

Friday, December 26, 1924. WIRELESS WEEKLY

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The One Valve (Kembla) Set you sent me is quite satisfactory, having picked up Broadcasters fairly well, which in itself is an achievement up here, as the people I know around here, with four or five valve sets, are unable to pick them up.

I do not know whether I told you that I picked up Broadcasters on two occasions at a place called Alliworth. This place is situated at the head of the Karuah River, near Port Stephens, measured off the chart as 85 miles from Sydney, which is some achievement for a Crystal Set.

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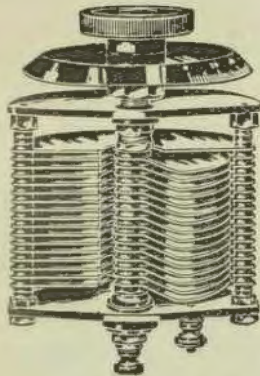
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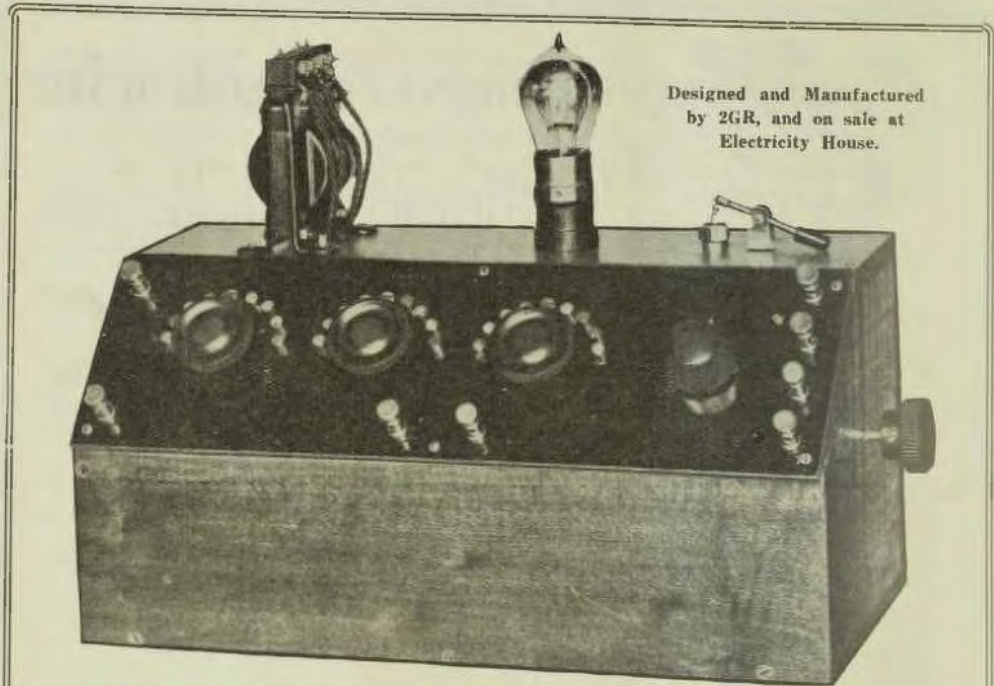
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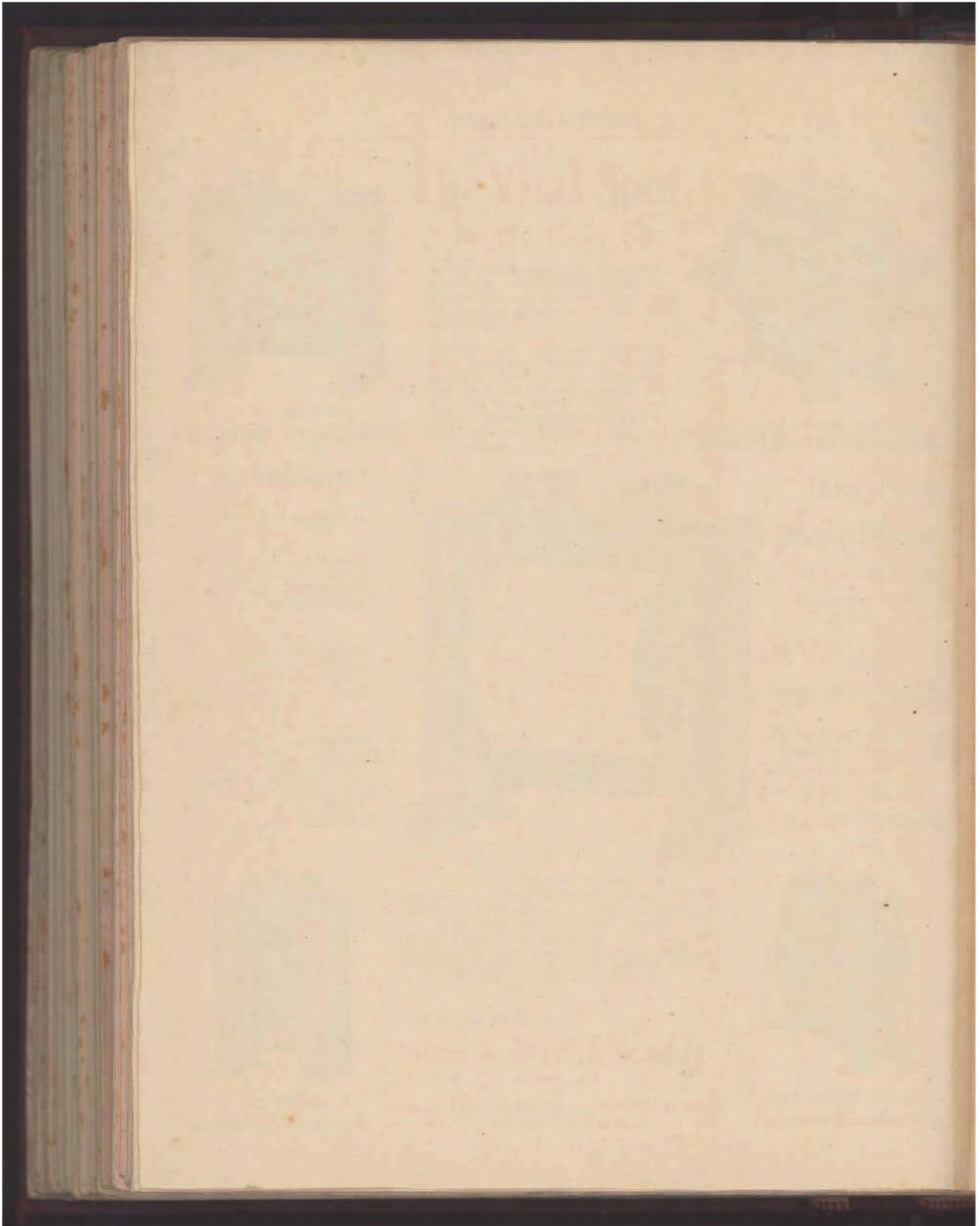
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WIRELESS WEEKLY Friday, December 26, 1924.
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Page Seven

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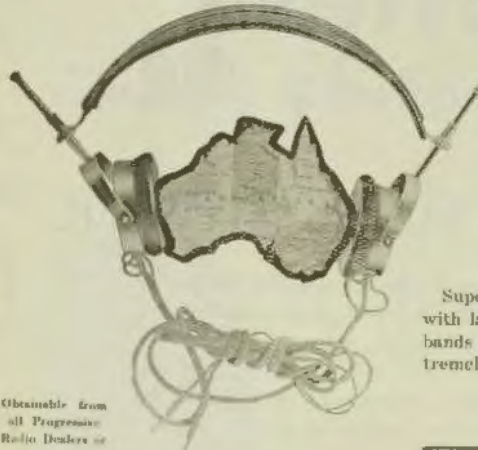
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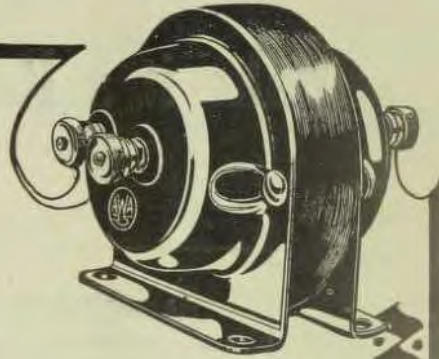
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Official Organ of the New South Wales Division of the Wireless Institute of Australia, with which is incorporated the Affiliated Radio Societies and the Australian Radio Relay League.

VOL. 6. No. 9.

FRIDAY, DECEMBER 26, 1924.

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

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EDITORIAL

Demonstrations.

OF the few sins that have followed in the wake of Australian Broadcasting, none are productive of such unpleasant effects as inferior demonstrations. They are not only fatal to business but grate sadly upon the ears of those who are musically inclined and whose thoughts about Broadcasting and of wireless in general run in an entirely different channel to those of some dealers who persist in driving people away convinced that the art is much misrepresented. "Worse than a bad gramophone" is an expression that unfortunately becomes more familiar every day but it is no libel upon the blasts of distorted music we hear blared across the footpath by those who foolishly resort to the old fashioned Circus methods of attracting attention. It is not a case of poor broadcasting, or of inferior apparatus—there are loud speakers on the market to-day that, if reasonably handled, will reproduce music almost perfectly—but simply and solely a case of good instruments in bad hands. Nothing could be worse and there should be a special form of punishment for this offence.

The lessons we learned from the fiasco at the Lyceum Theatre and at the Wireless Exhibition in the Town Hall last year when so called broadcasting demonstrations were introduced to the public should have been conclusive, but a number of suburban dealers still tread the path that leads not to glory or increased sales, but to a direct advertisement to the uninitiated that broadcasting isn't what it is supposed to be.

A Melba record on a gramophone run at full speed would sound fearful, and in the same way a player piano can be made to sound offensive. Right at a tram stop on the North Shore, a chemist sub-dealer hangs a loud speaker outside his door every Sunday evening. No doubt actuated by pious motives, he treats his kerbstone audience to selections from the broadcasted church service. A harsh unnatural bellow indicates the voice of the Clergyman whose intonations, although audible 50

feet away, are utterly unintelligible, and at intervals the singing of the congregation is represented by a continuous unmusical roar. The muffled boom of amplified atmospherics and the moaning of over-action lend quite a Mephistophelian atmosphere to these demonstrations of what under the best circumstances is a form of broadcasting which is entirely unsuitable to the majority of listeners in. To the people gathered outside, this travesty of broadcasting is obviously regarded as a publicity stunt, and certainly not as an inducement to instal broadcast receivers. The fault, of course, lies with the dealer himself, and not with the apparatus, but the tongue of ill report travels almost as swiftly as wireless itself, and as this instance is merely typical of other, the harm that results is incalculable. Impressions, once gained, are apt to stick, and there can be no question but that large numbers of people form wrong impressions through the misdirected efforts of individuals whose enthusiasm tends to drag broadcasting itself down to the level of the street organ.

