# WIRELESS WEEKLY

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**FEATURE:**

Converting Your Broadcast Receiver to a Short Wave Receiver

# Wireless Weekly

12-16 REGENT STREET, SYDNEY, AUSTRALIA.
'Phones: Redfern 964 and 930.

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

Editor: A. W. Watt.—The Editor will be glad to consider Technical and Topical Articles of interest to Australian Experimenters. All Manuscripts and Illustrations are sent at the author's risk, and although the greatest care will be taken to return unsuitable matter (if accompanied by stamps), the Editor cannot accept responsibility for its safe return.

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VOL. 5 No. 18 FEBRUARY 27, 1925

# Editorial

## EXPERTS.

FROM the very beginning, the science of wireless has carried in its wake a crowd of so-called experts, some looking for personal limelight, some blatant imposters, and a few who really base their opinions upon genuine scientific research work and who are the first to acknowledge where they are wrong and to applaud the achievement of something hitherto considered impossible. It is strange, but true, that we hear very little concerning the movements of those scientists to whose brains the swift advance of wireless may be directly traced. They work quietly and patiently until the particular work they are engaged upon is fulfilled. For a brief period they emerge from obscurity while the results of their investigations are being demonstrated, after which they retire to further research, leaving the field open for those other "experts" whose mission is to utter prophecies concerning matters of which they know very little, and to dabble in things which have already been discovered. The trouble is that these people are so much in the public eye that the uninitiated are apt to credit them with knowledge which in many cases it is questionable whether they possess. A few short years ago the "experts" scoffed at wireless telephony itself, and only recently a prominent public man expressed his opinion concerning the replacement of cables by wireless in the following illuminating terms: "Wireless can never replace cables, because there can be no secrecy and because static interferes with reception." Pure bunk. We may as well resign ourselves forever to anything else as it exists at the present day, as to consider for one moment that, despite its progress over the last decade, wireless will never get any further. And yet, not only public men, but alleged experts make these foolish utterances. Now, let us refer to the real experts. Alexanderson, whose chief claim to the title lies in the fact that he revolutionised the system of transatlantic commercial wireless communication, has announced two methods for controlling radio waves. Although no technical details are yet available, it seems clear that the two methods are designed to ensure secrecy. In the same communication Alexanderson stated that all static is eliminated by two particular types of aerials. Here, then, from the very fountain head comes refutation of opinions given every day by so-called experts, and often accepted as authoritative. Whether the cable will ever be displaced by wireless is, of course, a matter that will be directly influenced by finance, and by no other consideration. What really concerns us in this article is that more harm than good is being done by misguided advisers and prophets, who might well study the methods of publicity adopted by those real experts whose ground they encroach upon.

## STANDARD TRANSMISSIONS.

THE good work of the Wireless Institute was never put to better effect than in the standard frequency transmissions at present being carried out by 2CX. This is a service not only for the benefit of the experimenter, but also for the broadcast listener, and one that must be appreciated by all.

Since the value of the transmissions may only be judged by reports, we hope that those who find the work of 2CX of practical assistance will not neglect to drop a line to that station.

## WAVELENGTHS OF S. AFRICAN STATIONS.

According to latest advices, the following are the wavelengths used by the South African Broadcasting stations.

Cape Town 375 metres; Johannesburg 540; Durban 600; Walfish Bay (South-West Africa) 600; Slangkop 630.

However, we presume that the three latter ones refer to ordinary commercial coast stations.

HEADQUARTERS
Royal Society's House
5 Elizabeth St.
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# Wireless Institute of Australia

## N.S.W. Div. Inc.

Incorporating the Affiliated Societies and The Australian Radio Relay League

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Box 3120 G.P.O. Sydney
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A.H. Perrett Publicity Officer.

**Monthly General Meeting.**

The February meeting of the New South Wales Division of the Wireless Institute of Australia was held on Thursday, the 19th instant, at the Royal Society's Hall, 5 Elizabeth Street, Sydney. After the minutes of the previous meeting had been read and confirmed, the President of the Division, Mr. Charles Maclurcan, who was in the Chair, extended a very hearty welcome to Dr. W. G. Woolnough, who has returned from his expedition into the heart of Central Australia. All members were pleased to see Dr. Woolnough back again, and it was a pleasure to hear him take part in the meeting. Speaking generally he had a fairly good trip, but his experiences were not such as would be envied by the majority of members. He anticipates that he will be making another trip in the same region at an early date.

**Election of Members.**

The following members were unanimously elected to various grades of membership, having passed the Qualifications' Committee and been approved by the Executive Council. As full members:

H. E. A. Turner, H. Turner, L. J. Crosbie.

As associate members: W. E. Bussman, W. A. Hopkins, A. J. Creagh, N. C. Pope, Jnr., W. J. B. Trantre, L. C. Presdee, and R. R. N. King.

The election of such a goodly number of new members is an indication of the recognition which is being accorded to the New South Wales Division of the Wireless Institute as the premier wireless organisation of Australia, and it is very gratifying to those who control the affairs of this Division to receive such encouragement, and the numerous applications which are continually coming to this office serve to indicate that the Institute is going ahead at a rapid pace.

**Rectifiers.**

The main business of the evening was a paper by Mr. P. L. Sewell on Rectifiers, and both delivery of the paper and the discussion which followed were thoroughly enjoyed by members.

Mr. Sewell treated his subject well, dividing it into various sections, such as bulb rectifiers, mechanical rectifiers and electrolytic rectifiers, while most valuable information was given with regard to the electrolytic section.

The fact that one of the most animated discussions that have even been heard at an Institute meeting followed this paper was an indication of the interest aroused by the paper. The nature of the discussion was largely that of seeking more information with regard to points which had cropped up in members' experience, and several points were thoroughly discussed by several members.

The night was extremely hot, but those who attended were amply repaid for any personal inconvenience by the fare they received.

**Nominations for Council.**

In the notice calling the meeting, notification was made that nominations for the election of the new Council must be in the hands of the Hon. Secretary not later than Thursday, March 26, 1925. Each nomination must be accompanied by an intimation that the person nominated is willing to stand for election.

It would not be amiss here to point out that the work which has been done by the old Council in the past year has had far reaching effects. The steps which have been made in the advancement of the science have necessitated a close watch by those who have been performing the duties of Councillors, and considering that the next period will be a period of even greater progress, it is necessary that members should very carefully consider the election of those who are to carry on the business during the ensuing period.

Alterations in the personal affairs of some members of the Executive will result in their being able to devote a very much greater amount of time to the Institute business than in the past, if they continue to hold office, and every member should carefully take stock of the Institute and its activities before the next Annual General Meeting, so that the very best possible representatives may be selected to carry on the work of the Institute.

**QRM?**

The Publicity Officer has returned. Great things were promised for this week's notes, but surely he is entitled to some respite in order to get into his stride.

**Mental Arithmetic.**

Take five watts from A watt and watt will be the answer. The Editor of W.W. will be pleased to supply you with the answer. Watt?

Wonders will never cease. L. S. Lane has at last attended a meeting. His first appearance since his election many years ago.

Joe Reed has come back to the fold.

A good deal was heard at the last general meeting with reference to Fords, but a certain gentleman was not biting. It takes a sprat to catch a mackrell. What would it take to catch P. Renshaw? The whole beach.

A. H. PERRETT,
Publicity Officer.

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# *Round the Clubs*

*The asterisk denotes clubs affiliated with the Wireless Institute of Australia (N.S.W. Division).*

## THE LEICHHARDT AND DISTRICT RADIO SOCIETY. *

There was a good attendance of members of the Leichhardt and District Radio Society at the 119th General Meeting, held at the club-room, 176 Johnston Street, Annandale, on Tuesday, February 17th.

At the conclusion of half-an-hour's Morse practice, the main business of the evening was proceeded with. This consisted of a debate between four members of the Society, two speaking in favour of a motion that American manufactured apparatus is superior to English, and the remaining two speaking against the motion. The discussion which folowed was animated and interesting, and on a vote being taken at its conclusion those present polled overwhelmingly in favour of American manufactured apparatus.

Next Tuesday evening the Society will conduct its 29th Monthly Business Meeting, when applications for membership and other formal business will be dealt with, and on Tuesday, March 10th, Mr. S. P. Williams will deliver the 4th lecture of Syllabus No. 3. The subject on this occasion will be "Short-wave Circuits," and in view of the considerable amount of short-wave work carried out at the present time, this particular lecture should prove of unusual interest to all. The following meeting to be held on March 17th will take the form of a "Sale and Exchange Evening".

Inquiries regarding the activities of the Society are always welcome, and should be addressed to the Hon. Secretary, Mr. J. W. Zech, 145 Booth Street, Annandale.

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## CONCORD AMATEUR RADIO CLUB.

The usual weekly meeting of the above club was held on Thursday, 12th February, 1925, at 8 p.m., at the clubrooms, "Euripides," Wallace St., Concord.

The President, Mr. Stephenson, occupied the chair and the attendance was very good.

After the minutes had been read and confirmed the correspondence was dealt with. A letter was received from the Delegates' Council stating that Mr. James, of Station 2XA, would lecture before us on Thursday, February 26th. Several suggestions were put forward for discussion at the Delegates' Council. A new member was elected to the club at this meeting. This Club is transmitting several nights per week after 10 o'clock, and anyone hearing these transmissions are requested to get in touch with the Honorary Secretary, W. H. Barker, "Euripides," Wallace St., Concord.

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## WOOLOOWIN RADIO CLUB (Brisbane)

The regular meeting of the Wooloowin Radio Club was held at the club rooms, on Monday, 9th inst. There was a good attendance of members also several visitors.

The principal business of the evening was a debate on "Variometers and Vario-Couplers versus Plug-in Coil." Three members upheld the claims of either type of tuning unit and a keen dabate was the result. The voting on the arguments proved a decided victory for those upholding the claims of Variometers and Vario-Couplers.

The members of the club are very keen experimenters and hope ere long to instal a transmitting set for experimental purposes. Two members are commencing their studies for the purpose of qualifying for licenses and as they are both well up in the science no doubts are entertained about their being able to sit for the examination in a very short time.

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## RAILWAY AND TRAMWAY RADIO ASSOCIATION.*

The Railway and Tramway Radio Association held its usual weekly meeting in the club room at the Railway and Tramway Institute, Sydney, on Wednesday, 18th February, 1925. There was a good attendance of members. Three new members were admitted. The club's new low loss receiver was in operation for the first time, and some interesting results were obtained. The secretary has been instructed to make arrangements for inter-club debates.

(Continued from page 4.)

It is considered that this is a very good method of enlightening members on many subjects. A club lecture roster is being drawn up, and under this scheme it is hoped that a short lecture will be delivered every meeting night by the different club members. The first of the series will be given on March 4th, when Mr. Clark will speak on "The Installation and Maintenance of a Wireless Receiver." Enquiries regarding the association's activities will be welcomed by the hon. secretary, Mr. W. L. Carter, c/o Solicitor for Railways, 139 Phillip Street, Sydney.

### STRATHFIELD AND DISTRICT RADIO CLUB.*

The ordinary weekly meeting of the above club was held at the club rooms, corner Albert Road and Duke Street, Strathfield, on Monday evening, 16th inst. Mr. A. F. Jacob occupied the chair, and there was a very good roll-up of members. Proceedings commenced with a short lecture on the "Construction and Connecting-up of a Single Valve P1 Receiver," by Mr. J. Rourke. A long discussion on technical points followed, which proved very interesting. These discussions have been a regular feature of the club's activities for some time past, and, judging by the interest shown by members, are very popular.

The procedure adopted is for individual members to submit practical points for discussion in turn. These generally comprise matters incidental to the operation of receiving apparatus, as the members find they often come up against little difficulties and problems in the handling of their own sets. Discussion is invited on each problem submitted in turn, and consequently members as a whole derive much enlightenment from the interchange of views. Arrangements are in hand for further useful additions to club plant, and the business organisation of the club has recently been placed on a proper footing.

A good programme of club activity has been arranged for the next few weeks, including a "Demonstration Night" on March 2nd, when, with the aid of the club's set and component parts being brought along by individual members, a practical demonstration of various standard types of receiving circuits will be given and their characteristics explained. We understand that matters in connection with the Institute roster of lectures to clubs have recently been placed on a satisfactory footing, and that we shall be treated to regular visits from some of the foremost men in radio circles in future.

