-element tube howl no matter how hard one tries. I have had such good results with this vacuum tube that one of my friends asked me to change his crystal set over into a vacuum tube set employing this same type of tube. I did not find it necessary to completely demolish his crystal set to make the necessary changes. In fact, I used all of the instruments of the old crystal set with the exception of the crystal.

The rheostat is carefully adjusted until the signals are loudest. When the rheostat was placed at the proper point, I did not find it necessary to adjust it further, and the tube retained its same degree of sensitivity for several hours. It is evident that it would not be advisable to operate these tubes without a rheostat as that would allow too much current to pass through the filament from the battery.

The advantage of permanent adjustment of this arrangement will appeal strongly to those who have been troubled with crystal detectors. Crystal detectors are fine, but they do get out of adjustment and here is something that gives us just as good quality, greater distance and no trouble in adjustments.

In the way of experimenting I set up a second circuit, using a 200 ohm potentiometer. This allowed me to make the filament negative or positive. By the use of this arrangement the results were found to be a little bit better, but those who cannot afford the addition of the potentiometer can be assured that they will get good results well worth the trouble by using the other circuit. L. M. Cockaday has developed several circuits employing the Diode two element tube and at a later date they will be published.

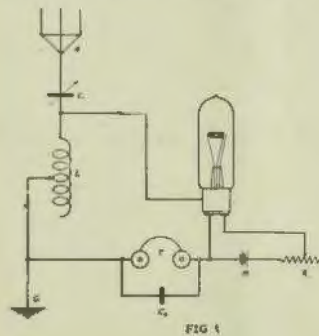


FIG 1

- A—Antenna.
- C1—.0005M.F. Variable Condenser (23 plate)
- L—Inductance Coil (on paper tube 3 in. diameter, wind 70 turns of 26 B. and S. gauge cotton cover copper magnet wire tapped every 10 turns.
- G—Ground or water pipe connection.
- C2—.0025 fixed Condenser.
- R1—Rheostat.
- B—2 Dry Cells in Series
- T—Telephone Receivers.

cells. The receiver circuit outlined in the diagram was set up and perfect reception was made possible. Previous to the purchase of this vacuum tube, I was using a crystal receiver. With the vacuum tube I was not only able to pick up stations that I had never

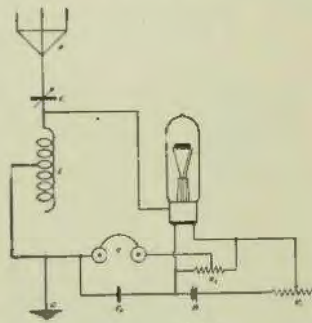


FIG 2

- A—Antenna.
- C1—.0005MF Variable Condenser (23 plate)
- L—Inductance Coil (on paper tube 3 in. diameter, wind 70 turns of 26 B. and S. gauge cotton cover copper magnet wire tapped every 10 turns.)
- G—Ground or water pipe connection.
- C2—.0025 fixed condenser.
- R1—Rheostat.
- B—A Dry Cell in Series.
- T—Telephone Receivers.
- R2—Potentiometer.

Each year the Institution of Radio Engineers presents a sum of 500 dollars to the radio worker whose inventions or contributions to the science are of the most outstanding and practical nature. This year the prize has been awarded to Harold H. Beverage, an engineer of the Radio Corporation of America, for his invention of the "Wave Antenna."

FOR SALE—Twenty Yard Aerial, complete with fifteen feet masts and Telephone Head Set. Apply, Frank Smith, Box 2234, G.P.O., or City 9148.



*More about Short Wave Transmission*

The more we think of short waves for radio transmission, the more the idea appeals. The work of Franklin and Marconi in England, and of the Westinghouse Company and the Bureau of Standards in America, prove beyond doubt the feasibility of employing a range of frequencies at present used by no one. The amateur is apparently of the opinion that 3,000 kilocycles (100 metres) and higher is not a useful range for him, but actual experiments show this range to be perfectly workable, and it must therefore soon be used by some one or other. The experiments of the Westinghouse Company in using 3,000 kilocycles for re-broadcasting, is, according to report, proving very successful.

Suppose we grant that for the time being it is not practical to use waves of less than 50 metres, except for rather short distances. The Bureau of Standards has shown this to be far from the truth, but as the range is undoubtedly not large, we will consider only the range between 50 metres and 100 metres, that is a frequency range

from 3,00 k.c. to 6,000 k.c.

If we allowed a frequency band of 20,000 cycles between adjacent channels, this unused high-frequency band will permit the non-interfering operation of 150 channels. This is six times as many channels as are to-day available for all our broadcasting, if we allow the same separation of channels. Just think of it, these 150 channels would be so far apart that the beat note between the two stations closest together in the series would be inaudible!