Note this fact carefully. Poor results from a loud speaker are almost invariably due to a badly adjusted receiver. Under ordinary circumstances, by following simple rules, the least informed person can operate a receiver, so that the loud speaker delivers satisfactory results. This can be proved conclusively by any established radio store. And this fact. A loud speaker must not be judged by the distance it will throw sound, but by its tonal qualities; the present day loud speaker is not a mere horn, but a scientifically constructed instrument which is capable of giving splendid and natural reproduction.

No one expects an 11 h.p. car to deliver 30 h.p., and it may be taken for granted that where foreign sounds or harsh unmusical tones issue from the loud speaker during a demonstration, the receiver is being metaphorically kicked and prodded into delivering more than it is reasonable to expect from it. The rheostats are turned "full on," and the re-action coil jammed hard up against the secondary, thus introducing howling and distor

BUY RADIO GIFTS FOR XMAS

which are certainly not the qualities of the broadcasting or of the apparatus itself, but merely mishandling. Like all other instruments, the wireless receiver must be properly adjusted, and poor demonstrations by careless people are not indications that the addition of a loud speaker will not prove of lasting entertainment in the home.

In Passing.

THE success of the engineers of the Radio Corporation of America in transmitting photographs by wireless, leads us to hope that before long, they will design apparatus by which we may secure a photograph of a cross section of the ether around Australia and New Zealand. It would be interesting.

The events of the last few months have been startling from many points of view, and phone is now largely given up, for the fascination of chasing Americans with C.W. Listening in somewhere in the vicinity of 100 metres or so nowadays (or nights is very much reminiscent of the ancient days of six months ago when we used to stir up a little code practice by tuning in on 600 metres. There is no necessity for it now, because an easy selection may be made from a dozen or more amateurs. One night last week we made a few comparisons between the operating ability of commercial and amateur operators, and while, as a general rule, the commercial man is faster and wastes very little time on repeats, the competency of the amateurs when it comes to the actual formation of letters cannot be questioned. In one or two instances, of course, there is room for much improvement—for instance, Z2AC has a very queer style, sometimes difficult to follow—but the all round standard is a very high one, indeed. A vast amount of time is used up on unnecessary repeats, and on occasions we noticed that, even when preliminary signals were reported QRK or QSA, each word was sent twice by the sender. In one particular case two Australians were waiting to get into touch with Z4AG while the latter was accepting a QSR from another Australian for America. Although there wasn't much static about and practically no QRM, the message was unduly protracted through unnecessary repetition, and, judging by the short and snappy way in which Z4AG gave his OK, he was evidently of the same opinion. Therefore, it pays to ascertain first if signals are being received at

good strength, and, if so, to go ahead on one sending.

3BQ, 2CM, and 2DS put out excellent Morse, and their punch on a one-valve low loss is positively terrific—in fact, it is very difficult to believe that 3BQ isn't situated just around the corner. The same applies in a lesser sense to 3JU, 3BI and 3BM, while 3OT comes in like the proverbial ton of bricks. This last station is due for some very good D.X. work if he keeps on improving as consistently as he has during the last few weeks. The 4th and 5th districts seem to have slackened off considerably lately, but quite possibly QRN spoils a lot of their good work. Fading was very noticeable on one or two nights last week, particularly with regard to one or two New Zealanders. Perhaps, however, it was caused by our aerial swinging, due to the visitors blowing the steam off coffee at a certain station not a million miles from us. 2GQ simply rocks in on C.W., but his signals are somewhat jerky and lack that steady punch, characteristic of the Victorians.

With the increased efficiency of so many stations we hope that Mr. Perrett's prophecy regarding the progress of the Australian Radio Relay League during 1925 will be more than justified. This organisation is badly needed and it is high time that a little encouragement was given it by our leading transmitters. The relaying of messages is done almost every night by one or more of the New Zealanders and that could be the basis for arranging traffic in an orderly manner. Our own trans-ocean transmitters could handle the American relay and provided some co-operation were forthcoming, it should not be a very difficult matter to establish a chain of low power relay stations across the Commonwealth. We have an excellent example in the American Radio Relay League and it is worthy of note that the members of that body have been thanked by the United States Navy Department for their fine work in maintaining communication with the "Shenandoah." We have no airship here, but there are a thousand and one ways in which the League could be made of great use to the country. Even if regulations are stringent, a properly organised League would command a lot of respect and consideration. Think it over anyway, and, if you agree with us that there is great scope for the Australian Radio Relay League, and would like to know more about it, drop a line to the Traffic Manager, Mr. P. S. Nolar, Bellevue Hill, Sydney.

BUY RADIO GIFTS FOR XMAS

HEADQUARTERS
Royal Societys House
5 Elizabeth St.
SYDNEY, N.S.W.

Wireless Institute of Australia
N.S.W. Div. Inc.
Incorporating the Affiliated Societies and The Australian Radio Relay League

Phil Renshaw, Hon. Sec.
Box 3120 GPO Sydney
Phone B2235
AMPerrett Publicity Officer.

DX Work.

THE reports which are continually coming to hand of the reception of long distance signals, thus adding fresh laurels for the amateur movement in connection with DX work, raises the question, as to whether this branch of wireless science is experimental or not. Without in any way detracting from the value of the good work which has been performed by Z4AA, A2CM, A3BQ, and others, who have similar performances to their credit, it may be pointed out that a mere covering of long distances does not, in itself, constitute experimental work. There are many factors involved, and some which possibly are not appreciated at their true value. The atmospheric conditions at both ends, and the sensitivity and selectivity of the receiver play a very important part in this class of work and unless conditions are favourable and the skill of the receiving operator is adequate, no amount of skill or foresight will enable the transmitting operator to put over his stuff.

At the same time it must be remembered that the man who has done conscientious experimental work may have the misfortune of not making connections, although his efforts may have deserved it. The real problem is what lies behind the DX efforts. Is the object merely to cover distances, or is it to prove the efficiency or otherwise of a new circuit, or new method of controlling the same apparatus? Surely as much credit is due to the man who by dint of great perseverance and close scientific investigation establishes communication over only a few miles with a new type of apparatus. He is as deserving of credit as the man, who using standard apparatus covers great distances, because he has familiarised himself with the control of his set, and has produced a combination of apparatus of the highest efficiency.

Let us not look down on the man who has not long distance to his credit, but let us honour him, if he deserves it, as a careful scientific investigator, who has probably added more lustre to the science of wireless than the DX man. At the

same time let us be careful to distinguish the genuine DX man and the mere QSL card hunter. The Wireless Institute of Australia is out to foster every forward move in the science of wireless, and whether it be a silent investigator, who accomplishes no outwardly apparent results, or the genuine DX man who encircles the globe, both are equally assured of a warm welcome and a helping hand from the Wireless Institute of Australia.

It is our object to forward the science of radio communication in every possible direction, nay, our very existence depends upon the forward march of scientific wireless, not only from year to year, but day to day.

Cast your Silicon upon the Waters.

Recently, on his return from the old country, Mr. C. P. Bartholomew, second President of the N.S.W. Division, was accompanied by a huge amount of baggage. He saw the customs' officer approaching him, and felt a few qualms. At last his turn came for his baggage to be examined, and the customs' officer looked at him very hard, and then said: "Are you Mr. Bartholomew?" "Yes." "Did you once have an experimental radio station at Mosman? Do you remember having given me a small piece of silicon when I was quite a lad?" Mr. Bartholomew replied that he did not remember it, but no doubt it was so, as he had often given pieces of silicon away. "Is this your luggage," asked the customs' officer. "Yes," replied Mr. Bartholomew. The luggage was forthwith cleared. **Australian Radio Relay League.**

Official station 2DE, B Division, notifies us that traffic for the third district will be handled every Monday night commencing at 10.30 p.m. This will be followed by traffic to other States. Any stations intending to participate in the relaying must get in touch with 2DE at the earliest possible moment.

QRM.

Heard over the ether. 2BF did lose a valve after all He gets his nose into everything. 2DE.

Heard over the ether. 201 left his microphone on circuit for 24 hours. He wants to know why

it got hot. He is now purchasing a new microphone battery.

The Cat is out of the Bag.

2GC has been very quiet lately, because his Hartley will not oscillate.

Did you know this? Miss Wallace is engaged. Mr. C. R. McKenzie is the lucky man. Congratulations!

2CM is tired of the motor business. He will shortly be transferring his headquarters to the city as a radio engineer.

Marsden and Nolan have run out of bait. 2BF has a supply. The charge is high. (Not the bait.)

Mr. Bartholomew has donated a large supply of periodicals to the Institute library. He has also donated a large quantity of his historical transmitting apparatus of pre-war days. All this is now housed at Institute Headquarters.

Don't forget to put in an aerial switch when receiving. If you have any difficulty in this regard discuss the matter with 2CX.

2DE was offered a seat on the Board of Directors of a large Radio Co., forming in Sydney. He has declined.

Congratulations to J. W. Robinson! The radio business is not too bad after all.

A. H. PERRETT,
Publicity Officer.

TRANSMITTING LICENSES

PLEASE add the following to the lists published in Wireless Weekly, of September 26th, October 3rd, and October 10th.

New South Wales:

- 2BH—Broken Hill Technical College (F. J. Branagan).
- 2CL—G. Caletti, 252 Nelson Street, Annandale.
- 2EC—Ernest C. Crouch, 62 Prince St., Mosman.
- 2HH—Wireless Institute of Australia (N.S.W.) P. Renshaw, 82 Pitt St., Sydney.
- 2JR—J. G. Reed, Sydney.
- 2LP—L. P. R. Bean & Co., Ltd., 229 Castlereagh St., Sydney (dealers).
- 2TN—Western Electric Co., 192 Castlereagh St., Sydney.
- 2WS—W. S. Breden, Kitchiner Parade, Newcastle.
- 2ZJ—A. W. Simpson, "Greendale," Duri, N.S.W.
- 2ZU—Norman S. Gilmour, 156 Kurraba Road, Neutral Bay, Victoria.
- 3BS—H. B. Sunter, 8 Lambert Rd., Toorak.
- 3DP—N. Gulliver, 57 Simpson St., East Melbourne.
- 3KJ—W. E. C. Sawyer, 127 Mitchell St., Northcote.