Correspondence regarding membership or the activities of the club, addressed to the hon. secretary, Mr. K. Campbell, 44 Bayard Street, Mortlake, will receive prompt attention.

### LEICHHARDT CLUB'S DANCE.

The Leichhardt and District Radio Club's dance will be held at the Kiaora Hall, Parramatta Road, opposite Johnston Street, on Wednesday, March 18th.

Harry Freeman's full Jazz band which includes 5 performers will be in attendance. The object of the dance is to raise funds for the redecoration of the Club room and an enjoyable evening is assured to all who attend. There will be balloons, chocolates and cigars. Tickets, Gents 2/- and Ladies 1/- may be obtained from Mr. E. J. Fox, 20 Junior Street, Leichhardt, or at Kiaora Hall.

### CHANGE OF ADDRESS.

Will readers kindly note that 2CJ, Percy L. Sewell, has removed from 12 Dillon St., Paddington. His address is now 362 Victoria St., Darlinghurst.



### DON'T MISS US NEXT WEEK

In the next issue of Wireless Weekly, Mr. W. A. Stewart describes "An Improved Short Wave Receiver" which he claims is the best ever. It's easily made and very simple to operate. Don't miss it.

Another article will discuss aerials, earths, and counterpoises from a new angle, and there will be some dope of especial interest to every reader. Make sure of your copy next week.

# WITH OUR READERS

To the Editor.

Dear Sir,—As you are no doubt aware I have been away from my station for a couple of months.

On my return last week I was surprised to note that quite a number of things had changed "on the ether" during my absence. The most serious thing was the number of amateur telephony harmonics amongst the Yank band of wavelengths. This band used to be from 75-80 metres, but has since been changed to 75-85.6 metres. Therefore, any telephony on 150-170 metres will give a strong harmonic on this band, and will most effectively prevent working between the two countries.

I would like to appeal to those amateurs sending telehony on this band to alter their wavelengths and go down either below 150 metres or above 175. No doubt when this trouble is brought to their notice they will readily do so, as they have nothing to gain whatever over the higher or lower band by transmitting between 150-170 metres.

Another thing, and one which I mentioned before, is the noticeable desire of some of our high-powered transmitting stations to do nothing but work up a long list of Yanks worked. These remarks apply to stations in other States and New Zealand as well. Some of these stations merely succeed in exchanging calls, and apparently do little of a useful nature towards the furthering of their experiments.

It is becoming very difficult—in fact, almost impossible—to raise a reply from other Australian and New Zealand stations. They are much too busy adding to their DX records to give ear to any genuine experimental or test work.

In conclusion, I would like to state that my last night's DX work consisted of communication with 2GQ, 2YI, and 2JR. When I closed down for the night I realised that I had had more pleasure and useful results than if I had added a dozen Yanks to my log. Sounds funny, doesn't it? But I would ask brother amateurs to try this, and see.

Yours truly,
CHAS. MACLURCAN.

Pratten Buildings, 26 Jamieson St., Sydney.

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(To the Editor)

GOOD MORNING DEARIE.

Sir,—With regard to the rather singular point raised in the Victorian Notes of Wireless Weekly, January 23, under the heading of "Good Morning Dearie," I would like to make one or two remarks. The "Hell's Bells" jazz orchestra is composed of trained musicians, and the talk about the moon being full makes it fairly obvious that it was still full when that article was written. Your Correspondent is undoubtedly such a musical critic that it hardly becomes the great multitude to contradict him, not even to point out the fact that "Good Morning Dearie" has been running in Melbourne with packed houses for weeks, "Hell's Bells" clever players being one of the chief attractions. But, nevertheless the whole programme from 3LO cannot be arranged always for his particular edification, although the morning programme is usually composed of classical music to which he could gurgle rapturously in peace. Perhaps the simplest remedy for this state of affairs is for your correspondent to bear in mind that he is not obliged to listen-in to every programme broadcasted, one programme never being satisfactory to all listeners.—Yours etc.,

M.M.

Canterbury, Vic.

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(To the Editor.)

Sir,—During the last few weeks I have noticed with great disgust the increasing tendency of alleged experimenters to pollute the 75 to 100 metre band of wavelengths with 'phone transmission both voice and gramophone grinding. Why they want to do this beats me. In ordinary affairs of life it would be considered very bad manners to force other people to listen to an asthmatical gramophone all the evening when they wanted peace and quietness for other purposes. The second harmonics from those who operate between 150 and 200 metres call for no comment as they are usually very weak, and would be absent altogether if the operators used inductively coupled aerial circuits, but when some idiot starts up on about 85 metres with an all night QSR of the first message old man Noah picked up on his ARK set, the cave man impulse to grab a club and commit a murder in the first degree is hard to hold in check.

In U.S.A. the new radio regulations prohibit the use of I.C.W. and phone transmission on waves below 150 metres without special permission, and in fairness to the experimenters here who wish to make use of 80-90 band for C.W. telegraphy and the 75-85 for U.S. reception phone transmission should be cut out altogether below 100 metres.

Another important reason is that when employing direct coupled grid modulated phone trans-

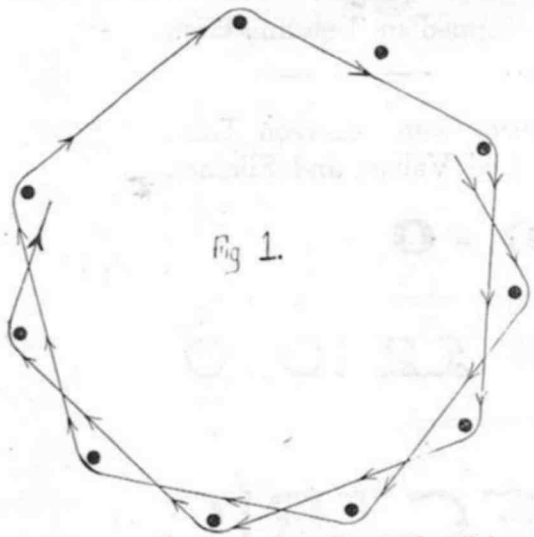
(Continued on Page 23.)

# How to Convert your Broadcast Receiver to a Short Wave Receiver

By "Wireless Weekly."

SUCH a lot has been said lately about low loss receivers, that it may be considered by some that only those sets built along the lines mentioned are capable of tuning down to the lower wavelengths. This is not so, as almost any receiver employing the P1 or three coil circuit will respond very satisfactorily on KDKA's wavelength with very few alterations. Actual tests have been carried out with this converted broadcast receiver and using an ordinary .0005 condenser with vernier (good type), one night's log of American amateurs easily compared with a leading experimenter's log who was using what is known as a low loss receiver. The essential of a short wave tuner is low resistance; a high resistance circuit will not tune sharply.

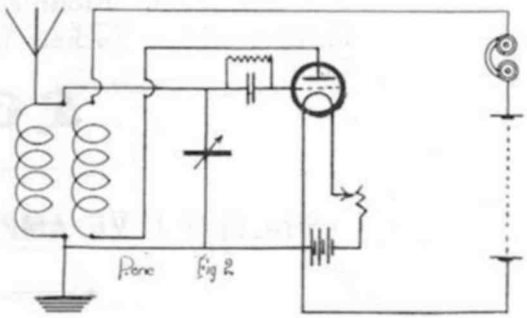
The losses even in the best type of commercial H.C. coil tuning inductances are extremely high as compared with home-made coils where the




larger gauge wire is used. The high efficiency of the so-called low loss condenser is absolutely nullified when used in conjunction with inefficient tuning coils.

**Method of Winding and Mounting Coils.**

To prevent the high resistance mentioned above, wind your own coils either of 18 or 20 gauge d.c.c. or even bell wire. Don't use a tapped coil for the tuned circuit; if you wind 4 coils of 10, 20, 30 and 40 turns, your condenser will tune to any desired short wavelength. Obtain a good piece of stout wood about 4in. square, draw a circle 2½in. in diameter and then mark and drill eleven holes equal distances apart around the circle. These holes are for holding the pegs or nails for winding on the wire. They should be made to just fit comfortably so that they can be pulled out to remove the coils after the desired number of turns have been wound. Fig. 1 shows the method of winding the wire round the nails. When the desired number of turns have been wound, the nails should be removed and the turns kept together by tying them with string or twine. Next mount these 4 coils on to ordinary H.C. coil holders being careful to mount them all the same way, i.e., top end of wire to pin connection and lower end to hole conection or vice versa. They may be secured to the holder by binding them with wide tape round the base of the holder between the pin and hole contacts. Next wind 5 turns on




the same former using the same gauge wire, tieing, securing, and mounting exactly the same way as the other four coils.

**Combinations of Coils.**

The 5 turn coil is always used in the left hand holder; when using the 10 turn coil for the tuned circuit, the 20 turn coil should be used for regeneration; when the 20 turn coil is used the 30 turn coil should be used for regeneration and when the

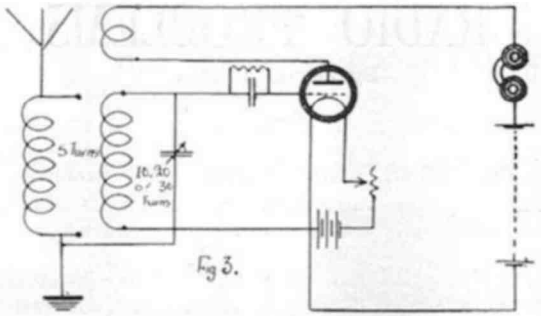


Fig 3.

30 turn coil is used for tuned circuit the 40 turn coil is the regenerative coil.

Those readers who are at present using the P1 circuit will need to mount an extra coupling plug on the left hand side of their panel plug or two coil mount. This is to take the untuned primary coil of 5 turns of wire. A glance at the Figs. 2 and 3 will show readers the difference between the P1 circuit and the circuit used for short waves. It will be noticed that the primary of the P1 circuit is tuned, the primary and grid coil being common. In the case of the short wave circuit the primary is untuned, but the secondary and grid coil is tuned by the variable condenser. Fig. 4 shows the back view of the detecting unit for short or long waves; audio frequency may of course be added if so desired. With the aerial connected to the top terminal and the home-made coils in position, the set will function on wavelengths from 60-200 metres. Care should be taken that the tuning condenser is in parallel; probably some of our readers who are using the P1 circuit have their condensers in series. If so it will have to be altered if the quick change from short wave to broadcast wave is desired.

With the aerial connected to the lower aerial terminal the ordinary P1 circuit is used with the variable condenser in parallel across the primary coil and by simply plugging in your honeycomb

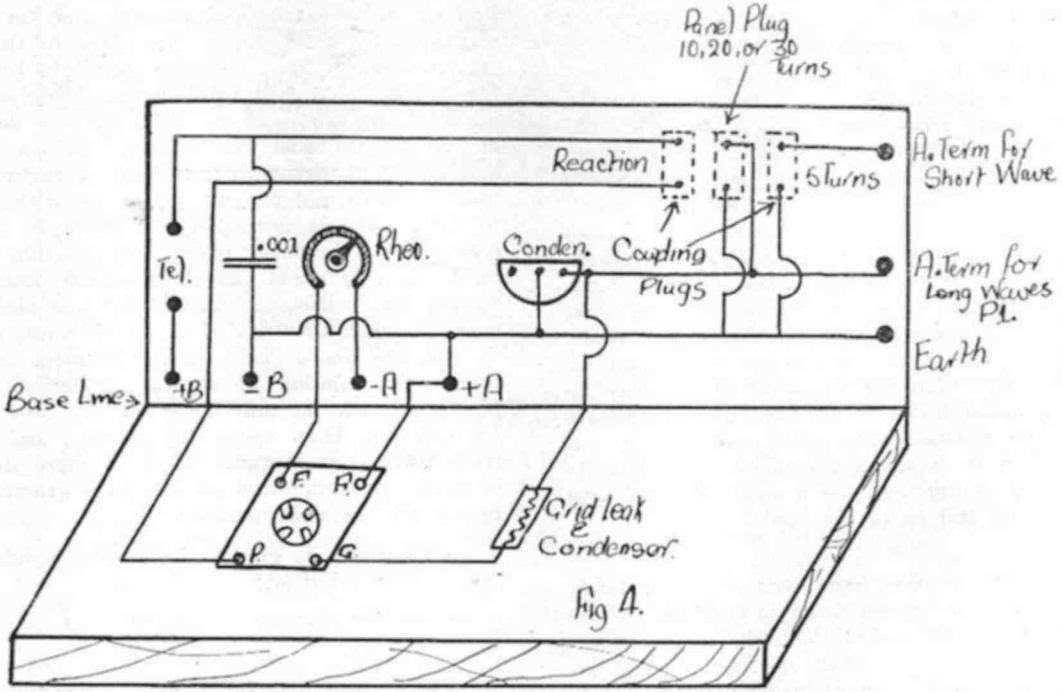


Fig 4.

coils in lieu of your home made ones the set will operate on wavelengths as high as your honeycomb coils will allow you to tune to. It must, however, be remembered that those who have been using a series condenser, are now forced to use the condenser in parallel, so that the smaller coils must be used in primary circuit.