What is the draw-back?

Well, it is not possible to send a great deal of power at these high frequencies, but the question at once arises, is it necessary to send a deal of power? And the answer is: It depends upon the kind of receiving set used. A radio-frequency amplifier for a 6,000 k.c. current would be difficult, if not impossible to build; but here the super-heterodyne comes to the rescue. It seems that 50 watts, at 50 metres, with a good super-heterodyne receiver, might well be better than 5,000 watts at 500 metres with the ordinary receiver.

**BROADCASTING A WIRELESS JOURNAL.**

An interesting legal point with regard to broadcasting arose recently in France, where a proposal was made and all arrangements prepared for broadcasting a complete wireless journal under the title of "Journal sans Fil." Those who waited at the appointed hour for the first number of this spoken newspaper, however, were disappointed, for at the last moment the French Minister of Posts and Telegraphs raised an objection to publication, stating that, under the present regulations governing wireless, all transmitting stations had to be officially authorised.

FOR SALE—Valve Receiver, with spare valve, panel, 12in. x 10in. polished cabinet, separate tuning panel, 10in. x 12in., H.C. (3) .0005, .0008, variable (2) condensers, 50 volt, B. battery. Quick sale. £10 or offer. Phone: Day, City 8806; night, North 2916. R. H. Evans.

An illustration of our

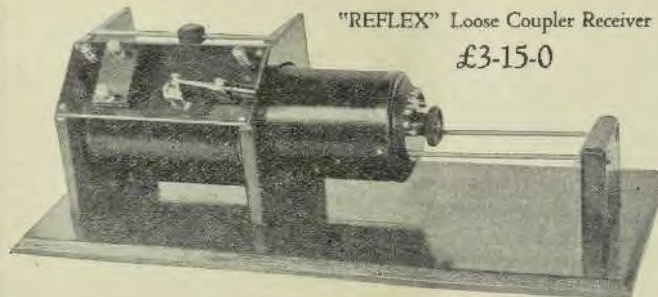
**'REFLEX'**

Loose Coupler Receiver

as Quoted in our Price List

*Special Features*

Bakelite Panel with Aerial and Earth Terminals; Detector; Phone Condenser and Phone Terminals mounted over Primary Coil; Secondary Coil Selector Switch and Studs mounted on Circular Ebonite on end of coil; Nickelled Terminals; Slider and Running Rods; Polished Maple Woodwork.



"REFLEX" Loose Coupler Receiver

£3-15-0

Complete Set of Parts to make the above Set 36/6

Postage 1/6

**RADIO HOUSE**  
619 George Street, Sydney







**Marrickville and District Radio Club**

*Marrickville and District Radio Club.*

On Monday, the 7th inst., in the School of Arts, Marrickville, the usual weekly meeting of the above club was held, Mr. W. L. Hamilton presiding.

Mr. Hemming (Secretary), in a short report covering the club's activities over the preceding six months pointed out that numerically we were stronger. No falling off in attendance was noticeable; a good roll up always being assured. This was primarily due to the high class of lecturers who had visited the club, the standard being maintained by the worthy effort of Publicity Officer.

The President in a few well chosen words welcomed back one of the foundation members in the person of Mr. W. F. Allworth, who had been absent in the country for the last seven months. Mr. Allworth suitably responded.

Arrangements for a launch picnic being held on February 2nd were entered into. This picnic is being confined to club members and their wives, and will no doubt act as a solace to the weaker sex who deprive themselves of the company of their beloved spouses each Monday evening.

Afterwards an excellent demonstration of reception was provided by Mr. H. Weston, on apparatus kindly lent for the occasion by the well known firm of W. Harry Wiles. The action of this firm was highly appreciated, this not being the first occasion on which apparatus had been lent by them for demonstration purposes.

**Concord Amateur Radio Club**

The first meeting of the New Year was held on the 3rd January, at the club rooms, Wallace St., Concord at 8 p.m.

A serious discussion was entered upon by members on the various amateur movements.

The visit of 2CM to America will be followed by members, and it is hoped that Mr. MacLurean will break

more world's records with his low power tests.

The letter from the Federal authorities re a Federal Council was dealt with, and the club thinks it will be a great help to the amateur movement of Australia, but in its present stage the clubs can do nothing until a mass meeting of their representatives are called.

Circuits of multi-valve sets were received from Hart and Hedgman and Co., of America, and distributed amongst the members.

After this the balance sheet was accepted and this showed that the club were making better progress than that of the preceding half year.

Mr. Stephenson, La Mascotte, Av., was elected to fill the vacant position of Vice-President.