3DR—C. A. Cullinan, "Bayview," Diggers' Rest.

3YN—D. J. Harkin, 31 Carlisle St., Preston.

3ZK—F. R. Bradley, "Worthing," Beach Crescent, Sandringham.

3ZN—M. Israel, 52 Blessingotn St., St. Kilda. **Queensland.**

1AZ—Frank V. Sharpe, Ashton Hall, Old Sandgate Road, Wooloowin.

4BN—Ernest Richard Cooling, Donation Lane, Toowoomba.

4KR—J. K. Richardson, "Aseot Downs," Barcaldine.

4LA—L. Matkins, Cleveland Terrace, Townsville. **South Australia.**

5BK—Electrical Supplies Depot, 9 Rundle Street, Adelaide.

5CK—S. C. Cusack, 45 Victoria Avenue, Dulwich.

5FT—J. S. Fitzmaurice, St. Andrew's St., North Walkerville.

5JC—J. H. Chesterfield, 45 Goodwood Rd., Wayville.

5KW—Kevin Wadham, 2 Elizabeth St., Parkside.

5RM—Rupert M. Barker, 49 Newton St., Prospect.

5SF—S. F. Ackland, 74 John's Rd., Prospect. **Western Australia.**

6BW—C. D. McLauchlan, 14 Clydesdale Street, Victoria Park.

6DZ—E. W. Burrows, Station House, Geraldton. **Tasmania.**

7AH—F. W. Medhurst, Beach Road, Lower Sandy Beach.

7AQ—W. B. MacCabe, "Kismet," Clarence Point, West Tamar. **New Zealand.**

2BU—Victor J. Finch, Picton (140 metres).

1FK—P. C. M. McIntosh, Waiuku (140 metres).

4AQ—Norman Arundel, Dunedin (160, 170, 180 metres).

2BX—Robert G. Black, Wellington (140 metres).

2BS—W. R. Hunter, Gisborne (140 metres).

2BM—B. C. W. Spackman Napier (140 metres).

That doleful looking fellow you see is probably a hairpin manufacturer.—Nashville Banner.

The Young Housewife—Professor, can you tell me how I can run my house without using so much coal?

The Famed Economist — Certainly, my dear, burn wood.—California Pelican.

Teacher—What is the best-known native American animal?
Johnny—The hot dog.—Life.

With Our Readers

AN APOLOGY.

Due to a printer's error, the major portion of a letter from Mr. P. S. Nolan was omitted from "Wireless Weekly" last week. We have pleasure in printing his letter below.—Editor.

(To the Editor)

Sir,—In the last issue of your weekly paper, I read with interest a letter from Mr. S. A. Macrow, in which some rather scathing remarks were passed regarding amateur transmissions generally, and more particularly those coming from my own station—2YI.

Regarding broad tuning, I will undertake to say that if Mr. Macrow lived as far away from my station as he does from say, 2HM or 2GQ, he would have nearly as much trouble in tuning in my signals as he finds with 2HM or 2GQ.

Broadness of tuning can only be determined from the carrier wave, and I don't think my carrier is more than 1 or 2 metres wide, but the modulation is heavy, and the signals are loud, that is why they are audible over a fair range of condenser or tuner settings. Take another example of loud signals, or take two, 2BL and 2FC, both these stations have a certain wave length, but we all know the trouble it is to cut them out when trying to receive 3AR or 3LO unless using special sets made for the purpose.

Perhaps Mr. Macrow has solved this problem with his own special circuit, if so, there is no doubt that it will be very successful.

Now another remark regarding the "noble army of organ grinders." Lots of experimenters in this and other States have a down on the purveyors of canned music, and foremost among these we find the men that can't put on decent music because the modulation of their sets won't stand the strain.

My object in transmitting is, primarily, to find the limit of distance to which the low power telephony will travel, and to test this, it is necessary to sometimes have prolonged transmissions, and I think it is far better to use a musical item to test this, rather than just to repeat my call letter for 10 minutes or so, or as some stations do, get no further than the well known "Hullo" for the same period.

No, like another Victorian writing in your paper some issues ago, I think that a gramophone record or two, within reason, is the best way of testing the modulation, and if these records happen to be the latest, or nearly the latest numbers, such as "Yes; we have no Bananas" or "Mr. Gallagher and Mr. Sheen," so much the better for the people who happen to tune in to the test transmission.

Also, I don't think most of the Australian experimenters have yet forgotten that both Messrs. 2CM and 2DS have only recently strayed from the fold of the "musical melody men."

Now to come to inventions and discoveries, "every man to his own image," and mine is not wireless, and yet, like the young man who discovered the true value of roast pork, perhaps even I might discover something some day.

I have only a few more words to say now, so read to the end, please. According to this same letter the general public are asking to have the "amateur broadcasters" and "experts" (?) closed down the next time the Americans try to project their voice over this way. Why should they? Just let that same general public remember that the despised amateur has to pay a license fee also, and even if it is a small one it gives him just as much right to put out a few oscillations into the ether as do the 35 boblets that the full blown BCL man has to still ladle out although so many councils have written to the papers about the exorbitant fees.

Hoping that these few remarks will be of value to all those who have got into the habit of regarding the air as the sole property of the broadcasting companies.

Yours etc.,

R. SPENCER NOLAN (2YI).

152 Bellevue Road, Double Bay, 5/12/'24.

To the Editor, "Wireless Weekly."

Sir,—As it seems to be regarded as something of an achievement to hear and isolate 3LO, my experience may interest your readers.

Using a tricoil, 3-valve set, radio, detector and audio, I can get 3LO and hold him right through the programme of 2FC without a sign of the existence of the latter or of any other transmitter. Volume in a pair of Trimm's phones is all that can comfortably be taken, and on a good evening all announcements, cricket scores, etc., come in without loss of a word. I do not possess a loud

speaker, but use a galvanised iron trumpet with the gong of an alarm clock for a socket to hold a single phone, and have heard announcements at a distance of three feet from this. To illustrate to a friend what close tuning is required, I have varied the condenser time after time, only one degree, and brought in 2FC and VIS simultaneously, then returned to 3LO without even a suggestion of the other two. This is the truth, and nothing but the truth, but not the whole truth. If anyone would like more detail, he is welcome to it.—

Yours, etc.,

A. F. JACOB.

Homebush Road, Homebush, 6/12/24.

To the Editor, "Wireless Weekly."

Dear Sir,—I am sending you the following, as it may be of interest to your readers:—On Sunday night, 30/11/24, while listening-in to Farmer's (2FC) I thought I would try a few experiments with my set. First of all I disconnected the earth wire and re-tuned the set, and I could still hear 2FC fairly strong in the phones. I then took the aerial off also, but could get nothing. The next step was to connect the earth wire to the aerial terminal, and to my surprise 2FC could still be heard with two pairs of phones. Wired in series, I also heard 2BL and 3LO with the same arrangement; the lead in was at least three feet from any part of the set. This has been witnessed by my wife on Sunday night, and two other local experimenters on Monday and Wednesday nights. It is the same set, detector and two audio P1 circuit, that I wrote you about a month ago.—Yours faithfully,

E. R. W. ALCOT.

Tamworth, 4/12/24.

(To the Editor)

Sir,—Re letter from Mr. Nunn, Kyogle, asking for information of station transmitting bagpipes, I transmitted two bagpipe records on that date. But the time was 10.14, first record which was the sword dance, and No. 2 the Highland Fling. The wavelength was 203 metres.

Hoping this will give Mr. Nunn the information he requires.

Yours etc.,

W. COTTRELL (2ZN)

Stark Street, Coogee.

(To the Editor)

Sir,—With regard to Mr. Anthony's DX reception without an aerial, would like to say that I entirely agree with him in his reply to Mr. Walmaley. I have obtained practically the same results myself on a single tube low loss, no aerial used, and aerial being earth. Following are the hams heard in a couple of nights with this arrangement:

New South Wales: 2HM, 2GQ.

Victoria: 3BQ, 3BD, 3EM, 3BP, 3LM.

New Zealand: 2AC, 2AP, 4AA, 4AG, 4AK, 2XA.

U.S.A.: 6AWT.

I think Mr. Anthony will find that this effect decreases as the wavelength increases; above 100 metres it is almost impossible to do any DX work without an aerial.

Yours etc.,

LAWRENCE E. DEANE,

Havilah Road, Lindfield.

(To the Editor)

Sir,—I read of Mr. England's crystal record in Wireless Weekly of June 20, and I think you might like to know that I made a good crystal reception of the amateur station 2RJ on October 11, at 7.45 p.m. I have a habit of listening in every night between 7.30 and 8 p.m., trying to bring in some of the numerous amateurs about. I picked up 2RJ's carrier wave at a quarter to eight. The music came through with good phone strength and without any distortion whatever. My set is a single slider (60 turns of 24 d.c.c. on a 4½ in. diameter former), set home-made and without any special care taken in its construction. My aerial is a single wire 100 feet long, 35 feet high at one end and 65 feet high at the other end. Also I am using "New System's Phones" which are better than many dearer phones. I heard the amateur station until 8 o'clock, when Mr. Fagan (2RJ) closed down. I wrote up to Mr. Fagan, who lives at Mandurama, a distance of 150 miles airline from Sydney, asking him if my reception was right, and he wrote back informing me that it was correct and he also enclosed his QSL card, which I very much appreciated.

I am starting on valves and will not be using the crystal set much more. At various times I had had the following amateurs on my little slider: 2BF, 2DE, 2UW, 2ME, 2RJ, 2Y1, 2CX, 2CM, 2CR, 2JM, 2BC, 2BE, 2ZN, 2IJ, 2LO, 2RA, 2UR, 2ZB, 2ZR, 2BK, 2CW, 2KC, and 2LF, as well as 2BL and 2FC.

Yours etc.,

ARTHUR LEIGH PARTON.