You will readily see from the above that when the aerial is on the top aerial terminal your centre coil is your secondary, tuned by the condenser. When on the lower aerial terminal your right hand coil is out of the circuit and the centre coil now becomes the primary for your P1 circuit tuned by the same condenser. Care should be taken that the moving plates of condensers go to the earth terminal and fixed plates to grid condensers and leak. Those readers who are using the three coil circuit at present will only need to make a connection from the moving plates to their existing secondary condenser to earth and see that the fixed plates go to grid condenser and leak.

Readers who suffer from interference from Pennant Hills whilst listening to broadcast music will find their receivers much more selective if they use the aperiodic aerial tuning system for broadcast reception as well as the short waves. All that is necessary to do this is to keep the 5 turn coil in the left hand holder with the aerial on the top terminal, and place the proper sized honeycomb coils in for the secondary and reaction coils. A word or two about the tuning condensers. As we have stated before the worst losses in a receiving circuit are always in the tuning coils. The poorest type of condenser (as long as the mechanical design is O.K.) will have considerably less losses than the poorly made tuning coils. The resistance which causes these losses is not always in the wire itself, but is caused by objects near the wire, viz., the cardboard tube that the wire is wound on. the varnish with which the finished coil is painted, and sometimes even the insulation of the wire itself, will cause losses. So don't get tempted to shellac you finished home-made coil or even put anything on it except a few pieces of string to keep the turns together and a small piece of tape to mount the coil on to the holder.

Numerous readers have written to us lately asking how they can get down to the lower wavelengths and we trust that they will treat this article as the answer to their question. A great deal of time has been spent in experimenting with the above hookup and we trust our readers will benefit by it.

# RADIO PROBLEMS

By "Kyma Kyklos."

REGARDING some unsolved radio problems I offer some suggestions and would be glad of other opinions of the theory involved.

My suggestion is that the peculiar behaviour of radio waves is due to refraction (not reflection) caused by passing through varying intensities of gravitational fields. An interference from the general principle of relativity—"that in general rays of light are propagated curvilinearly in gravitational fields"—has been more or less borne out by recent scientific tests. Given gravitational fields of sufficient magnitude it is reasonable to suppose that the greater ether waves as used in radio would be similarly affected. If a spherical body be imagined in space, having uniform density and being free from gravitational influences of other bodies, then the gravitational field may be imagined as successive spheres of force surrounding the body and decreasing in intensity as the square of the distance. If the field be of sufficient magnitude to cause total refraction of radio waves, ideal conditions for radio transmission would prevail according to this theory. Now we do not find these conditions here and the gravitational field is altered and contorted in intensity and direction by differences in densities of the earth's crust, the relative position of the sun and if the gravitational field be regarded as lines of force and roughly plotted in with regard to direction and decreasing intensity it will be seen that, granted the power of refraction to the feilds — very great differnces should obtain for refractional values, say during day and night and over abnormal densities of the earth crust, etc.

On the above lines, in my opinion, may be found the solution of several mysterious radio problems such as differences in day and night transmission, blind spots, fading, etc., and better transmissions over water which is more uniform in density than the land or rather the gravitational field should be more uniform.

(We would be glad to have other opinions on this subject.—Editor.)

Please note that 2GM, Mr. G. Maxwell Cutts, has changed his address from "Carwell," Highbury St., Croydon, to 25 Malvern Avenue, Croydon.

# Below the Broadcast Bands

By Dit Dah.

**Short Wave Reception.**

NOW that we have conclusively proved the efficiency of the ultra-short waves, many freak happenings are being recorded, and it is nothing new to hear someone say that he heard KDKA, or some other DX station without any aerial, or on a bed spring, or the bird cage, or something equally freakish. At first glance this seems most incredible, but according to a prominent English scientist, the shorter the wavelength, the more efficient the aerial becomes, so that if you have an aerial which functions well on 300 metres, on 63 metres it should be "a sure fire DX bringer-in"—that is according to his theory, and he even goes as far as to say, that a very rudimentary, or no aerial at all will function quite well. This evidently accounts for these phenomenal happenings, but it is my candid opinion that if the same set which brings in the DX in your own shack was transplanted to a place devoid of aerials, the results would not be the same. As an experiment, try moving your set to another part of the house, or even across the room, and note the difference in signal strength. If you are contemplating the erection of an aerial specially for short wave, a straight, vertical single wire about 40ft. high seems about the most efficient, but it is advisable to keep it as far away from surrounding buildings as possible.

Most low loss short wave sets are quite O.K. as far as C.W. signals are concerned, but when it come to the reception of fone and music, their limitations are quickly realised, the recent KDKA tests aptly proving this. Many experimenters had a difficulty in getting the music purely, and the voice seemed mushy. Most of these difficulties can be overcome by critical attention to the grid leak, B battery voltage, and more particularly, the tickler coil. It is advisable to equip the tickler coil with a clip so that the number of turns in it can be varied at will. In most cases the tickler should be smaller than the secondary coil, and the set should just oscillate. If you experience any difficulty in making the set oscillate, see that you have a fairly large condenser, somewhere in the region of .002 across the output, that is, the phones (if it is a one valve set) or the primary of the first transformer, if it employs more than one valve. If this has no effect try changing over the connections of the grid and filament leads on the secondary coil; if neither of these has no effect, the fault can be usually traced to a short circuited turn in the secondary or tickler coils. The remedy then is to build a new coil, and take more care with it.

**Key Clicks.**

2BV has made some great improvements in his transmissions of late, the result being an increase in strength, and better modulation.

A new inductance, and new brushes in the generator have worked wonders, and he certainly "comes in like a ton uv bricks."

2FP has greatly improved his strength, and modulation, and now seems to be working pretty consistently.

2ZN is again with us, usual good strength, and ditto modulation; he has evidently swapped his cuckoo clock for a parrot.

A new station, 2ZC, has been heard testing of late although using very low power the station comes in with remarkable strength and clarity, the modulation being excellent. The station will be off the air while some changes are being made.

Signing off now till next time.

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## DX WITH THE FAR EAST,

What is believed to be the first amateur two-way communication between England and Mesopotamia was established on Monday, December 8th, by Mr. J. H. D. Ridley (G5NN) and an amateur at Mosul, Iraq. The wavelength employed was 97 metres. 5NN worked with an input power of 90 watts, while the Mosul amateur used 250 watts D.C. Communication was maintained for 2½ hours, a detector valve only being used at Mosul, whilst 5NN employed a detector and note magnifier The signal strength in both cases was in the neighbourhood of R8, though the signals from Mosul were sometimes as strong as R 10.

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## KDKA ON A SIGNAL HOME ASSEMBLY SET.

United Distributors Ltd., have received a letter from the owner of a Model "T" four valve Signal Home Assembly Set, who lives at Northbridge, stating that KDKA was received on the set using the following coils.

No. 1. Low Loss 18 turns.

No. 2. H.C. Coil 35 turns.

No. 3. H.C. Coil 35 turns.

At first, according to the letter. it was thought that the speech was being received on a harmonic from 2BL, but this was subsequently found to be incorrect. The set was located at Harden St., and verification of the report may be had from United Distributers Ltd.

# INTERSTATE NOTES

## VICTORIA.

### 'Phones for Music.

IN these notes for February 6 appears what may be misconstrued as a reflection upon "a much advertised brand that exploits its connection with certain fighting forces." It might appear that the implication was that they are not much good for music or speech. As a matter of fact they are exceedingly good indeed, and a lecture on Helium given at 2FC's station was followed word for word on one valve in Melbourne, ably assisted by these A grade instruments. The reflection was not on the instrument itself but on the popular misconception that what is good for Morse must be necessarily good for Music and vice versa, which is absurd. Some of the most sensitive 'phones in fact are unsuited for DX work. Of course a pair of cheap phones is good enough for a four valve set, but excruciatingly out of place on a crystal set. There is no doubt that many crystal sets are regarded as only fit for boys because of the inferior headphones purchased with them. When a valve set is installed better phones are considered a good concomitant and the valve gets more than its share of the credit for the improved reception. A good pair of 'phones is said by 3BQ to be equal to at least one stage of amplification and on the other hand the same authority states that some of the most expensive phones are so sensitive that they allow static to drown out faint DX signals just as a too-many valve set does. A lot of useful research work may still be done on phones and microphones by any amateur with an ear for music and a broadcasting station or two in the middle distance. Sometimes the valve gets blamed for distortion caused by a blatant microphone, of which even 3LO is not altogether guiltless.

### Broadcasting for the Broadcaster.

Re-broadcasting is at present fascinating some of the amateurs. The achievement of 3BU in picking up and amplifying KDKA for re-transmission by 3LO was a fine piece of work that excited immense interest in the outside world that is not even amateur, or at least not officially so. In fact it was pertinently asked at the time how it came to be left to an amateur to do what it was evidently supposed was well within the power of A.W.A. Another amateur approaching from a slightly different angle is now trying out a scheme for transmitting 3LO on a lower wavelength and this also should prove interesting and entertaining if thoroughly carried out. The idea of re-radiating on a regenerative set as outlined by "Crystalion" a few issues ago is also worthy of a trial as distinct from either of these attempts mentioned above. The idea has got abroad and it is cultivated in the newspapers that an oscillating valve is the root of all evil, where it is the badly tuned valve that is at fault. A valve may oscillate till all is blue and be rather advantageous than otherwise to neighbouring receivers on the same wavelength always provided it is in tune. A valve mistuned to a point above or below the best condenser setting, or too closely coupled or poorly adjusted in the filament control or even with an unsuitable grid condenser gives poor reception to its owner and upsets all his neighbours for miles around. But not because it is oscillating. When in perfect tune it is oscillating ever so much more, but being in step and modulating the incoming music it passes out of the hearing of the outside listener-in who attributes all he gets to the original broadcasting station above. Of course there is another phase of oscillation where a set has its inductance and capacity in such internal relationship that they are predisposed to fall into oscillation independently of any incoming wave and will do so without any aerial or earth at all when tuned within certain limits. But that is another story!

### W.I.V.E.S. Again.

The Victorian Council writes to say that its officials are annoyed about references in these notes to the W.I.V.E.S. They do not like the joke turned against themselves. As a matter of fact they were christened W.I.V.E.S. as a perfectly legitimate counterbalast of their own characterisation of those outside the fold by the opprobrious initials B.C.L. Their President, Mr H. K. Love, is a man of strong opinions on the subject of separating the sheep from the goats in the Institute. In an Editorial published in his own paper last October he makes explicit reference to the sheep and the goats, this being his own phrase for the serious experimenter and the dabbler in broadcast reception. It is evident that he and his Council prefer the sheep that will unthinkingly follow a leader to the goat that bulls in where he isn't wanted. The good ship Wireless Institute at present is sailing in troubled waters, with Love at the prow and Masters at the helm. It has a

DXcellent Cox and Hull-A1 at Lloyd's and a Court-martial quite equal to making any member of the crew walk the plank, but somehow or other it cuts no ice with several members and certainly carries no weight with the authorities of the Wireless administration. In fact it is distinctly in the hobbledehoy stage of existence and were its officials not so insufferably arrogant at times it would be not only the duty but the pleasure of ordinary members to lend them a helping hand. They have, however, estranged many members and prospective members by their crude handling of the B.C.L. problem and in various other directions already indicated in these notes and they appear to have developed a distinct faculty for doing things all wrong. Here is a case in point. The Victorian Council recently indulged in an orgy of reading these notes and discovered a mare's nest in the shape of a paragraph attributing them with an intention to test the Beam System. This is what the secretary writes: "We have no intention of trying this system as the majority of our members have no faith in it." Now of course this is absolutely inaccurate in itself. It entirely exceeds the functions of the Council to speak so dictatorially about the alleged lack of faith of the majority of members, since no discussion has ever been held or vote taken on the matter. Doubtless a few members of the Council think they know more about short waves than Marconi himself, and perhaps they ought to, as short waves have been their constant study for years, although without any outstanding result. But even if they were in a minority instead of an alleged and totally unsubstantiated majority it would clearly be their duty as experimenters to take up and test any system they had no faith in, and conclusively prove to those in authority that it was as well not to adopt it. So on both counts the Council's letter is inaccurate and unwise, as they have been in many other matters. It is not pleasant to point this out. Some of the delegates are very good fellows indeed who would work whole-heartedly for an Institute that was less badly managed than it is, but some of the officials apparently have become seized with the idea that THEY are the Institute and all other delegates, sections, and individual members should apply to them for admittance and classification and such misinformation as they see fit to release. It is THAT sort of goat, and not the alleged BCL who should be relegated to a back seat in the Institute.