The January business meeting of the club will take place on the 10th January, at which it will be decided either to build a transmitter or enlarge the present receiver.

Practical reception and buzzer practice was then carried out.

The meeting adjourned at 10 p.m.

All correspondence should be addressed to Hon. Sec., W. H. Barker, Wallace St., Concord.

**Leichhardt and District Radio Society**

Members of the Leichhardt and District Radio Society commenced their New Year activities on Tuesday, January 8th, when the 15th business and 62nd general meeting was held at the Club-room, 176 Johnston St., Annandale.

The meeting was well attended, and business transacted included the election of four new members, and the discussion of a proposal to have a badge designed for the use of members. Matters in connection with the moonlight excursion fixed for the 19th inst., were also finalised, and everything points to a successful outing on that occasion.

The Society's valve set is now in operation, and giving good results. Although only a single valve set at present, sufficient gear is in hand to provide for one stage of amplification and—as time goes on—the set will be added to.

The membership of the Society continues to increase, and new members are always welcome. All inquiries should be addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Booth St., Annandale.

**Croydon Club**

The Croydon Radio Club held its first meeting of the New Year on Saturday, January 5th, at the Club rooms, Rockleigh, Lang St., Croydon, at 7.30 p.m.

There was a fair attendance for the first meeting after holidays. New members were welcomed.

Mr. C. W. Stude, who presided, thanked members of the Club for the silver pencil which had been presented to him by the club members at Christmas.

It is hoped that there will be a large attendance at all future meetings held every Saturday, and that new members will join up with this body of radio experimenters.

All communications should be addressed to the Hon. Secretary, G. Maxwell Cutts, "Carwell," Highbury Street, Croydon.

**Waverley Radio Club**

The adjourned annual meeting of the Waverley Radio Club was held on the 10th January with Mr. Perry occupying the chair. The half-yearly balance sheet was read and adopted. The election of President and Council then took place.

Mr. M. Perry was re-elected President without opposition. The Council also elected unopposed, resulted as follows: Messrs. R. Howell, E. Bowman, J. Marsland, G. Thomson, H. Simpson, T. Nott, Messrs. D. Graham and A. Burrows declined. The council will elect officers at its first meeting.

Arrangements were made for the club's 5th anniversary function, which will be held in the club rooms, on the 24th January. Visitors and representatives of other clubs will be invited.

Waverley Club's re-elected publicity officer, Mr. Burrows, is a frequent writer for the "Sun," and lately his articles on broadcasting have caused some comment in wireless circles.

Members of the Waverley Club were pleased to see Mr. R. Howell re-elected Secretary for the next half-year. Mr. Howell, who is well known in Sydney's wireless community, is a hard worker, and an asset to any club.

Mr. M. Perry, who lately joined New Systems Wireless, is again President of Waverley Club, an office which he has held for some months.



*Wireless Chain*

*Ticklish Problem*

(London Cable.)

Owing to Labour's doubtful attitude towards the Marconi Company, a special effort is being made to effect a settlement of the wireless dispute before the Conservatives relinquish office.

Labour, while in Opposition, has been hostile to the Marconi Company, strongly advocating a Post Office monopoly of wireless.

In this connection there is likely to be Labour criticism of Mr. Brice's statement in which he advocates a private station in competition with the Post Office.

The Labour member, Mr. G. Middleton, in the party organ, makes a renewed attack on the "wireless monopolists," pointing out that two ex-Postmaster-Generals are at present actively associated with Marconi's, Mr. F. G. Kellaway being a director of Marconi's, and Baron Gainsford chairman of Directors of the British Broadcasting Co., in which Marconi's are interested.

It is possible that an eleventh-hour

compromise will be announced by which Sir Laming Worthington-Evans (the present P.M.G.) will give Marconi's a practically unrestricted license, but Labour would undoubtedly resent such action by a dying Government.

If the question is passed on by Sir Laming Worthington-Evans, Labour will probably offer Marconi's a limited license, with a threat to build an additional Post Office station in the event of non-acceptance by Marconi's.

This additional station would provide reciprocal working for Australia, but Marconi's will probably retaliate by abandoning the proposed Canadian stations, thereby cutting off the alternative route from England to Australia.

*Broadcasting for Victoria*

TWO COMPANIES.