Clan William Street, Willoughby.

INTERSTATE NOTES

VICTORIA.

Wireless Pirates.

THE P.M.G. has very properly instituted proceedings against those who purloin music from the ether, but while he is at it he should turn his attention to pirates more felonious still, who ply their nefarious traffic over those troubled waves. Those who don't pay license fees are bad enough but those who think a license entitles them to broadcast joesys from an overwrought receiver are far, far worse, while there is also another sort of pirate at whom it would be mighty bad form to suggest that our revered P.M.G. would do so vulgar a thing as to wink and yet? We listeners-in pay our license fees for the entertainment we get from the broadcasting companies. These are merely the middlemen and certainly the primary producers also are entitled to protection from a non-partisan government, so that the firm that broadcasts singing it has not paid for, and collects a fee for the same, is even more of a mean and grasping pirate than the petty thief who in his obscure attic pilfers the unpaid singer's tribute from the ether. Righteous indignation about unlicensed listening-in should be followed up by righteousness in relation to the performers who help to earn these fees. Otherwise the government is making these victims walk the plank in an act of high-handed piracy reminiscent in more ways than one of the name of Captain Kidd. Those who think the laborer is worthy of his hire and who expect that a fair proportion of the license fee should be paid to the artists who supply the broadcast programmes, especially from the studios, are advised to write to the Secretary of the Conference of the Choral Association and Victorian Vocalists Society, Mr. M. J. Pelligrove, C/o Allan's, 276 Collins Street, Melbourne.

Resignation of Uncle Bunny the First.

After endearing all hearts with his fine manly bass voice, which made the ether sonorous with market quotations and children's stories, and a too occasional song, Mr. Keith Cook has resigned his position as Uncle Bunny to 3LO. No other Bunny will ever be quite so Bunny as this Bunny. He set a high standard that his successors will have to live up to, and if in these notes it was ever said that sometimes he seemed a little mawkish, well

aren't we all? No reason appears to have been publicly assigned for Mr. Cook's resignation, but to judge from the tone of the Children's Hour contributions it would not be surprising to hear that some fairy princess has spirited him away to her enchanted castle. May he live happy ever after and have heaps of "chicabiddies" to say "Goodnight" to!

The B.C.L. and the Institute.

Following on very pointed comments in a published article by the President of the Institute (Vic. Div.) the attendances at various sections have fallen off greatly since 3LO began, and this is bound to have a discouraging effect on the movement. In some cases at least the bad habit some experimenters have of making disparaging remarks about the B.C.L. is taken exception to, with the result that the B.C.L. stays at home, whereas his presence at the club meeting is direct evidence that he is at least a potential experimenter and as we all know, potential is what counts in wireless. It may be heresy to protest that too much short wave talk at meetings is likely to bore members whose limited leisure is spent in frantic endeavours to improve telephonic reception of the broadcast wavelengths, yet the Institute would do well to remember that these also are experimenters and if they better their reception they should be encouraged to tell others.

3LO Springs a Surprise.

The spirit of Uncle Bunny peeps out very often from the sober commercialism of 3LO. The other night one weary wayfarer wended home and after tea decided to make up a long-deferred panel, but first for a little music. So the phones were donned and, for a moment it appeared as if Mars or somewhere even nearer Heaven had been inadvertently tuned in, until it was realised that this was Gladys Moncrief singing delightfully in the Merry Widow, per favour of 3LO. No announcement had been made in the morning papers but the panel took a back seat and its faithless constructor dallied with the Merry Widow in the front stalls and basked in the full strength of 3LO and wished for those coloured pictorial transmissions we have lately been promised.

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If Gladys came on every night
With all the charm the Gods have lent her,
And if to sound were added sight
Broadcast from 3LO as centre,
A pity then that hapless wight,
A deaf and blind Experimenter!

Picture Transmission.

Here is a fine field for experimenters who dislike beaten tracks. Certainly Mr. Taylor of Sydney has left a most decidedly beaten track already in that field, but he is almost unique and there are still plenty of alternative routes not yet converted into main thoroughfares. The problem is in many senses a pretty one, and it is very well worth while. It differs from the problem of telephony as vision differs from audition. Have you ever considered what that difference is? To put it very concisely, vision is persistent, hearing is transient. When you listen-in, you hear one sound following another and none of them much longer than a jotted semi-breve at most. If you ever get a chance to "look-in" you will want rather to have a lot of simultaneous and successive impulses side by side to form a picture. Even a moving picture lasts a fairly long time as a whole, although changing in parts, but when it comes to a "still" picture thrown on a screen or drawn on a surface, the problem gets as intricate as a game of chess and as absorbing.

Mr. Hull on Reception.

Before a handful of members at Canterbury, Mr. Hull gave a suggestive talk on The Oscillatory Circuit, with special reference to the keeping down of resistance and to the aerial circuit as oscillatory. He strongly advocates the use of a counterpoise, denouncing in his downright fashion, the user of an "earth" for reception as an idiot. He also favors the single wire aerial owing to its low capacity, referring to recent successes in short wave reception. Mr. Hull took the view that the present methods of receiving short waves are very crude, and the excellent results achieved are more due to the short waves themselves than to any virtues in the receivers employed. Mr. Hull concluded with an emphatic appeal to all experimenters to quit imitating others and to think out and strike out along lines of original work. His remarks were greatly appreciated by the few fortunate enough to be present.

Brighton Club Congratulates 3BD.

Relatively to the metropolis is so far as traffic and other incidentals are concerned Brighton must be described as a suburb, but in matters of wireless and other things of importance there is nothing

suburban about that seaside city. As witness whereof take the congratulatory social tendered to Mr. 3BD Cox on the attaining of trans-American honors in code transmission. Brighton's capital had gathered then her beauty and her chivalry and not only Brighton's many wireless notaries were there but also by invitation many attended from other clubs and the function passed off with pleasure to all who participated.

SOUTH AUSTRALIA.

Broadcasting Delayed.

BBROADCASTING in this state does not seem to be drawing any nearer and much dissatisfaction is shown by the letters appearing daily in the local newspapers. Several companies have been formed for the purpose of broadcasting and after a short trial, have ceased to exist, and the company now in existence does not seem to make any headway. The transmissions are very poor, although they state their power to be 500—whats? Their strength at times does not even compare with some of the 10 wat experimental stations. Their manner of running the station is altogether unsuitable for the public taste; after the finish of an item, the next item will be announced, then the announcer says, "Just a minute please"—but ten to fifteen minutes elapse before the item is heard. In the meantime all sorts of noises are heard just as if a game of football is going on with the microphone being used as a football. This sort of thing will not be tolerated by the listening-in public who rightly want something decent for their money. An application has been lodged with the Post-Master General, for an A class license, three months ago from a company which has already been putting out some excellent performances and has been responsible for keeping public interest alive. Why the P.M.G. has not allotted this license and why he allows so much fooling with the business is a mystery. However, the public are tiring of the unwarranted delay and a petition addressed to the Postmaster General has been drawn up, requesting a settlement of the allotment of the license immediately. The petition is available at most of the radio dealers stores and it is hoped that all listeners in will make it their duty to sign it immediately.

Station 5DON N.

A week or so ago Mr. David Lyle, and Miss Alma Morgan rendered items at 5DN., which were heard by a delighted audience at the Star Picture Theatre, Semaphore, where a receiving set and a powerful loud speaker had been installed by the

(Continued on Page 35, Col. 1.)

BUY RADIO GIFTS FOR XMAS

Wave - Meters : Measures of Inductance and Capacity

By H. A. Stowe, M.W.I.A.

IT was mentioned in the last article that by means of a simple addition the wavemeter may be used for the purposes mentioned in the above heading. To do this a set of resistances will have to be made up, and the condenser of the wavemeter calibrated, that is, its capacity for each scale division will have to be known. This is not a very difficult problem if a condenser that is calibrated can be borrowed. There are makes of condensers on the market that have a calibration curve supplied with them, and several makes of the straight line type or as some are called the "square law" condenser, give the minimum and maximum capacities. From these two values it is possible to determine the rest of the values from the construction of a curve. To do this, procure a sheet of squared paper and mark off along the bottom edge the scale divisions of the condenser calling the first heavy line on the left 0. Then if the paper is large enough each heavy vertical line can be made to represent 10 divisions; thus each faint division will equal 1, so that the bottom of the paper will be divided into single divisions each equalling 1 degree of the condenser dial. If the paper is not large enough, each heavy line must be made equal to 20 divisions, that is the heavy line will read from 0, 20, 40, 60, 80, 100, and each faint division will equal two divisions. Now we will assume that the makers state that the minimum value of condenser is .0001 mf. and the maximum

.001, then the left hand side of the paper will be divided into five divisions counting the heavy lines starting from the 0 point. This is shown in Fig. 1. If the paper will allow, each heavy line can be marked in tens, thus making each faint line equal 1. Now we are told that 0 of condenser equals .0001 mf capacity, therefore make a mark where 0 and that value cross, and the maximum 100, of the condenser equals .001. Do the same here, then join these two points with a straight line and the value of any position of the condenser can be read, for example the value of the condenser when scale reads 55 is indicated as shown by dotted line and equals .00061 mf. Having then determined the condenser calibration the next step

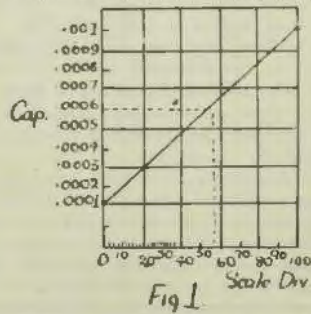


Fig. 1.

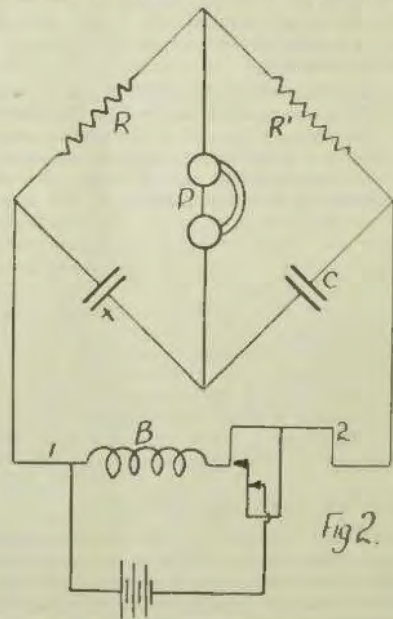


Fig. 2.