**Music Hogs.**

How these amateurs love one another! There are those that love Morse better than a brother, and others that hate music so much that they murder it for hours every night. Some there be who can say with real feeling: "I could not love thee, Oh Morse, so much, loved I not Music more," and to dissemble their true feelings spend turn and turn about with each. So far none has been found who transmits both at once, although with the fine tuning some of them require it occasionally happens that either can easily be mistaken for the other until the bull's eye of precise adjustment is scored. But who can go into raptures when the broad music's modulated band overlaps that distant code we are striving to decipher? Or, on the other hand, when into a faint whisper of melody which we are nursing till the call sign comes there comes instead the galling gun discharges of a heavy handed key thumper bent on amazing the king penguins at the South Pole? In amateur literature we find references to "Music Hogs," but none to the other offender who also wallows in the troughs of a wireless egotism that is just as noisy, noisome, and annoying as his brothers pachyderm's Taking them all round, there is a distinct tendency of the amiable amateurs to wander all around their allotted wavelengths, with a preference to getting down below 150 that sometimes causes confusion and worse. If an amateur is off his wave length he should certainly announce it along with his call-sign before and after every item, using the code of standard wavelengths if he is keying. He has a perfect right to occupy his own allotted wavelength as long as he pleases, but no other except under suffrance. There is a practice prevalent among some very estimable transmitters of climbing up and down wavelengths in an endeavour to meet a brother half-way. With due respect, this ought to be subject to a heavy penalty very strictly enforced.

**3UZ and 2BL.**

In allotting wavelengths the parties concerned should certainly avoid such impasses as that which results in 2BL being jammed by that fine local station, 3UZ, whose transmissions recently come clear and strong and exactly on top of 2BL's, and of course smother it. This happens only on Mondays and Thursdays at present, but why should it happen at all? Uncle George should not be elbowed out of the Cabbage State in this unnecessary way.

**3AR's Troubles.**

The troubles of 3AR are also the troubles of listeners-in who sometimes take a fancy to the waves that lead to Elizabeth Street. Their broadcasting of the cricket results will pass down into history as a good idea well done. Some of their church transmissions were also super-excellent. Yet the trivial round, the common trash that ought to furnish all we ought to ask, finds 3AR in a frequent tremor of uncontrollable impulses. They furnish the experimenter doubtless with much

food for thought, but damp the ardor of the mere listener-in. A station that sends out on three wavelengths at once, each almost equally tuneable, and all within a few degrees of each other on the condenser scale, and that also supplies harmonics as numerous as the undamped octaves of a piano are designed to do, and furthermore can stimulate with a stray wavelength the characteristics of a DX station, is indeed something to ponder over, unless it is music and not mental exercise you crave. You can picture the 3AR of these days as own sister to that little girl who had a little curl right in the middle of her forehead. When she was good she was very, very good, but when she was bad —she was horrid. In the meantime however, 3AR besides being condoled with misfortunes very cheerfully borne, offers a field of research that experimenters should eagerly avail themselves of. This is not meant in any sarcastic spirit. Its transmission is a rich in harmonics and overtones as a flute and, by the way, does anybody want to know the difference between a harmonic and an overtone?

# USES OF THE STANDARD TRANSMISSIONS

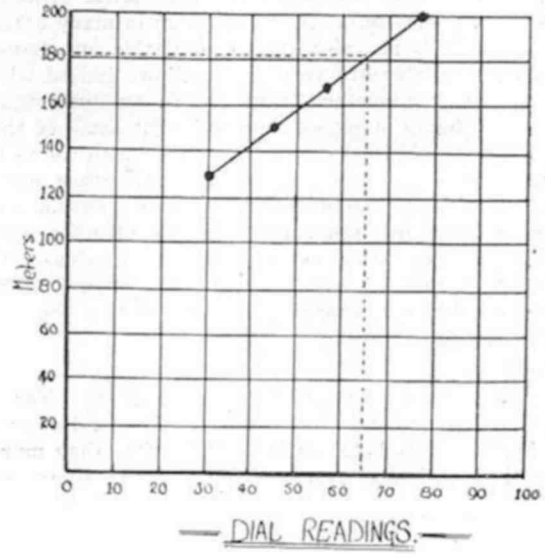
BY H. A. Stowe—Radio 2CX.

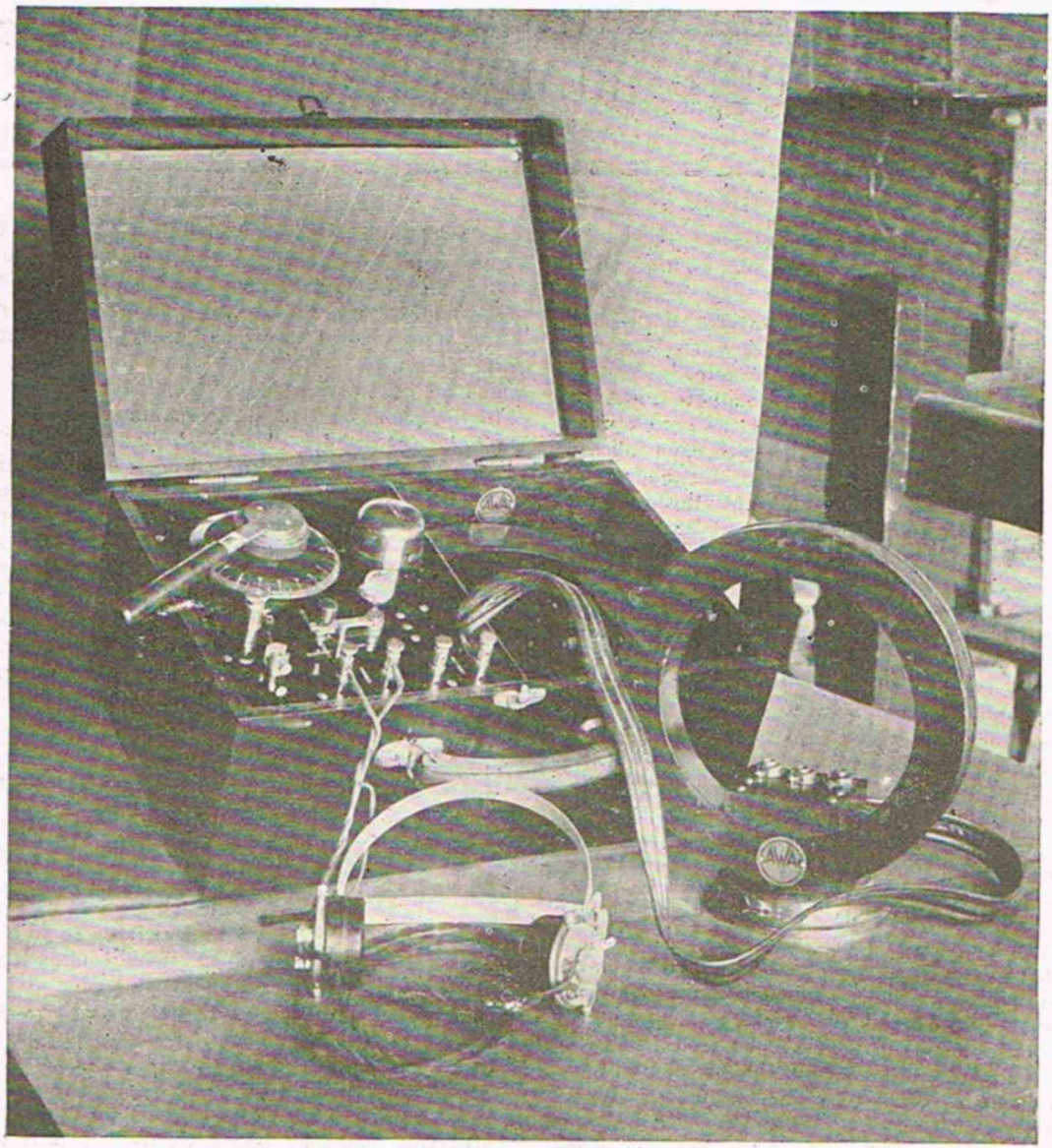
THE standard wavelength transmissions of the Wireless Institute from Radio 2CX should prove very useful to a large number of those interested in radio. To a man with a transmitter it should be especially useful, for it provides a means of calibrating or checking his transmitter. To the receiving station it enables the operator to obtain a calibration of his receiver and so give him an idea where to look for the various wavelengths on his receiver.

By means of the sets of signals the calibrations may be carried much further than the actual signals given. This may be done by means of the curve. Its construction is a simple matter and should be carried out as follows: The standard wavelengths are as follows: 60, 80, 100, 130, 150, 170, 200, 230, 250. 2 or 4 of these wavelengths are sent each week as announced. We wlel assume that we can receive the 130 to 200 signals. Mark out the squared paper as shown in the sketch. Now on the 130 meter signal being received, make a note of the dial reading of the receiver and so on for each signal. We will suppose that for 130 meters the dial reading was 30 and for the 150 meters the dial reading was 45 and so on for each signal. Plot these points on the squared paper as shown and join them all up with a line. From this line or curve we can now read any intermediate wavelengths. On the other evenings the rest of the curve can be completed, that is from 60 to 130 and from 200 to 250 meters.

From the complete curve so obtained any wavelength between 60 and 250 meters can be read—for instance suppose when receiving a certain transmission our dial reads 63, then reading from that point on the wavelength side, we find the wavelength is 180 meters as shown by dotted lines. Once we have got our receiving set calibrated we can use it for calibrating other sets or perhaps a wavemeter. This can be done as described in articles already published in this journal. One point is to noted regarding the standard signals, the C.W. signals are accurate but the tonic train or phone and buzzer signals are only approximate as the wavelength slightly alters during modulation; nevertheless they are sufficiently accurate for general purposes.

The Secretary of the Institute would be glad to receive reports as to whether these transmissions are proving of any use, and also as to their effectiveness. Radio 2CX would also appreciate reports as to the reception of these signals especially from distant stations or other States. It is hoped that these tranmissions will be carried out on a set night, and an announcement to this effect will be made as soon as arrangements can be completed.





*Wavemeter designed and constructed by Amalgamated Wireless (A/sia) Ltd., Sydney*

## WIRELESS SERVICE AT SEA.

SIR BERTRAM HAYES, upon his retirement from the command of the "Majestic," received a congratulatory wireless message from the Chatham multiplex marine station, Massachusetts, recalling that his ship holds the world's high speed record in radio transmission for working at 150 words per minute.

The "Majestic," which is a very popular ship among business people, is called upon to deal with a great volume of wireless traffic, and in order that this may be handled expeditiously the ship has been equippd with Carmoni apparatus for high-speed transmission and reception.

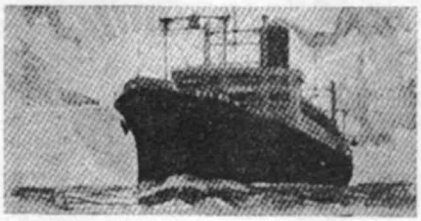
In reply to the message from the Chatham station, Sir Bertram Hayes expressed his gratitude to the wireles stations, for their kind assistance in establishing the position of the ship when required. He added that the "Majestic's" high-speed record is due to the extraordinary efficiency of the Marconi operators.