It is stated that two comprehensive broadcasting services will be commenced in Melbourne almost immediately. While it has been known for some time that the Australian Broadcasting Company Proprietary, Ltd.,

with which Messrs. Farmer and Co., of Sydney, are associated, would establish a powerful broadcasting station in Melbourne, similar to the stations operated by Farmer's in Sydney, it will come as a surprise to most people to learn that a second service for Victoria has been planned by the Associated Radio Company of Australia, Ltd., and that this company proposes to commence broadcasting in Melbourne on or before January 26. Each company has a capital of £100,000. Both services will be within reach of every part of the State. In addition to musical entertainments each station will broadcast and weather and market reports, fashion notes, talks and stories for children, time tables and shipping notes, and it is hoped to arrange for the broadcasting of talks on topical matters by public men. It was stated to-day that steps are being taken by the Australian Broadcasting Company, by arrangement of the Amalgamated Wireless (Australasia), Ltd., to erect a broadcasting station in Melbourne, which will be one of the most powerful in the world.

**Wiles' Wonderful Wireless**

Complete Stocks of all parts for Amateur Construction. Being direct importers, we are continually adding many new and interesting lines to our stocks. Members of Broadcasters Sydney Ltd., and Agents for Farmer's Broadcasting Service.

We pay carriage throughout N.S.W. Send for Complete Price List.

**W. HARRY WILES**

ELECTRICAL AND WIRELESS SUPPLIES

60-62 GOULBURN ST., SYDNEY

ONE DOOR FROM PITT STREET.



*Radio Health Talks*

The American Red Cross goes about its work of human service, and leaves the shouting to others, says "Radio." The organisation's Boston Metropolitan Chapter has just published the 38 five to ten minute practical talks on health, written by Mr. Henry Copley Greene, with the co-operation of many eminent medical men and women of Massachusetts, and broadcasted by Mr. Greene from WGI, the "Amrad" Station at Medford Hillside, Mass. In an introductory note to the book, which is called "Listen In," Dr. Richard C. Cabot, of the Harvard Medical School, says:—

"The outstanding merit of Mr. Greene's book is that it is never dull, yet never sensational. Most health

books are very unhealthy and very dull. They paint countless 'dangers' which the average man runs with impunity every day, because they are not dangerous. . . . But this book is interesting, and so far as I know, most of it is true. If you begin it, you will probably read it through, and remember much of it. There are extraordinarily few exploded theories in it; and there is a great deal of sensible advice—even exhilarating advice here and there. This . . . is a remarkable achievement."

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WEEK-END PROGRAMMES.**

Broadcasters' (Sydney), Ltd., submitted the following programmes for Saturday and Sunday:—

**Saturday.**

12 (noon), general news; 12.30, news, morning Stock Exchange calls, market reports, weather reports; 1.3, Broadcasters' No. 1 Orchestra will play the following, violin solo, Ethel Holden, waltz, "Gipsy Love," intermezzo, "Coquette," nocturne, fox trot, "Fiji Isle," selection, "Carmen," dance suite intermezzo; 2.30, Mid-day, exchange calls, general news; 3 p.m., news; 3.15, afternoon chats to women; 3.30, weather reports; 3.45 to 4.45, Orchestra, Czardas No. 6, waltz, "Berceuse," Air de Ballet, "Nymphs of the Nile," 'cello solos, Miss Mabel Bird, selection, "The Merry Widow"; 5, news; 5.30, news; 6, news; 6.30, Stock Exchange calls; 6.45 to 7.45, bedtime 8.42, Mr. Billy Brown (humourist), stories.

**Night.**

7.45 to 8 p.m., Broadcasters' No. 2 Orchestra will play selections; 8 p.m., Miss Dorrie Ward (soprano), "The Piper of Love"; 8.13, Miss Ethel Holden (violiniste), "Cavatina" (Bolin); 8.23, Mr. W. E. Lewis (bass), "Eri Tu" (Un Ballo Il Maschero); 8.30, Selection from the Orchestra; 8.36, Miss Elsa Harvey (contralto), selections; Juvenile Impersonation, "Essay on Cow," "Walk Right On, Turn Around"; 8.48, Selection from the Orchestra; 8.54, Mr. Roland Roberts (baritone), "Cloze Props," "Red Devon by the Sea"; Interval of 3 minutes; 9 p.m., Mr. W. E. Lewis and Miss Dorrie Ward (in duets), "Rose of My Heart"; 9.12, Miss Mabel Bird (celoist), "The Swan Song"; 9.22, Miss Dorrie Ward (soprano), "O Flower Divine"; 9.30, Mr. W. E. Lewis (bass), "O Western Wind" (May Brahe), "Passing By" (Parcell); 9.38, Selection from the Orchestra; 9.44, Miss Elsa Harvey (contralto), Selections; 9.50, Mr. Billy Brown (humourist), "Old Fashioned Town"; 9.55, Mr. Roland Roberts (baritone), "The Barber of Tuto," "Wimmin and Wimmin"; 9.58, Selection from the Orchestra; National Anthem.

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