BUY RADIO GIFTS FOR XMAS

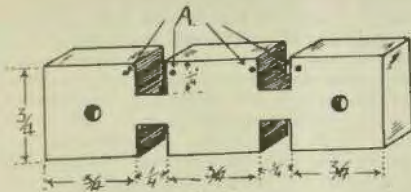


Fig 3.

is to make up the resistance arms R and R1 as shown in Fig. 2, which shows the connection of the capacity bridge, as it is called. These resistances need not be any definite value, but must be equal. They can consist of say 20 feet of 36 gauge, silk covered Eureka wire, each measured off very carefully. They must now be wound non-inductively by doubling each length in halves and then wind each length so doubled on to separate bobbins; or for those who are of a mechanical turn of mind, a small ebonite former may be made use of as per Fig. 3, from a piece of 1/4in. ebonite sheet, the wire being wound in the grooves, and the ends finished off in the small holes shown at A. A better way would be to force a piece of stiff copper wire through these holes and then solder the

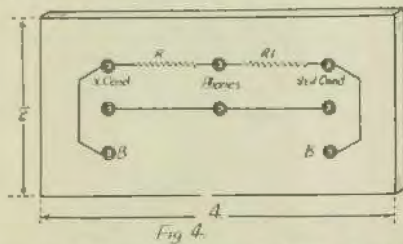


Fig 4.

ends of the resistance wire to these, so making sure that the resistances are kept the same value. Care must also be taken that the insulation is not damaged during the winding. After the wire is wound on and soldered to the stiff wires the whole should be dipped in hot paraffin wax and then allowed to cool. The two holes serve to mount the unit in the box. A suggested arrangement for mounting is shown in Fig. 4, which shows the plan view of the terminals and the connections to the same which are of course made underneath the panel. The sizes given may not, of course, be strict, as any convenient box may be used and a bakelite panel cut to suit. The resistance unit is screwed on under the panel with small spacing

pieces to keep it clear of the panel. The marking on the terminals indicates their connections. "X" condenser being the unknown condenser and STD our standard condenser. The buzzer is connected to terminals BB and it should be noted from Fig. 2, that connection is made to the coil only of the buzzer, for if the buzzer connected in series with the resistances and battery, they may become heated up and so melt the wax and cause trouble. If it is intended to use the wavemeter condenser for our standard, provision should be made on the wavemeter so that the condenser may be used separately. This is usually accomplished by connecting to the terminals of the wavemeter where the coils are plugged, provided the detector is open circuited as shown in Fig. 5, where TT are the coil plugs and D the detector which must be opened and phones disconnected. It will thus be seen that the condenser is isolated. The connection of the complete set for a test is shown in Fig. 6, which is self explanatory. The procedure of test is as follows: Set both condensers to 0 and start the buzzer; then if both condensers are the same size vary the STD condenser until no buzz is heard in the phones.

As soon as the buzzer is started a loud buzz will be heard in the phones and when a balance of the capacities is obtained no response is heard from

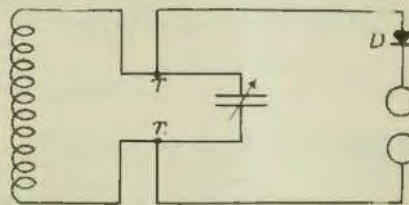
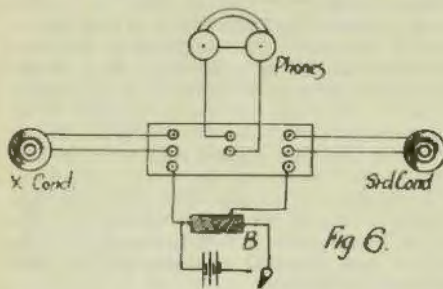


Fig 5.

the buzzer in the phones. It may happen that the X condenser is smaller than the standard. Then, by setting the standard to zero and by increasing the X condenser until the silent point is obtained the capacities are balanced and the capacity of the standard equals that of the X condenser. We may proceed now over the full range of the unknown condenser. The results may either be plotted on a curve or a list compiled showing the capacities for each division of the condenser dial. We have now a method of measuring the values of our condenser and with our wavemeter we may measure the inductance of any coil provided that its wavelength with the calibrated condenser is within the

BUY RADIO GIFTS FOR XMAS

range of our instruments. It has been indicated before that the wavelength is proportional to the inductance and capacity and we have a means of measuring wavelength and capacity, therefore the inductance can be computed. Referring to Fig. 8, in the first article, we will assume that we wish to measure the inductance of the coil of B. We must first know the wavelength of the combination of coil and condenser and if we use our standard or calibrated condenser for the condenser of B, then we can measure the wavelength as described in



that article with a definite setting of the condenser. We now have the wavelength of the combination and the capacity of the condenser for that wavelength, then by applying the formula:

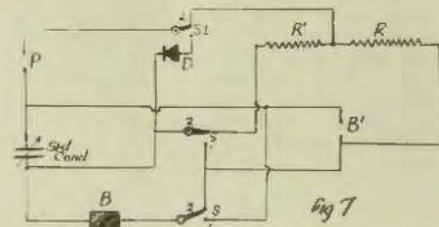
$$L = \frac{\text{Wavelength}^2}{3552 \times C} = L - \text{Cms}$$

and

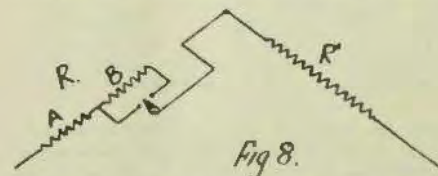
dividing this by 100 we get the inductance L in microhenries.

If we could combine an instrument to not only measure the wavelength, but the capacities as well, we would virtually have an instrument which would enable us to measure all three values. The writer has designed and used such an instrument and it is shown in the photo. The genuine experimenter will readily appreciate the value of such an instrument. The instrument illustrated uses a telephone multi-point switch for changing from wavemeter to capacity bridge which worked fairly well, but experience has shown that for accurate work a more positive type and less complicated switch is desired. Such a switch may consist of three single pole switches linked or separate or better still, three links which can be changed over. The connec-

tions for such an instrument using these links or switches is given in Fig. 7 which P. is phone terminals, D crystal detector, RR resistances, B1 terminals or plug for coils or unknown condenser, B buzzer with battery, and S.S.S. are the three links or switches. When used as a wavemeter the three switches are put in position one on each switch and in this position the wavemeter may either be used as a receptor using the crystal detector, or as an oscillator using the buzzer. For the capacity bridge the unknown condenser is connected in place of the coils and the switches set to



position 2. In reference to the capacity bridge described, it should be noted that the maximum range of the bridge is equal to the range of the standard condenser but resistance R, Fig. 2 must be multiplied by 1C so that the maximum readings become .01 mf. The resistance R called the ratio arm can be arranged with a switch so that both



ranges can be used at will. The connections for this portion are shown in Fig. 8.

To do this the resistance R should be measured out 10 times the length of R.

Then divide it up into 10 sections each section equal to R1. Cut off the first section A and then wind all three as before described. It will be necessary to have three slots in the ebonite former now. The first two slots for resistance A and B of resistance R and the third for resistance

BUY RADIO GIFTS FOR XMAS

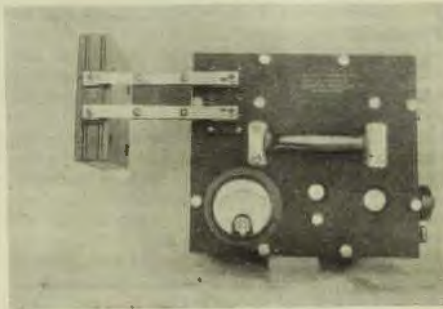
R1. A and B are joined together and a tap taken from the joint to the switch as shown. A will now be equal to R1 and B will be nine times R1 but A plus B will be 10 times R1.

The photo also shows the precision wavemeter belonging to the Wireless Institute, and is the

type as shown in Fig. 3 of the first article. This instrument can only be used by the absorption method described in the second article and for transmitter calibration or for the direct calibration of valve oscillating circuits.



THE COMBINED WAVEMETER AND CAPACITY BRIDGE.



THE WAVEMETER OF THE WIRELESS INSTITUTE.

New Australian-made Audio Frequency Transformer.

THE necessity of a good Audio Frequency transformer for the distortionless operation of a receiving set, cannot be over-stressed. Perfect radio reception depends to a large degree upon the efficiency of the transformer to faithfully build up the low frequency oscillations.

The new AWA Audio Frequency transformer is the product of the wireless laboratories of Amalgamated Wireless (A/sia) Ltd., and no expense has been spared in making it a thoroughly efficient instrument.

Low self-capacity and the special design and arrangement of the primary and secondary coils gives uniform amplification over the widest possible range of frequencies, and it will be found the ideal transformer for general use in all circuits. A special grade iron has been used in its construction, its windings possess the highest possible conductivity, while in order to prevent any leakage between windings, the primary and secondary coils are thoroughly insulated from the core and from

each other. It will handle maximum volume for loud speakers with clear, pure and distortionless tone.

Before leaving the factory each transformer is subjected to 1000 volt insulation test between windings and casing and between the windings themselves; any transformer not giving infinity reading is rejected.

The closed core eliminates magnetic losses.

Automatic-machine wound, the windings are standard; inductance values are measured on individual transformers and each one is tested against standard for signal strength. Both windings are covered with an insulation non-hygroscopic varnish giving absolute protection against atmospheric humidity. A comparatively heavy gauge wire is used to minimise the possibility of breakdown, and there are a sufficient number of turns to bring the natural frequency of the windings above the audibility range, preventing "blasting."

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Some Useful Hints for the Experimenter

By "Wireless Weekly"

BEFORE any useful experimental work can be undertaken it is essential to know the constants of the aerial. The following two simple methods are described, No. 1 determining the natural wavelength of the aerial and No. 2 determining the natural capacity of aerial.