# BRINY REMINISCENCES

By "Brasso".

IT was Winter, and only that morning there had been a fall of snow on the hills to the north of Genoa. The city itself was wrapped in gloom following a big Italian reverse up in the Trentino, and the day before a P. & O. boat had been shelled into Leghorn by a German Submarine, and the passengers had gone through to Paris by rail. By some mysterious process the news spread all over the waterfront, and the yarn came aboard via the usual secret wireless that a squadron of tin fish was making a drive right through the Mediterranean, potting everything at sight. Outside the breakwater a big sea raced before a gale such as is experienced only in the Gulf of Genoa, and the thermometer was badly in need of a hot water bottle. Kind of a day for armchair and fire.

At four o'clock in the afternoon we moved slowly out past the shipping and shoving her nose into the white caps, the ship commenced her voyage to London. From off the Appenines to the north an icy blast shrieked and whined and the hail pattered on the roof of the wireless shack like bullets. The monotony of that portion of our voyage from Port Said to Genoa had been rudely shattered by a dust-up with a submarine and an all night chase, and considering the rumors that flew round and the state of the weather, I donned the phones with a distinct feeling of windiness and a faint suspicion that I should have mailed home a copy of my last will and testament from Genoa.



Half an hour after leaving the Port the lead-in parted from the aerial and there was an hour's struggle while a new one was bent on. The force of the gale rendered it impossible for the sailors to get the aerial clear of the funnel, so willy nilly I, as the senior operator, had to climb up the iron ladder and clinging with feet and teeth, attach the lead-in. There was no soldered joint on that job; the wire was wrapped round anyhow and by the time I had finished, my hands had lost all feeling, through the cold, and I had definitely decided to take up farming as soon as the war was over. Some old sea dog once coined a saying to the effect that a man who went to sea for pleasure would go to Hades for pastime, and I was entirely in accord with his sentiments. All that night we were cursed with "frying pan" atmospherics. These are a particular brand that I never experienced in any other part of the world, except on one occasion off Melbourne. The first time I heard them, they had me real curious, until there was a hefty crash in the phones and a sledge hammer seemed to hit me on the head. The flash had travelled along the phone cords and sparked on to my bean off the centre of the metal head band. This may perhaps sound like a tall one to some sea going operators, but I can vouch for it because I saw the reflection of the flash in the glass of the magnetic detector before me on the wall. Needless to say I didn't wait for a second one, but dropped the phones like a hot brick, and, reaching out gingerly with a broomhandle, gently but firmly closed the earth switch. Fully half an hour elapsed before I very dubiously donned the phones again.

The noise of these "frying pan" atmospherics resembles nothing so closely as the homely sausage frying in the pan and they come over with the winter squalls in the Mediterranean. You hear them coming up with the squall away in the distance; louder and louder they get until the squall passes right overhead, and at that moment they culminate in one terrific discharge and then pass away gradually as they came up. Before the discharge, of course, you have earthed the aerial and gone for a short walk; otherwise you may feel it as well as hear it. Incidentally, if any ex-marine men happen to read this I would like to hear what they have to say, as in my opinion these "frying pans" are the worst possible form of "x's." Apparently they have a wavelength very close to 600 metres, because an adjustment either above or below decreases their strength.

On this particular voyage, however, the instructions were to hug the coast as nearly as possible, and this procedure was regarded by most of us as eminently satisfactory. There is, or was, a certain feeling of security in the fairly close

proximity of good hard soil, and the soil of France was not one whit more precious to Joan of Arc than it seemed to us as we wallowed and bumped through the roaring gale about two miles off the shore. According to novelists, the Mediterranean is a parking place for the luxurious yachts of the scions of nobility during the summer, and one pictures them gliding lazily over the sparkling blue water, their decks peopled by fair women and brave men sipping cocktails and fruit cup. The only yacht I ever saw there was one of Lipton's, but at the time the fair women were replaced by horny-fisted bluejackets, and she was engaged in hunting up submarines.

In due course Marseilles slid by close on the starboard beam, and later we commenced passing the seaside villages on the Spanish coast. I spent much time sizing them up through a telescope.

The set we had aboard was one of those handy little ½ K.W. American telefunken outfits; it had a limited range, but had the advantage of springing to attention quickly. The receiving gear consisted of a magnetic detector, a multiple tuner, a Marconi short wave (300-600 m) tuner, and a carborundum detector with a billi condenser. All that was used, however, was the short wave tuner hooked up to a piece of iron pyrites, a combination which gave us about a 300 mile daylight range. Except for the "frying pans" aforementioned, there was nothing to bar our reception, and with so many coast stations things were lively all day long. There was always something of interest; an occasional sinking, perhaps, or a ship chased and gunned and shrieking manfully for something to come up and deliver the K.O. to the enemy. Spain being neutral, her coast stations blazed merrily away across to her possessions in North Africa and to the Spanish shipping, and I spent much time endeavouring to convert the flowery phrases into English. One of the most common abbreviations in marine wireless use is "o.m.," signifying "old man." It is universally used, but it always amused me to hear these lads of the bullfight country finishing up their talk in Spanish by saying, "Grs om," meaning "Gracias," or "Thanks, old man." I pictured the old-time grandees making a sweeping bow at Don Innocenzio Y Palmiro and murmuring, "Gracias, o.m., Q.R.U." The dominant note in the Western portion of the Mediterranean was struck by B.Y.W., Windmill Hill, Gibraltar, and his booming note echoed ceaselessly, churning out code at high speed. I think I have already made reference to naval operators: like the navy itself, they are the most efficient in the world, and no commercial school ever turned out such perfect and speedy senders. There was to me a peculiar fascination in listening to these navy operators flashing out code hour after hour with never a falter or a rub out, every letter clearly and sharply made and the spacing perfect. No wonder they never asked for repeats, or cluttered up the ether with a lot of senseless queries after the manner of many commercial ops. Behind the boom of BYW was the sonorous hum of EAC (Cadiz) on his 10 K.W. spark set, floundering along with his Espagnola lingo and drowning most of the 600 metre stuff out.

The Rock itself showed up out of the rain mists about 4 o'clock one afternoon, and we came to anchor amid a bunch of assorted ships, most of them taking coal. One or two big troopers were there loaded with Tommies bound for Egypt, and a couple of French warships were over inside the dock.

After only an hour's stay, we hit the long trail again and nosed out into the grey Atlantic where the weather was, if anything, worse than that of the Mediterranean. The Bay of Biscay was in fractious mood and we fought and kicked our way across in the teeth of a roaring Norwest gale. There were occasional S.O.S. calls from foundering steamers, but they were all well off our course, which kept us well out in the Atlantic. A dreary course for those who love scenic change.

Our ship was a miserable one; a typical Geordie tramp temporarily converted into a mule carrier from Suez up to the Persian Gulf.

Months and months in the submarine zone had apparently got on the "old man's" nerves, with the result that he took refuge in Scotch and his cabin. There he slept and snored the hours away and was rarely seen on deck. The mate was a Welsh man with a remarkable aptitude for doing this block, so the control of the ship virtually passed into the hands of the second mate, a splendid specimen of the efficient merchant service officer. The third mate was a ticketless apprentice. Off watch I foregathered with the second mate and sprawled on his settee for hours listening to his experiences in the sailing ship, than which nothing appealed to me more. I followed him around the icy coast of Cape Horn, up to Iquique back to Bahia Blanca,

up through the Doldrums and so on to the west coast of Ireland, where his vessel was wrecked and only four were saved. There is a wonderful fascination in the stories of those old clippers and the second told them well. On watch I took my orders from him and so far as the two juniors and myself were concerned his word was law. His fierce antipathy towards the old man was the one blot on his horizon, and it was a subject which I never touched upon, preferring rather to lead his thoughts back to the senoritas of South America.

Approaching the Channel, our course led us to a point just south of the Scilly Isles where the track diverged into the Channel. Sitting on watch just after midnight I listened to the whining of the gale, and braced myself to meet every heave and wallow of the ship. Over on the settee the second op. muttered drowsily in his sleep, while, rolled in his blankets on a mattress on the floor, the third lay wrestling with "wind up"; he was young, and it was his first trip through the danger zone. Except for the shielded light hung about a foot over the table, the cabin was pitch black, and one recognised the various instruments by the feel of them. Just about ten past twelve the din of the naval traffic eased off, and for a few seconds there was almost complete silence, when suddenly out of the void came the crash of a rotary Marconi note, seemingly only a few hundred yards away, calling swiftly, "CQ, Urgent"; then followed a brief message in code. Evidently something serious was happening, so grabbing the message I switched off the light and hurried out and down the ladder to the chart-room, so that the message could be decoded by the old man, who had the code book.

Barging in the door, I was greeted by the odour of stale liquor, and from the settee the sound of heavy snores denoted that the old 'un was sleeping one off. I shook him roughly, without response, so fumbling in the darkness I frisked him for the keys to the safe in his cabin. These found, I struck a match and opening the safe door, rummaged through it until I located the book. In the search, notes and papers were scrambled all over the floor, but these I simply threw in anyhow, re-locked the door and hotfooted it to the bridge, where, under the shaded light in the chart case, the second mate and I decoded it. It read "passed close to a derelict position Lat— Long— at such and such a time. Apparently large vessel."

Hurriedly the second calculated the position on the chart and then pointed to it with a pencil. We were at that precise moment passing over the exact spot given in the code message. Gripping the rail of the bridge, we waited for the crash, and the seconds seemed an eternity until after a lapse of some minutes, the second said laconically "Must have just missed it". I went back to the wireless cabin feeling about 100 years older.

As I stepped inside, a rush of warm air struck me pleasantly. On the floor, the youthful third slept peacefully cuddled up in his blankets; over on the settee the second till snored placidly and I could see his dim form jammed hard against the bulkhead with a couple of pillows. In the corner the little kerosene heater sizzled and smoked cheerily. Donning the phones, I jammed my frozen feet against the heater, and resuming my contemplation of the log book, pondered over the immutability of things and reflected that such is life. Outside on the bridge I could hear the steady pacing of the second mate as he peered into the blackness ahead and down the wind came the long drawn mournful cry from the lookout high up on the foremast—"Alls well".

Two nights later, seated comfortably at a small table in the Corner House, I surveyed the youth and beauty all around, the clinking glasses and the flash of sparkling eyes. From the baccony came the lilt of the latest jazz and everybody hummed it. Truly all was well.

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MANY British steamers will be affected by a new French Decree concerning wireless installations, which comes into force in March next.

The Decree has divided ships into two classes (1) of 2,000 gross tons or more, ships with 50 persons aboard, and those having more than a dozen passengers. Class (2) is for ships of 500 to 1,999 gross tons with less than 50 persons aboard, and ships of the same tonnage with under 12 passengers.

Ships in class (1) will have to carry a complete wireless telegraph installation, while those in class (2) may carry a receiving set only. These regulations will naturally affect many British ships which use French ports, for they will have to comply with the new regulations, although they may be exempt from the British regulations, which only require steamers of 1,600 gross tons and upwards to carry wireless apparatus. Many small steamers do carry wireless gear now, but this is not compulsory.

# Illawarra Radio Club.

**Last Meeting.**

Although we have not basked in the limelight of these columns for some months past, the Illawarra Radio Club has by no means lapsed into unconsciousness. On the contrary, the old club is still going strong, and has plenty of kick in it, as was evidenced by the extraordinary rally and spirited nature of the proceedings at last meeting, held in clubroom, 75 Montgomery Street, Kogarah, on Tuesday, 10th Feb., when such was the phenomenal attendance that the "house full" sign just missed going up. This was reminiscent of the "roaring days" of 1923, when 100 per cent. attendances were not unusual; and whether the bumper roll-up was due to the attraction of the lecture (on "low loss), or to a desire to hear the important proposals for the club's expansion, or whether it was due to the little bit of diplomatic work on the part of the secretary in applying the "personal touch" in various directions, is a mystery as yet unsolved. However, suffice it to say that the roll-up and the sight of old faces was distinctly refreshing and encouraging to those of us who are pegging away to make the club a place of continual interest and service to members.

**New Practical Department.**

At this meeting the secretary outlined the proposals now occupying the attention of the executive for the establishment of a practical department in additional premises adjoining the clubroom. He explained that hitherto the club had been restricted in its activities owing to situation and lack of finance, and had been unable to engage in any practical work as a club. Now, however, the way was comparatively clear to do all these things, and advantage was being taken of the opportunity to place the club on a solid, practical footing. The new department would take the form of an experimental station, instruction-room, and workshop. Here the club's transmitter and receivers and other gear would be housed, and definite experimental work would be undertaken in the name of the club. Further, this room would be open several nights a week, when members would be at liberty to attend and use the apparatus (under supervision), and would be instructed in the building and operation of transmitters and receivers, Morse code, traffic procedure, etc., and the station would also be used as a link in the chain under the Australian Radio Relay League's scheme. A working schedule would be drawn up and times set apart for regular transmission and reception, test work, instructional nights, code practice, etc. A scheme for running the department was being formulated. The fortnightly club meetings for general business and lecture purposes would still be held as heretofore, but the new department would be free from formalities and entirely practical. A certain amount of preparatory work had, of course, to be put in, in getting light and power connected, fitting out the room, and installing the sets, but this was being pushed on by the committee with all possible speed. Construction was about to start on the club's 10 watt transmitter and the receiver to be used in conjunction therewith, and we could be expected to be on the air within a month or six weeks.

This new departure will be the most important phase in the club's future activities, as we now have the facilities to carry on some real work, and many interesting and instructive features can be introduced as time goes on. It will be seen that with a practical branch in regular working order the club will come into its own as a practical institution, and membership of the club becomes of greater value to the individual than ever before. All we ask is that members will realise this and take full advantage of the facilities and services provided for their benefit.

**"Low Loss" Lecture.**

The feature of the meeting was a lecture by Mr. C. A. Gorman on the so-called "low loss" receivers now finding so much favour among experimenters. He opened up by saying that in his opinion the high efficiency of these receivers was not due to the use of any specialised parts, but was attributable solely to the peculiar efficacy of the short waves for long-distance transmission and reception, as had been amply proved in various parts of the world, particularly of recent date in the experimental transmissions between America and England and Australia. He did not hold with the opinions of many as to the alleged super-efficiency claimed for the various types of expensive and so-called "low loss" condensers now to be seen on the market, many of which he considered fell far short of what was claimed for them. In mechanical construction a few of these new condensers were no doubt superior in many respects to certain ordinary makes of variable condensers, some having the advantage of a fine vernier control; but for electrical efficiency he maintained there was very little to choose between a "low loss" condenser and a smooth-running condenser of the ordinary "common or garden" type. He contended that in capable hands a fair specimen of one of the latter type would produce results equal to any obtained per medium of a "low loss" type. He had been using in his own short wave set consistently

over a period of two or three months one of the ordinary variety of condensers, of local make, with results which were all that could be desired.

As to the low loss coils, the secret of efficiency in this respect was the heavy gauge wire used, but while the ordinary sizes of winding wires were not suitable owing to their resistance factor, etc., so also did the very heavy gauges have their disadvantages on account of their tendency to set up eddy currents. Medium gauges of about 12, 14, or 16 were therefore recommended for coils to be used in these receivers. Details as to the formers to be used and method of winding these coils and suggestions as to the mounting of same were given, also the number of turns for various wavelengths.

As regards the capacity of the tuning condenser, a .00025 mfd. was, if anything, preferable to a .0005 mfd. The latter made tuning extremely fine to the fraction of a degree, whereas a .00025 permitted a greater freedom of movement, allowing twice the movement of the former size for a given change of wavelength. With the American amateurs, most of whom were to be found round about 70-80 metres, the tuning was fine, and most of them were to be found within a space of about 10 degrees on the dial, so that a .00025 mfd. was sufficient here. A .0005 mfd., however, would allow of a greater wavelength range. Single plate verniers were of no use in these receivers, but with a rubber button operating on the bevel of the condenser dial quite a good vernier control could be obtained, the size of the button used, of course, deciding the ratio of the movement.

The valves to be used in these cases was, of course, a matter of choice, but Philips D1 or D4 were found to be quite satisfactory.

The circuits for single valve and also with one stage audio were drawn on the blackboard, and numerous constructional hints and suggestions as to layout were given. Method of tuning and control by means of condenser and coupling was described, as was also the effect of disconnecting aerial and earth. In practice it was found that this set worked better without an earth. This did not result in any loss in signal strength, but, on the other hand, it had the effect of considerably reducing static and other interference.

Mr. Gorman had his "low loss" set present, and used same to illustrate the various points of his lecture. This particular set has somewhat of a record, having to its credit over a working period of a couple of months no fewer than 117 Americans, 2 Mexicans, 4 Canadians, and 7 English amateurs. One or more stations of the whole nine American districts were logged in three-quarters of an hour of one evening. In addition, KDKA's broadcast programme was well received on several occasions, using only the one valve, and on Saturday evening, 7th Feb., with two stages of amplification, that station was received with excellent strength and clearness through a loud speaker.

This lecture was one of the most popular for some time, and despite the warm night (the room felt like nothing so much as a Turkish bath) evoked keen interest throughout, as was proved by the activity of pencils on paper and the numerous questions dealt with. On the subject of "low loss" condensers, of course, opinions were very divided, and this point provoked some spirited but good-natured argument.

At the conclusion Mr. Gorman was accorded a hearty vote of thanks.

**Forthcoming Events.**

The following schedule of fixtures has been arranged for the fortnightly meetings up to 30th June. The lecture roster will be, as far as possible, adhered to, but alterations may be made from time to time as circumstances require. The "special" lectures will be taken by various visitors under the Wireless Institute's lecture scheme. Members are requested to keep this list before them, and roll up regularly. Remember, good attendances make for good lectures.

Feb. 24.—"Tuning Elements, Types of Coils, etc. (Mr. S. Atkinson).

March 10.—Special lecture (W. Inst.).

March 24.—"Telephone Receivers, etc." (Mr. F. H. Kirkby).

April 7.—Special lecture (W.I.).

April 21.—"Regeneration: Cause and Effect" (Mr. S. Atkinson).

May 5.—Special lecture (W.I.).

May 19.—"Accumulators, Action of, Care and Charging" (Mr. Strom).

June 2.—Special lecture (W.I.).

June 16.—"Electronic Theory," with demonstration (Mr. C. H. Fischer).

June 30.—"Radio Freq. Amplification" (Mr. C. A. Gorman).

**More Members Wanted.**

We are at all times ready to welcome new members into the club. Membership is open to all persons of 16 years or over who have a genuine interest in experimental wireless. There are many of these in the Illawarra district who should be supporting the club, and who are missing much to their advantage by keeping out. Any such interested persons are cordially invited to communicate with the hon. secretary, Mr. W. D. Graham, 44 Cameron Street, Rockdale, with a view to their joining up. Any information concerning our activities and membership will be readily supplied on application.

W. D. GRAHAM,
Hon. Sec. and Publicity Officer.

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mitters the wave tends to swing wildly during adjustments and land a swinging band of harmonics on all multiples of the fundamental wavelength.

Very shortly commercial work will be commencing on waves well below 100 metres and you can take it from me that if experimenters QRM from this cause gives rise to any trouble it will be good-bye short waves for all concerned.

**Do not run away with the foolish idea that the experimenter has a moral right to these waves owing to a supposed pioneering work carried on in these regions.** Candidly speaking the experimenter—as he chooses to call himself—is nothing more or less than a technical Lazarus picking up the crumbs that fall from the professional's table, and I can safely say without fear of contradiction that he has not been responsible for one original development in the art of radio engineering.

If only a little co-operation was shown among their ranks something might be accomplished. Take the case of Mr. Chas. Maclurcan of 2CM fame, who recently graduated to the ranks of professionals, and what do we find? Does the "experimenter" point to him and say, "See what an experimenter can do"? No! We only find a disgusting rabble howling in sheer jealousy for poor old 2CM's hide.

Take a tumble, Mr. Experimenter, before it is too late and confine your phone to waves above 100 metres—which is just as good for your purpose—instead of fouling the nest the 75-100 metre men have made for DX telegraphy.—Yours etc.,

"2JR."

29 Kensington Rd.,
Summer Hill.

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To the Editor.

Dear Sir,—I have just got the January 30th issue of "Wireless Weekly," and it sure is the goods and it's no exception—all of them are. I don't agree with your Manly correspondent. I get "W.W." every week from my newsagent; it seems to have more real dope on the experimental work than any other paper. As "R.B.C." says, Mr. Macrow seems to be intent on the elimination of the type of experimenters he calls "gramophone fiends," and also seems to include 2YI among them. After all, why should not experimenters experiment in the transmission of music, using the gramophone as the source of the music? If Mr. Macrow is an experimenter he will have a selective set, and will thus be able to cut out any undesirable transmission; he, therefore, need not listen to them unless he likes. I have built a Reinartz set as per instructions in "Wireless Weekly," and have brought in the following hams on it:—

**Tasmania.**—7AB, 7BN.
**N.S.W.**—2CM, 2DS, 2YG, 2QG.
**Victoria.**—3BQ, 3XF, 3BD, 3JH.
**New Zealand.**—4AA, 4AG, 4AD, 1AO, 2AC, 2AW.
**U.S.A.**—6BCP, 6XI, 6CGO, 6EJ.

I can only read Morse very slowly, about six words per minute, so there are many stations which I did not recognise when I heard them. I have a B.C.L. license, but I never listen to broadcasting. I always listen to hams on the short waves. I think it would be a good idea if the hams would do as 3BD has been doing lately—he transmits very slowly his call sign and that of the station he is calling. This would not be any trouble to the transmitters, and they would get much more DX wallpaper, as the average listener cannot read Morse at any speed. I must remark on the slowness of N.Z. experimenters to answer Q.S.L.'s. I sent cards to four of the best known of them about three months ago, and I have not received replies yet. I am like many others—out to get some DX wallpaper, and when experimenters do not answer Q.S.L.'s it is very discouraging.—Yours, etc.,

C. E. PERRIN.

14 Suffolk St., Launceston, Tasmania.

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To the Editor.

Dear Sir,—I have had a very curious experience with my set. The other Sunday morning, whilst searching for amateur stations, I tuned in to a pianoforte solo. But the station gave about six items and never made any announcement. I was very wild. Last Sunday morning I tuned in the same station, the tuning being very critical, but still no announcements. I came to the conclusion that it must be an illegal station. Having occasion to go outside, I observed that the young lady next door was playing the same piece I had just been listening to. On my suggestion she played another tune (arranged), and the mystery was solved. They have a crystal set next door, and the aerial is parallel to mine, about 20 feet away, The music was being played in the same room as the set, with the phones connected to the set.

Wishing to further the experiment, I got them to talk and sing into their phones, and I was able to put same through the loud speaker. I conducted the latter experiment to-night, and then discovered another freak.

Our experiment was being interfered with by 2FC. So I asked my neighbour if he were tuned in to that station, and such was the case. On his shifting his switch, there was no further interference from 2FC. I think this experience is well worth recording in your journal.—Yours, etc.,

A. H. LOVERIDGE.

221 Botany Road, Mascot.

# INFORMATION

**Conducted every week. Except in the case of subscribers a fee of 1/- is charged for not more than four questions. Questions will be answered by mail in the order of priority and, when considered of sufficient general interest, will be published under this heading.**

## WHAT SET SHALL I INSTAL?

*The following letter presents a matter that we have no doubt represents a problem to many others situated outside the cities. The questions asked by our correspondent are as difficult to answer as that old one about "How far will my set receive?" However, our reply to Mr. Tonkin will be of interest to other readers.—Editor.*

(To the Editor)

Sir,—First of all in addressing you for the first time accept my felicitations for such an interesting, instructive, and practical journal as the "Weekly" proves to be. Although only a reader since the middle of last year and up to the present, I cannot boast of a "set," the knowledge I have absorbed could not and I am sure would not, have been obtained in any other way.