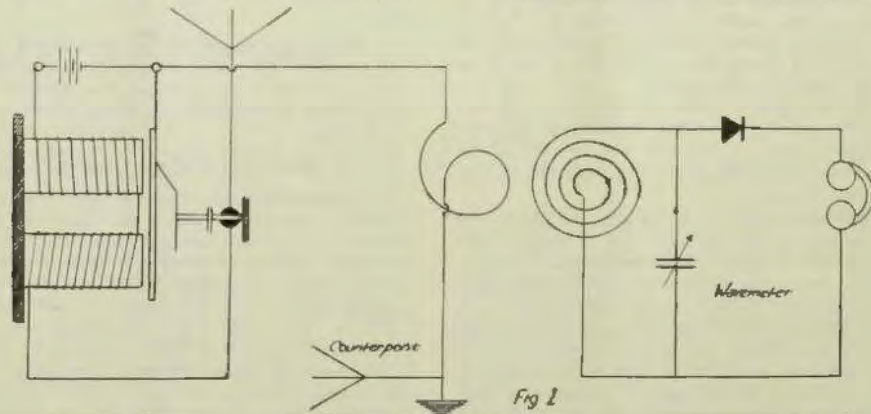
It is important for every serious experimenter to know the wavelength to which his aerial, when joined to earth, is most sensitive, without the addition of any extra inductance or condenser in conjunction with it. This is what is often termed the natural or fundamental wavelength. Putting the matter in another form, if the aerial is caused to oscillate and radiate electric waves, the length of these waves and the frequency of the oscillating currents will be governed by the amount of inductance and capacity employed, and also, to a very slight extent, the resistance of the aerial circuit. By connecting a buzzer as in Fig. 1, high frequency oscillations will be generated in the aerial circuit. The aerial may be joined either to the iron frame or contact pillar of buzzer. The earth wire should make a small loop of one or two turns about four inches in diameter. The wavemeter inductance is brought within an inch or two of this earth. The wavemeter should now be tuned to

give a maximum response in the telephones to these oscillations, and when this has been done, a reference to the condenser position and coil employed, will give the wavelength on comparison with the chart or curve.

It will be found that the maximum position of the resonance is not very shady and, for this reason, care should be taken to keep the wavemeter inductance as far as possible from the earth and also from close proximity to the buzzer itself, as sometimes direct inductive effects from the buzzer magnets may be produced and make the experiment difficult to perform with any degree of accuracy.

Finding Capacity of Aerial.

Knowing the capacity of any aerial is very useful in as much as once it is known, the experimenter is able to determine with a very fair degree of accuracy the wavelength which the aerial circuit will respond to when an inductance coil of known value is inserted between the aerial and earth. It should be mentioned, however, that, in cases where the inserted inductance is very small, the calculated wavelength determinations are not strictly accurate, unless the actual inductance of the aerial itself is known but in practice, for wave-



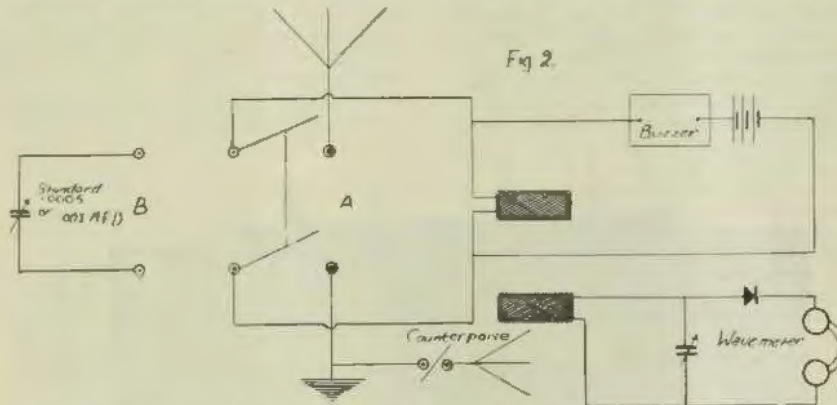
BUY RADIO GIFTS FOR XMAS

lengths of 200 to 300 metres or so above the natural wavelengths of the aerial, the added inductance is of sufficient dimensions to make the calculation accurate enough for all practical purposes.

To Determine Capacity of Aerial.

Join the buzzer in series with the battery and 100 turn honeycomb coil, (see Fig. 2.) this coil in turn being connected to the middle terminals of a double pole two way switch. The terminals of the switch marked "A" should now be connected to aerial and earth and the terminals marked "B" to a standard condenser. The shortest leads possible should be used for these connections. The wavemeter coil 150 turns should now be brought near the 100 turn coil. On setting the buzzer working, high

The wavemeter condenser must on no account be altered from its original setting when the switch is in position "A." The capacity of the condenser across the terminals "B" is now equal to that of the aerial circuit. Every experimenter will find it very useful if he posts up in some convenient place in his wireless room, the natural wavelength of his aerial and the capacity of his aerial. If a counterpoise or counterpoise and earth are used, the same experiments may be carried out using either or both together. A note should also be made as to the difference in strength of the signals when either earth or counterpoise is used. For this purpose a constant distance between the two inductance coils should be maintained. In general, the



frequency oscillations will be set up in the aerial circuit, when the switch is in position "A". Some of this oscillating energy will be induced in the wavemeter when the latter is brought into resonance by means of the variable condenser. This point of resonance should be accurately determined. The change over switch is now put into position B, and the standard condenser swung round to such a position where the maximum signal strength from the buzzer is again obtained in the receiving telephones.

earth system which gives maximum signal strength, will be found the most useful when the time comes for receiving actual signals. It may be found, however, that signals from certain stations will be found better on the water pipe earth and from other stations on the counterpoise. Therefore it is convenient to make these two connections easily available. The natural wavelength of any aerial is usually lower when using a counterpoise than it is with an earth connection.

Telephone City 4429

CHARLES D. MACLURCAN
Consulting Radio Engineer

MacLurcan & Lane Ltd.,
9-13 Brisbane St., Sydney.

Mrs. Matthews was learning to drive her new car and was very much thrilled over it.

"Of course," she said, "I could never change a tire myself. Why, I can't even lift one. You know they have eighty pounds of air in them in addition to the weight of the tire!"—Disston Crucible.

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THE HOPWOOD RECEIVER

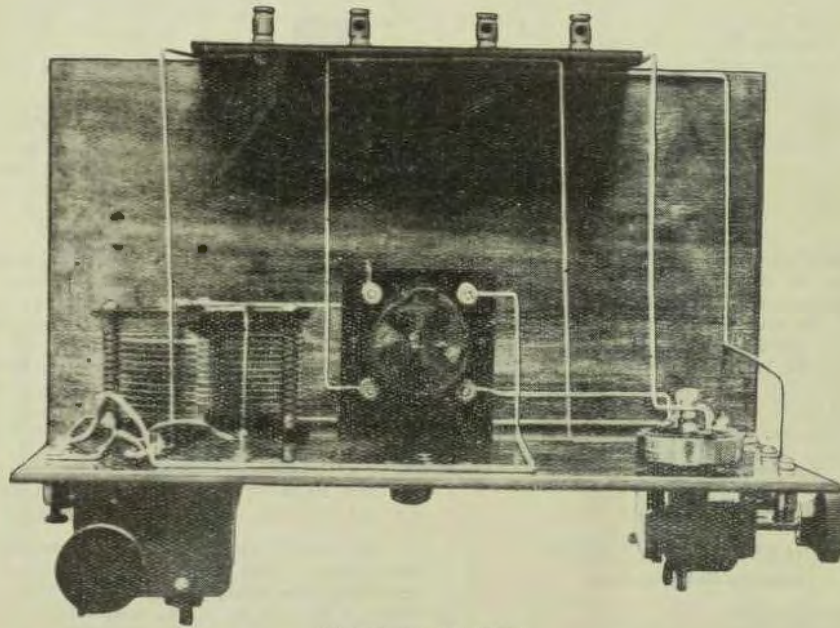
By "INSULATOR"

A VERY MERRY CHRISTMAS, folks. Just the other evening I was looking through some old English wireless journals, and I found much to interest me. Personally I am what might be termed a "good thing" to my newsagent as far as wireless publications are concerned. Every new publication is submitted to me, and consequently at the end of the month my account reaches rather big proportions. Generally something of interest is found in each, and this particular circuit looked good to me so I built it, and I am glad too. The correspondent to the English paper made some wonderful claims for it, stating amongst other things, that he had copied long distance stations

quite easily. He pointed out that the tuning was somewhat critical and I, with my short experience, can honestly agree with him. That is the only drawback to the receiver—it is very critical indeed, the variometer in the grid return being rather touchy.

Well, anyhow, I built it as I have just told you and the illustration will show you just what sort of job I made of it. For tuning inductances I employed the spider web formers on which I wound just a sufficient number of turns to bring in local amateurs. I'll tell you the number I employed later on.

On hooking up to the aerial and listening in for 20 minutes or so I logged quite a number of am-



View Showing the Wiring.

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while I tell you this: For the benefit of the uninitiated the term logged is to enter in a log and not to hit on the head with a log, although some of our amateur transmitters ought to be so treated. The transformer hum from some of them would make a good sized power house blush with shame. That's quite true, isn't it? Anyhow, the other night I could have kissed our genial 2JM, his cheery voice being the first sound received through a somewhat erring receiver. Back to our Hapwood.

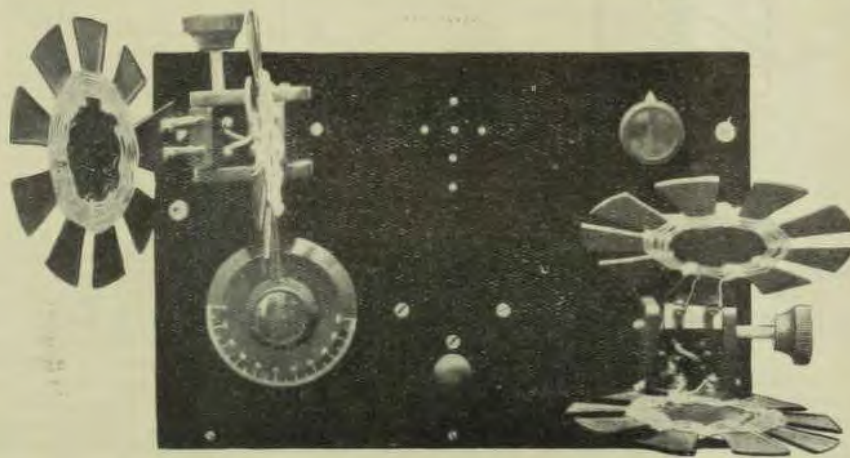
A glance at the circuit will give you the idea but perhaps you may find it difficult to reconcile the circuit which the receiver illustrated. Right Oh! I'll explain. On the top left hand corner is the AT1 and reaction coil while underneath is situated the A.T.C. (condenser). To the right of the condenser will be found the variable grid, and next, the variometer which is underneath the rheostat. To build this receiver the following materials are necessary:

- 1 Bakelite Panel 12 x 8 x 3/16.
- 2 Coil holders.

- 1 .005 or .001 variable condenser.
- 1 Dial for above.
- 1 Panel mounting valve socket.
- 1 Grid leak and condenser.
- 1 30-ohm rheostat for dull emitter valves (6 ohm of course for bright emitter).
- 1 B terminal strip.
- 8 Terminals.
- Panel wire, screws, etc.

If you really and truly wish to make this a radio Christmas, here is your opportunity. Obtain the above list of parts and spend the holidays making this set. Dinkum, I think it is worth it, and you will say at the beginning of the year that you did enjoy your holidays.

Alright let us presume you are starting off on Christmas day—just after breakfast. Sweep away the breakfast dishes from the kitchen table, spread down a few old newspapers,—Sydney Morning Herald will do—and with a file or bread knife square up the panel, trimming off all the rough edges. In the middle of the panel, and one and three quarter inches from the bottom, mark the position of

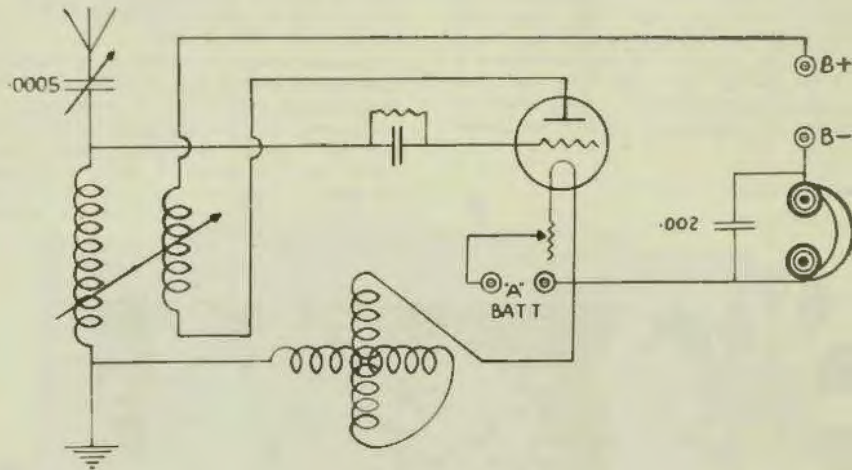


Front View of Panel.

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your variable grid leak. One and a half inches above this, mark the holes for fixing the panel mounting valve socket. About two inches above this lay out the design for your peep holes. Rightoh! Now two and three quarter inches from the bottom and two and a half inches from the left edge, mark out the position for the centre spindle of your variable condenser. Using the template provided by most V.C. manufacturers, centre punch the necessary holes for mounting this part. Right above this condenser, provide for one of your two coil holders. The other two coil holder, place on the bottom right hand corner as I have done, noting the position. The rheostat place above this, say two inches from the edge and one and three quarter

etc. You can't go wrong doing this—at least it will assist you to drown the noise of that blessed toy trumpet which Smith next door put in the kiddie's stocking. All the drilling should be completed by the time Christmas dinner is ready, so clear off the table and have some dinner. After this is over pull out the old pipe—oh pardon me, the new cigar—and smoke and think. Think of what you'll think of me if the thing won't work. But it will if you follow out the instructions carefully. Chase round the house and find about eight inches of flex. Of course you have some flex—didn't you bring a piece home the other day. You've got it; good oh! Now turn to one of the two coil holders and using about two inches of flex, connect the



inches from the top. Finish off the marking off by making provision for the four terminals shown, the two on the left for aerial and earth, and the two on the right for telephones. On the battery terminal strip mark off for holes for A+, A-, B+ and B-.

At this juncture bear in mind that this is the festive season, so repair to the bottle, whiskey, wine, milk, or water—I don't care which, and pour out a glass of—well, I don't care which, and drink my health. "s Luck Gentlemen" Thanks. Thus refreshed proceed back to the kitchen table and start drilling. This job is made pleasant by whistling that old melody "Christians Awake" or "Hark the Herald"

screw, making contact with the socket on the fixed plug. Attach about two inches more to each of the remaining two screws and leave this holder down for a moment. Know it again for that is the one employed at the bottom right hand corner for the variometer. The other two coil holder is now attended to. Connect short pieces of flex to each of the four screws in the plugs—don't join one to the other this time. Chew a few nuts and mount the parts. Look at the back view and you will see just how the wiring goes. In order to overcome the difficulty of having flex dragging across the wiring, put in four contact studs close to the top left hand two coil holder and connect each

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manship is finer, and it is the last word in radio designing.

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lead of the flex to one of these studs. The variometer. Using four 150 turn coils 2FC answered the back of the panel can now be brought to these studs, making everything look neat, and Christmassy. From the circuit proceed to wire up, noting carefully the peculiar position of the B battery. Now you have your Christmas set made. The spider formers are handy things inasmuch as you can wind as many turns as you require. I find that amateurs come in very fine on an 18 turn primary and a 30 turn tickler, the variometer coils having 25 turns on each former. Honeycomb coils may be used, of course, 2BL perking satisfactorily on 35 and 50 turns with the same size in the variometer. Using four 150 turn coils 2FC answered O.K. Why even with two 50 turns in the variometer the strength was very appreciable. But mind you, the handling is carefully selective and critical so watch carefully. Knock off for tea now, to the accompaniment of: "Another little drink, another little drink won't do us any harm."

The Lonely Lighthouse

A STRIKING example of the manner in which the wonderful science of wireless may bring to those who are isolated the enjoyments made available to the dwellers in more civilised parts, is furnished by the reception of broadcast programmes at the Cape Brett Lighthouse, New Zealand.

Mr. A. V. Pearce, the principal keeper, is a radio enthusiast, and derives much pleasure from listening-in to various programmes of speech and music.

Mr. Pearce is fortunate in being able to receive equally well from America and Australia as he is from New Zealand, and in a letter written to a friend in Sydney quite recently he spoke of the ease with which he tuned in various stations. He stated that 2FC (Sydney) comes in quite clearly on one valve, and that KGO is another station from which he derives much pleasure. The New Zealand amateurs are clearly received, as also are New South Wales and Victorian experimental transmissions.



The Lighthouse at Cape Brett, via Russell, New Zealand.



Mr. A. V. Pearce entertaining his wife and daughter with speech and music from Farmer's at Cape Brett.

BUY RADIO GIFTS FOR XMAS

Procedure of Experimental Transmitting Stations

A NUMBER of our readers have written asking us for information concerning the system of calls and traffic exchange by experimental transmitters.

Away back in March we published a full explanation by the then Secretary of the Australian Radio Relay League when that body looked like getting busy. For the benefit of those who are interested in amateur activities and who like to know the meaning of the many signs, we quote the following extracts from our previous article in the March 14th issue. A list of the ordinary commercial abbreviations such as QRA, etc., was published in *Wireless Weekly*, August 29th. When calling a station situated in the same State the word "De" should be used. This is taken from the French "de", meaning "from," so that 2HM calling 2CX would proceed as follows: 2CX, 2CX, 2CX, de 2HM, 2HM, 2HM, Qtc., signifying that 2HM had traffic for 2CX. If however, 2HM wished to establish communication with an amateur in some other state, the break sign "A" is substituted for "de". For instance assuming the distant station to be 3BY Victoria, the calling would be as follows: "3BY 3BY 3BY A 2HM etc. If a New Zealand is being called, the sign separating is "Z.A." If a New Zealand station calls an Australian these letters are reversed viz, "A.Z."

It has been decided internationally by amateurs that the following sign letters be allotted to countries:—

- A—Australia.
- C—Canada.
- F—France.
- G—Great Britain.
- I—Italy.
- M—Mexico.
- N—Netherlands.
- O—South Africa.
- P—Portugal.
- Q—Cuba.
- R—Argentine.
- S—Spain.
- U—United States.
- Z—New Zealand.

Unofficial Abbreviations.

We have often heard ZAAA using the signal . . . — . — This is a brand of Americanese sig-

nifying O.K. as in American code the letter O is signalled as two dots very slightly spaced. The abbreviation O.M. (old man) is also frequently sent thus. The laugh signal is sent by American and Australian stations as three dashes and one dot (— — — .), by English stations as MIM, and by New Zealanders sometimes as AUTT. The word "and" in the American landline code is signalled as . . . and this is also extensively used among amateurs.

STATIONS HEARD.

Mr. W. H. B. Bowers, Kew, Victoria, sends us the following list of calls heard between November 15 and December 5. His receiver of 0g₂ tuned R.F. and detector.

Fone, N.S.W.: 2RJ, 2HM, 2VX, 2GQ, 2WS, 2YL, 2JM, 2AV, 2BL, 2GR, 2ZN and 2BM.

South Australia: 5DN, 3BG, 5AC, 5AH, 5AI, 5BN, 5AC.

Queensland.—4AN.