Now although very badly bitten by the "Wireless bug," the results of "Hams" in this locality have been so downright rotten that I have been put right off. For instance a local man runs a 4 valve tuned anode set, H.F., D., and 2 amp., and the results vary so much from medium only, to "up to mud" that the £30 spent looks like nothing. I haven't got money to burn but I'll spend good cash on a good thing. Now I have to acknowledge that this Rolls Royce of sets that my friend possesses seem to be boomed as "the thing". I am about to pitch the toss between the ST100 or 5BG or Improved ST100 and a Reinartz with a couple of audios added. First consideration is loud speaker strength for the family's use. Expense is 50-50 because we all pay for good things. Cheap goods are like cheap pleasures, I've decided not to spin that coin but leave the matter to you because I want something decent and it has to go in before winter comes. The district is highly mineralised (copper) and there is an electric light power line situated on the sea front.—Yours etc.,

Wallaroo, S.A. R. W. C. TONKIN.

Answer: Your problem is one which it would be impossible to settle definitely at this distance and could only be satisfactorily determined by practical experience in your town. You mention that the district is highly mineralised and also that there is a power line situated on the sea front. The best thing we can do, therefore, is to advise you concerning the certain circuits which we suggest you try yourself and we want to make it quite clear that on account of our ignorance of your local conditions (there are many other factors to be taken into consideration besides those that you mention) we cannot definitely state that these circuits will function satisfactorily, but we **do** present them to you as among the best used at the present time, as circuits which we know **are,** under adverse conditions elsewhere, delivering the goods.

Did you read our article on Tuned Plate in our issue of December 19 last? Here we showed a circuit employing 2 R, Detector, and 2 audio. We have received numerous letters from country readers who have built this set and are obtaining excellent results. The ST100 is undoubtedly the best reflex circuit we have ever tried; here the two valves actually do the work of four, but the set must be well wired and laid out well. We would certainly favour the ST100, however, in preference to the Reinartz for a broadcast receiver, but if your local generator is one that sparks badly, the ST100 would be useless, as here the audio transformer is in the earth lead and you would probably get generator noises louder than the broadcast music. We suggest you try a tuned plate circuit, not reflexed until you know how the local conditions are. We know of one country reader whose ST100 works splendidly until the local picture house starts up their motor to run the pictures and then he gets nothing until they close down again.

W.F. (S.S. "Aymeric," Melbourne).

Question: I have recently built a Cockaday circuit with a two valve amplifier. The amplifiers seem to work alright, but when I plug into the detector alone the results are hardly as good as a crystal set. The detector seems to oscillate very poorly as I can just hear a very faint "plop" in the phones and it works in a lifeless sort of way. I am using the best parts with UV199 valves.

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I have noticed that when I plug into the detector jack the valve flickers slightly and the current is reduced to a fraction. Am using the ship's aerial and earth connections which are in good condition.

Answer: The very faint resonance click which you mention is quite correct as the Cockaday circuit is only very slightly regenerative; therefore you must not expect the heavy regenerative "plop" in the phones such as is experienced with a single coil regenerative or P1 circuit. More than probably your detector jack is defective. To test this place your phones between the plate and positive B direct and see if there is any increase in volume on the detector valve. The valve should not flicker when the plug is inserted into the jack, unless of course you are using automatic filament control jacks. However, we are afraid that the Cockaday, while an excellent broadcast receiver for short waves, will not prove efficient on all the Australian broadcast wavelengths. You must always remember that the majority of American circuits are designed for reception over the band of American broadcast wavelengths—that is between 300 and 500 metres.

C.H.S. (Kensington, Vic.).

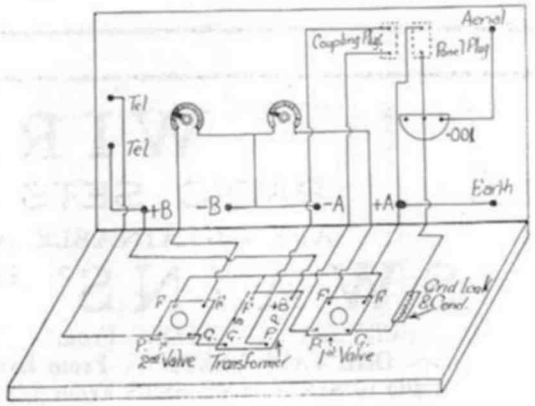
Question: I am at present using a 3 valve set which I made up myself from a circuit in an English book but I do not seem to get the results from it which I expected. I can pick up 3LO at loud speaker strength but can only get 3AR occasionally and very poorly. I am thinking of converting my set into the reflex set which was described in Wireless Weekly, on January 2, under the heading of "A Very Selective 3 Valve Receiver." In the circuit diagram you showed what appeared to be two wandering plugs for B battery from L.F. transformers also another lead from the phone terminal to positive. Are all these positive connections? If so where does the lead from the phones connect on the B battery? I am using a Hellesen's 60 volt battery and, of course, there are no terminals on it, only the two wander plugs, one positive and one negative. With Ediswan dull emitters should the grid return to the positive or negative of A battery? Should I use two or three dry cells? Are these valves suitable for this circuit? Concerning honeycomb coils for this set: I have been using bought coils so far but I made some coils as per directions in Wireless Weekly, and find that in using the home-wound coils for re-action I got reversed re-action, and I find they will only work at right angles to the aerial coil. I have tried the mounts both ways on the coils and the result is the same.

Answer: The two wandering plugs are for varying the plate voltage on the first and second valves. The connection which you speak of from the phones is quite correct as the maximum voltage of the B battery goes to the plate of the last valve but must pass through the phones on its way. The negative end of your 60 volt B battery should be permanently connected to the positive A terminal. The positive B terminal goes to your telephone terminal and the other two wandering leads plug into the intermediate voltages you have between the negative and positive end of the battery. The best positions will soon be found. The grid return of the Ediswan dull emitter is positive A if you are using more than 2 volts, 3 cells will be required. Regarding the honeycomb coils giving you reversed reaction to your home-made coils, you will need to remount one or other of the coils. When you have one pair correct for regeneration, mount all the others the same way. We suggest you have been turning the coil right over instead of simply changing the connections from one side to the other. Try again.

G.F.M. (Gladesville).

Question: Please show me a back of panel wiring diagram for a two valve P1 set.

Answer: Circuit herewith.




R.H.C. (Collarenebri).

Question: I have a 3-coil regenerative set employing detector and 2L.F. What would be the most efficient form of indoor aerial for use with this circuit. I can get faint signals without aerial or earth.

Answer: We suggest you use the cage type. Obtain a reel of 24 or 26 copper wire and about 8 four inch copper or brass rings. Mark the rings into five equal parts. Now stitch your copper wire backwards and forwards five times the whole length of your room. Next place your rings equal distances apart soldering each wire to the respective nicks previously made in the rings

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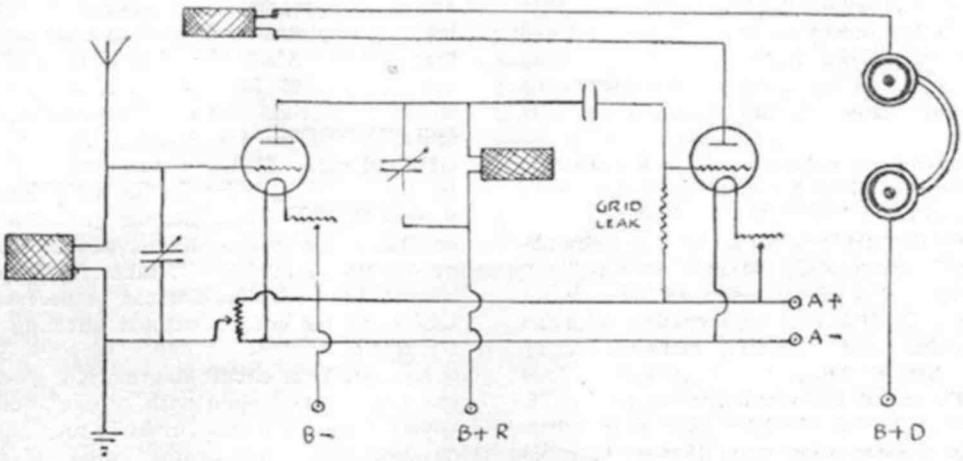
# HERE'S CIRCUIT No. 1.

From this issue, each of our weekly advertisements in the "W.W." will feature a new Circuit. Clip them and keep them for reference!




HERE is a two valve receiving circuit primarily designed for phone strength reception of long distance stations. It is known as the P1 with one stage of Tuned Anode. It will be seen that plug in honeycomb or spider web coils may be employed for the Primary, Re-action, or Tuned Anode circuits. Both variable condensers may be .0005 preferably with vernier. The position of the grid leak should be noted carefully, also the fact that a potentiometer is used. Provision is made for different plate voltages on the two valves.

Here is a list of materials necessary to construct this receiver:

1 Panel 144 x 8 x 3/16.
1 2-coil holder.
1 Panel Plug
2 .0005 Variable Condensers and Dials.
1 400-ohm Potentiometer.
2 Rheostats (6 ohms for bright emitters;) 30 or 35 ohms for dull emitters)
1 .00025 Grid Condenser
1 Grid Leak
2 Valve Sockets.
9 Terminals.
Panel Wire, Screws, etc.
The usual valves, batteries, phones, etc., are of course required in addition.

It is quite a simple matter to add a stage of Audio Frequency Amplification to enable a loud speaker to be enjoyed.
For further particulars and advice see our Mr. Hamilton.

E. R. Cullen

RADIO & ELECTRICAL STORE,

96 BATHURST ST. 'Phones: City 869 & 2596.

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with a file. Suitable rings can be made out of No. 8 gauge wire.

F. W. (Punchbowl):

Question: Please advise me ways and means of charging more than one accumulator at a time from a Home charger, off 240 volt a.c.

Answer: Place all the batteries you have to be charged in series—that is, positive terminal (which is usually painted red) of one battery to negative terminal of the next battery, and so on, linking all the batteries together. You will then have one negative vacant on the first terminal and one positive vacant on the last. Your charging leads will go on to these two vacant terminals exactly in the same way as if you were only charging one.

The following is a question from a reader in the country who desires his name and address to be omitted:—

Question: Concerning the matter of re-radiation, or what is more aptly termed "howling," my station consists of a single valve set, the circuit being the standard 3 coil regenerative with no additions. Valve used is WD11, filament battery 1.5 volts, B battery about 23 or 24 volts. Coils used for 2BL are P 50, secondary 50, tickler 75. Condensers .001 and a 17 plate, both plain types. My aerial is a three wire cage, 75 feet long, 43 feet high, and earth connected to water pipe. I get 2BL very well, indeed. Living about 150 yards away is a man with a five valve set, two radio, detector, and two audio. This man cannot get any music when I tune in 2BL at the same time as he does. The noise nearly breaks the loud speaker on his set. I don't want to commit a nuisance, and wish to know what is the matter. My reaction coil is always back aganist the panel, and a 35 turn has been used instead of a 75, but it still squeals. I am getting another valve to use as an audio frequency amplifier, and want to know a hook-up or gadget which will make my set work without being a nuisance to others. All connections are apparently O.K., only I use a 5 plate variable condenser as a grid condenser instead of a fixed .00025. Which is the better? My friend across the way seems to think that a person should either have a multi valve set or none at all, since all small sets must use regeneration and consequently, in his opinion, must squeal in order to get an entertainment.

Answer: You seem to be worrying too much about your friend who has the multi valve set. A three coil circuit should not worry him in the least he must be re-radiating himself to get your re-radiation. He should (if he handles his set correctly) be able to bring in all the stations he wishes to tune in without getting his valve anywhere near the point of regeneration. Then he would not hear yours, or even know you were tuning in. On the other hand, of course, you have to be right on the point of regeneration to get the desired results. We would strongly advise you to explain to your friend these circumstances, and tell him he is just as much a culprit as you are. You cannot do more than use a small tickler coil; this, you state, you have already used.

A.R. (Sydney) forwards a copy of a three valve circuit, H.F., detector and L.F., and asks for suggestions regarding improving it. Could it be bettered by reflexing or with another stage of high frequency? Also asks if an aerial 70 feet high one end and 25 feet the other, and 50 feet long, would be efficient for the reception of local amateurs, Australian broadcasting stations, and possibly America. Would a water pipe 30 feet away in the open be too far for an earth lead? Would a piece of iron driven into the ground about 5 feet be O.K.? He has a Magnavox R3 speaker, and at 6 volts on the field it takes .75 amps. What size variable resistance would be necessary to get this down far enough without affecting the signal strength?

Answer: Your circuit diagram is a good one (viz., one radio, tuned plate with regeneration, and one audio). We think this circuit is very hard to beat, but you might use another stage of audio. It should then be satisfactory for local broadcasting on a loop aerial. A mast 70 feet and 50 feet should prove very efficient, and we strongly advise you to break your top guys with insulators, as one day you might want to transmit. In your particular circumstances a large sheet of galvanised iron buried in the earth at least two feet down would be more efficient for an earth than simply driving an iron pipe into the ground. You do not need a variable resistance on your R3 Magnavox, as the filed winding itself has sufficient resistance to limit the amount of current flowing through it. If, however, you wish to decrease the volume by adding an external resistance, a 10 ohm variable one should prove satisfactory. You must be sure, however, that the current carrying capacity of the wire used is large enough. Amalgamated Wireless stock a suitable one for the job, and no doubt you could obtain it from one of their agents.

R.J.H.G. (Alexandria).

Question: Referring to the Reinartz tuner, please give me some information concerning the small lamp flex condenser used. I have tried connecting one end of one wire and the other end of the other, but find it impossible to get anything through it. Without the aid of a small condenser of some sort the tuning is too broad. Have tried

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a .0001 fixed and variable in place of the flex, but the latter is a washout. The fixed fines the tuning up wonderfully. Broadcasters come in through it with very little difference in strength, but amateurs do not come in well. They are quite O.K. on the detuning coil, but far too broad, and any nearby station causes considerable interference. I assume that the lamp flex is two feet of double insulated wire.

Answer: You might try three feet instead of two, and the two ends should be left loose. A fixed condenser of a larger value is out of the question.

H.A. (Newcastle).

Question: Concerning your article on "Converting your loose coupler into a valve set." I have constructed this set, and use a WD12 valve. With 2BL I get a lot of twittering which I can't tune out. You article stated that when using WD12, a 30 ohm rheostat should be employed, but the valve makers' instructions are to use a 6 ohms. I want to put another valve on to this set. Would it give me any further distance, and would it bring 2BL and 2FC in louder? I have 200 turns of wire on my primary. Would I be able to reach 3LO with this? Could you supply me with a table showing how many wires to wind on a 4-inch diameter former to get different wavelengths? Would two stitches instead of a slider be better, as I would like to put it behind the panel?

Answer: The power used by 2FC is 5,000 watts, compared to 2BL's 1,500 watts. You therefore get 2FCC with more volume than 2BL. The twittering you speak of is undoubtedly caused by using too much regeneration on 2BL's wavelength. With correct adjustment of your plate voltage and secondary coil (which is your regenerative coil) you should be able to get over this. The 6 ohm rheostats on a WD12 is quite correct, providing your A battery is only 1.5 volts. The other valve you speak of, if used as an audio amplifier, will not increase your range, but will amplify your present volume about seven times. 200 turns of wire on a 4-inch former tuned with a .001 condenser in parallel and using an average sized aerial will tune in 3LO, Melbourne. If you intend using two switch arms in lieu of a slider, we suggest taking taps at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 50, 70, 100, 120, 150, 170, 185, and 200 turns. This will enable you to tune in any wavelength approximately up to 2,000 metres when used in the primary circuit.

# Stations Heard

Mr. W. J. M. McAuley, "Mia Mia," Union Street, West Brunswick, Victoria. Used a two-tube low loss set:—

**New Zealand.**—1AA, 1AO, 1YB, 2AA, 2AC, 2AG, 2AP, 2AK, 2BU, 3AF, 4AA, 4AG, 4AK.

**U.S.A.**—1PL, 1CME, 1ALL, 1AJX, 1AF, 1CMP, 1ART, 2ABT, 2BGI, 2BGA, 2CJB, 2CVJ, 2MC, 2PD, 2BRB, 2RK, 2KX, 3AB, 3OT, 3CHG, 3WJ, 4SA, 4OA, 4XC, 4IZ, 5EWE, 5GO, 5ZA, 5ZAI, 5EPH, 5CN, 5CV, 6AWT, 6AHP, 6AC, 6CTC, 6CMS, 6EW, 6MS, 6CST, 6ROL, 6CQC, 6CSW, 6ALV, 6CTB, 6MA, 6CGW, 6CTO, 6AGK, 6BBT, 6CBB, 6BUR, 6AFG, 6ZH, 6RV, 6BCP, 6ALD, 6XI, 6CMI, 6CW, 6AWO, 6VC, 6CCT, 6CFT, 6BOT, 6AG, 6CNL, 6CSO, 6AOI, 6NX, 6CKA, 6ARB, 6CGO, 6APW, 6CMU, 6CHL, 6CMQ, 6BPF, 7FQ, 7QD, 7LR, 7LS, 7SF, 7DF, 8GQ, 8VQ, 8PL, 8WD, 8BPA, 8ZG, 9BCJ, 9CPO, 9ZA, 9DQU, 9QW, 9DGV, 9AXS, 9CFI, 9CJC, 9BMX, 9BHY, 9EHT, 9CIP, 9ZY, 9ZT, 9BDW, 9DMJ, 9DJE, KDKA.

**Mexico.**—NKF.

**Canada.**—1AR.

R. S. Cachy, 98 Sydney Road, Granville Road. Used a one-valve low loss set. Phillips D1 valve:—

**Victoria.**—3BD, 3XO, 3XZ, 3MP, 3JM, 3SW, 3SX, 3BU, 3UZ, 3JU, 3UI, 3OT, 3XX, 3AP, 3HH. (Phone.)

**South Australia.**—5AD, 5DN, 5BD, 5AI, 5BF, 5LO, 5CT, 5VM. (Phone.)

**Queensland.**—4CU, 4EG, 4AK, 4CK. (Phone.)

**New Zealand.**—4AA, 2AC, 4YA, 1AH, 2AI. (Phone.)

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H. W. B. Bowers, "Welton Dale," 153 Derby St., Kew, Vic. Receiver: low loss and one step.

**N.S.W.:** 2AY, 2BK, 2BM, 2CR, 2CI, 2CS, 2DS, 2DK, 2GQ, 2HM, 2HH, 2JM, 2IJ, 2JR, 2JS, 2JT, 2MA, 2RJ.

**South Australia:** 5AI, 5BG, 5BN, 5DA, 5LO.

**Tasmania:** 7BK.

**New Zealand:** 1OA, 2AC, 2AE, 2AP, 3AC, 4AA, 4AG, 4AK.

**U.S.A.:** 1FAK, 1TT, 1CMP, 1AU, 2BGI, 2BQ, 2RK, 2DA, 2WD, 3BB, 3RR, 3RS, 3PN, 3KT, 4OA, 4IN, 5UK, 5ZA, 5MI, 6BCP, 6AWT, 6BN, 6XI, 6ASE, 6CGW, 6OI, 6CQE, 6NMG, 6ASP, 6EW, 6ZA, 6CBB, 6CKA, 6APW, 6AK, 6CQ, 6CQO, 7NF, 9CHU, 9ME; fone KDKA.

**England:** 2NM, 2OD, 2KF, 6NF.

**Canada:** 1KL.

**Mexico:** BN

**France:** 8FJ.

Mr. David Wyles, M.Inst., R.E., who some little time ago relinquished his position with the Radio-Electric Works of Amalgamated Wireless (A/sia) Limited, was on February 9th, the recipient of a very handsome presentation as a memento from his fellow workers.

In a short address, Mr. Grime, production manager, spoke eulogistically of the ability of Mr. Wyles and of the excellent and loyal service rendered by him during the past eleven years.

All present concurred with Mr. Grime's wishes that Mr. Wyles would be successful in his new position as chief engineer of Broadcasters Limited, Sydney.

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(Continued from Page 38.)

6BN—H. E. Holliway, 1175 Washington Street, San Francisco.

6ZA—L. J. Kaar, 400 Main Street, Salt Lake City, **Utah.**

6AWP—E. W. Thatcher, 407 W. 1st Street, Santa An, Cal.

6AK6—L. D. Mealer, Box 128, Walnut Grove, Cal.

6CQO—Unassigned.

7NF—F. F. Henriot, Winlock, Wash.

9CHU—P. J. Scott, 609 Locust Street, Rockford, Ill.

9ME—W. H. Smith, Y.M.C.A. 16th and Lincoln, Denver.

# QRA?

Here are the names and addresses of owners of stations recently published in "Wireless Weekly":—

(No record of Dutch or Mexican stations mentioned).

BRITISH

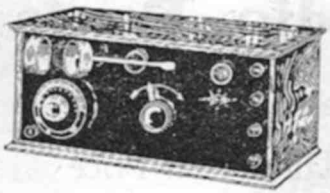
2FU—E. T. Manley, Jr., St. Paul's, B.P. Scouts, Bournemouth.
2JF—E. G. Williams, 22 Scholar St., Sefton Park, Liverpool.
2KF—J. A. Partridge, 22 Park Road, Colliers Wood, Mereton, SW. 19.
2NB—J. W. Barnaby, Syloan House, Broad Rd., Sale, Cheshire.
2OD—E. J. Simmonds, "Meadowlea," Queen's Way, Gerrad's Cross, Bucks.
2LZ—F. A. Mayer, "Stilemans," Wickford, Essex.
2NM—G. Marcuse, Coombe Dingle, Queen's Park, Caterham, Surrey.
2SH—F. L. Hogg, 37 Bishop's Rd., Highgate, N.C.
5MA—R. Munday, 17 Malden Rd., New Malden, Surrey.
5MO—W. Guthrie Dickson, "Dipwood," Rowlands Gill New on Tyre.
6NF—R. W. Galpin, Bank House, Herne Bay, Kent.
6AF—No record.

AMERICAN.

1ART—G. B. Harper, 155 Adams Street, Milton, Mass.
1AU—C. D. Davis, 8 Cedar Court, Wakefield, Mass.
1FAK—Unassigned.
1TT—H. A. Hutchinson, 11 Lambert Ave., Meriden, Conn.
2BQ—B. Guild, 636 Mt. Prospect Ave., Newark, N.J.
2DA—A. H. Winn, 325 Church Street, Poughkeepsie, N.Y.
2WD—H. L. Demuth, 82 Wadsworth Ave., N.Y. City.
3WJ—R. C. Westerhood, 3164 Tulip Street, Philadelphia, Pa.
3BB—J. Mooney, jun., 2903 W. Girard, Philadelphia, Pa.
3AR—A. P. McDowell, jun., 41 Carpenter Lane, Mt. Airy, Philadelphia, Pa.
3RS—E. E. Wright, 1704 W. Lanvale Street, Baltimore, Md.
3PN—G. H. Dobbs, 58 Lincoln Ave., Collingswood, N.J.
3KT—H. L. Stillwell, 5130 N. 13th Street, Philadelphia, Pa.

(Continued on Page 34, Col. 2.)

# COL-MO LITTLE GIANT SETS

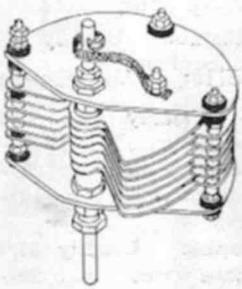


The Little Giant Sets are sold complete with all accessories, including aerial wire. The three valve Little Giant is complete with all accessories and Loud Speaker.

One Valve Set . . . . . £7/10/-
Two Valve Set . . . . . £12/10/-
Three Valve Set . . . . . £24

**THE LITTLE GIANT ALWAYS LIVES UP TO ITS NAME. A GIANT IN TONAL QUALITIES, EFFICIENCY AND SIMPLICITY OF OPERATION ARE FEATURES NOT SURPASSED IN LARGER HIGHER-PRICED INSTRUMENTS.**

# Col-Mo Low Loss Condensers



It is interesting to note that at last a GROUNDED ROTOR brass plate condenser of the LOW LOSS type has been constructed in Sydney. The construction is entirely of brass, having brass ends common to the Rotary plates, and electrically connected thereto by a pig-tail connection of brass flex. Absolutely no body capacity effects are possible with this condenser for in addition to the earthed end plates, the fixed plates are further screened by two extra Rotary plates. Designed on a straight line principle to facilitate accurate tuning.

COLMO LOW LOSS CONDENSERS are made in one capacity only .00025. This obviates the necessity of a vernier, thereby reducing high frequency losses. PRICE . . . . . 16/-

## Colville - Moore

### Wireless Supplies, Limited

**10 Rowe Street** (Opposite Hotel Australia) **Sydney**

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