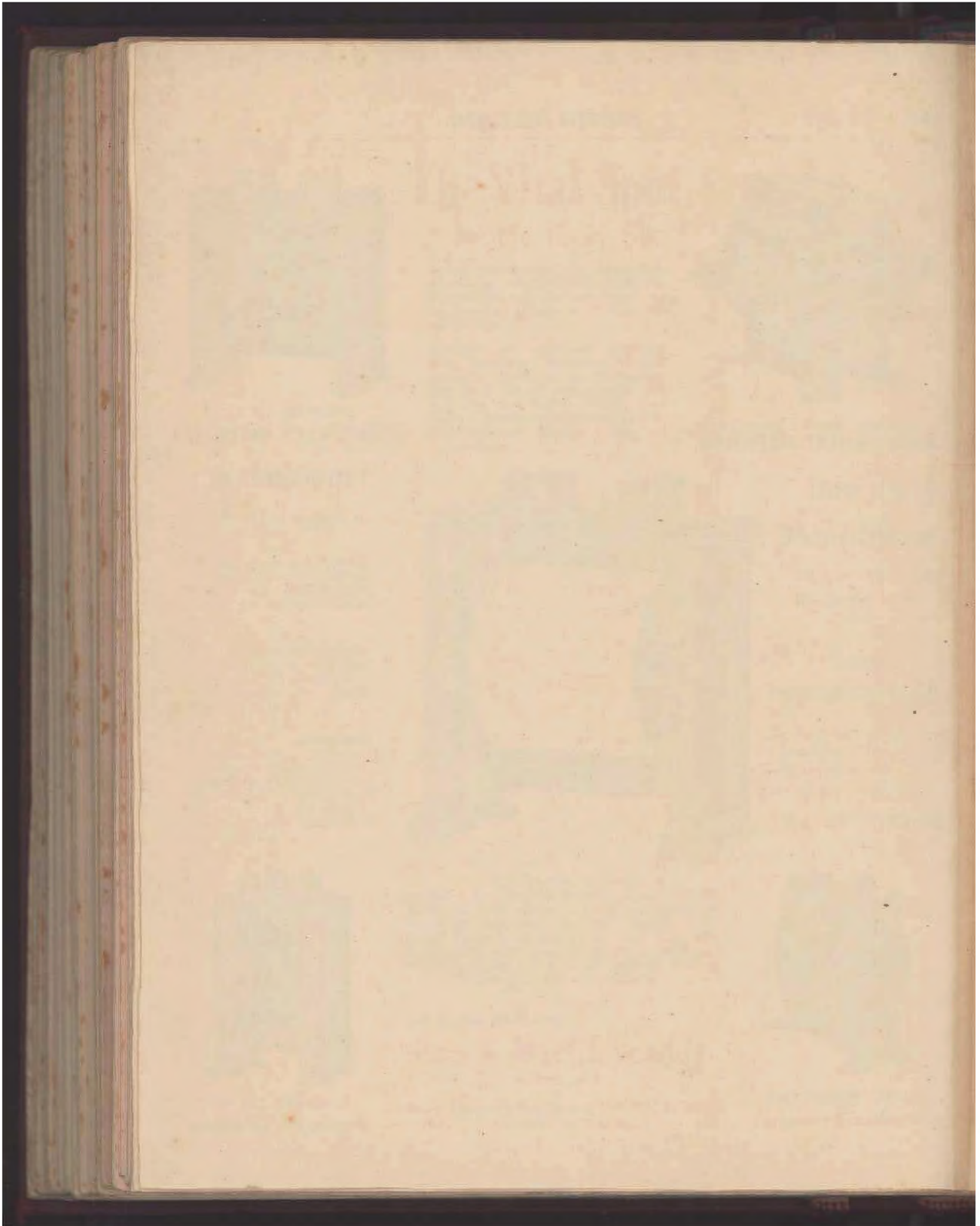
U.S.A.: WGY.

Morse Only.—N.S.W.: 2GM, 2BK; **Tasmania:** 7BK; **W.A.:** 6AG; **N.Z.:** 4AC.

FIRST AMBULANCE SEAPLANE

A NEW Fairey seaplane has been built for service in British Guiana, between the plantations of a company and the nearest township, and has been equipped with wireless apparatus by Marconi's Wireless Telegraph Company Ltd. It has been launched for tests at Hamble, near Southampton. This machine has been specially designed to carry white men who fall ill with fever on the plantations to the nearest place where they can obtain treatment, hitherto the journey, though little more than 200 miles, has taken seventeen days owing to the many rapids on the river necessitating portrages, and many sick men have not survived it. The seaplane will accomplish the distance in little more than two hours—the biggest reduction so far obtained on any route.

The Marconi installation will enable telegraphic or telephonic communication to be carried on with both ends of the route. A special wireless ground station has been erected on the estates to work in conjunction with the seaplane.



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Wiles' Wonderful Wireless

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53 PITT STREET
(Near Circular Quay)

Construct your own receiving set. Complete building instructions supplied with each order.

Parts for Single Slide Crystal Set

1 Maple Base Board	2 0
2 Maple Ends	1 0
1 Wound Primary Coil	2 5
1 Piece Drilled Board	1 1
1 N.P. Slider and Bar	2 3
1 N.P. Detector Parts	1 9
1 N.P. Transformer	1 1
1 Guaranteed Crystal	1 0
34 9	

Parts for Loose Coupler Crystal Set

1 Maple Base Board	2 0
1 Sec. Maple Ends	2 0
1 Sec. Rod Support	0 3
1 Wound Primary	2 5
1 Wound Secondary with Slipring	8 0
1 N.P. Slide and Bar	0 2
1 Piece Drilled Board	1 1
1 N.P. Detector Parts	1 7
1 N.P. Transformer	1 4
1 Pair N.P. Sec. Ends	1 6
1 Switch Arm	1 6
19 N.P. Studs and 2 Slugs	1 0
1 Yard Bell Flex	0 4
33 11	



Pat. Reg. No. 5514

"Wonderstone" Crystal Receiving Set, as illustrated in polished Rosewood Finish of excellent design complete. American 32 Loose Coupler Crystal Set, in Walnut Finish. Complete. "Clearstone" Loose Coupler Crystal Set, in Maple Finish, Complete. Single Slide Crystal Set, in Maple Finish. Complete. All the above Crystal Sets are complete with headphones, aerial wire and insulators.

Parts for a 1 Valve Amplifier to use a Lead Sender on your Crystal Set

1 No. 1 & 2 3/4 Reheats	4 8
2 Jefferson Star Transformers	42 0
2 Edison Rheostats	2 0
2 English Valve Holders	2 0
2 N.P. Terminals	0 8
2 Lengths Panel Wire	0 8
Screws and Nuts	0 8
49 0 8	

Construct your own amplifier to connect to your crystal set and increase the volume of your Crystal Receiving Amplifier.

1 No. 1 & 2 3/4 Reheats	4 8
1 Jefferson Star Transformer	42 0
1 Edison Rheostat	2 0
1 English Valve Holder	2 0
2 N.P. Terminals	0 8
2 Lengths Panel Wire and Screws	0 8
51 11 11	

HEADPHONES

Superphone, 2000 ohms	12 0
Flex, 2000 ohms	1 0 0
Monocoh's 2000 ohms	1 5 0
Monocoh's 3000 ohms	1 7 0
N. A. S. 4000 ohms	1 7 6
Max. I. Special, 2000 ohms	1 7 6
Headphone, Special, 3000 ohms	1 7 8
Flex, 2000 ohms	1 12 0
Triphon's Headphone	1 12 0

Standard Matched Tone	15 0
Flex, 2000 ohms	1 17 6
Western Electric, 3000 ohms	1 17 0
Stetson, 4000 ohms	2 4 0
Silverton, 5000 ohms	2 10 0
Tremont's Professional	2 5 0
Belwin Type C, Mix	2 5 0
Deaphone	2 5 0

ACCESSORIES

2 Dry Cell Valves	10 0
2 Columbia Cells	12 0
1 12 volt B. Battery	12 0
34 0 0	

ACCESSORIES

1 Dry Cell Valve	5 0
2 Columbia Cells	12 0
1 12 volt B. Battery	12 0
34 0 0	

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Woods Electric, 500 4000	2 10 0
Coastline "Crystal"	2 10 0
Maxellon "Crystal"	1 15 0
Argillon, 40	2 0 0
Argillon, 5	4 15 0
Capiton, 15	2 0 0
Marshall "Water"	2 0 0
Maxellon "103"	10 10 0
PAU "Horn"	8 5 0
Working Amphibian	8 0 0
Magnette, Type M1	4 10 0
Argillon, Type 35	5 0 0
Deafon, "Horn"	21 5 0
Woods	15 10 0

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Mail Order Dept.: 42 Goulburn St., Sydney.

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GEC VALVE—R.5v.

In designing the GecoValve R.5v, the object in view was to create, if possible, a valve that would function efficiently as a detector, radio amplifier, and low frequency amplifier. It has not been possible hitherto to evolve a valve that will give equaling for a wide difference in applied plate voltage, satisfaction as a detector and amplifier, even allowing for a wide difference in applied plate voltage but in the GecoValv R.5v, a certain uniformity of excellence has been attained which makes the valve quite remarkable amongst the latest developments in valve design. In other words, by a suitable variation of plate voltage it is possible to secure a highly efficient detector, radio amplifier, and low frequency amplifier.

The particular advantage of such a valve to the amateur and experimenter consists in the ready use which can be made of any spare R.5v. valves to fill a gap in a multi valve set.

Not only has this flexibility in characteristics been achieved, but the design of the element also presents features which are of interest. The fla-

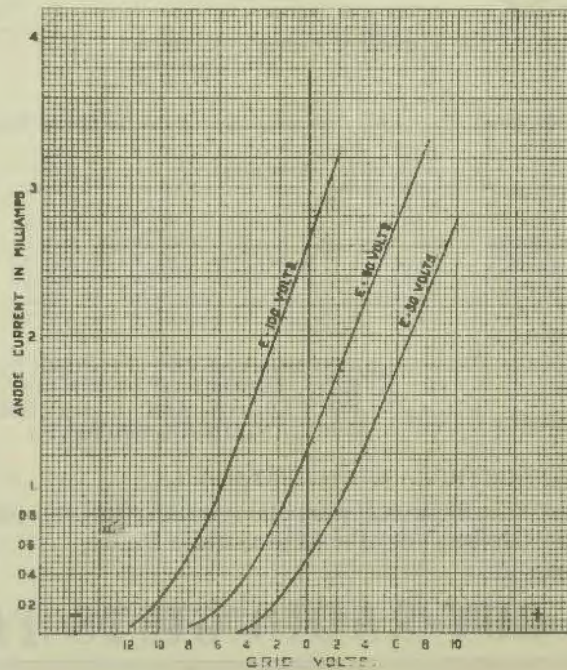
ment suspension is well up to modern practice, and a generous design of grid ensures complete control and sensitivity. The element is as robust as possible consistent with the requirements and conditions of manufacture, and has in this sense advantages which the amateur will appreciate.

In settling upon a filament voltage, the value of 5 volts was selected in order that the full voltage of a 6-volt accumulator, if accidentally applied, would not result in undue overheating and a consequent reduction of effective life.

A study of the curves shown herewith is illuminating. The amplification factor of 8 is remarkably good, and the general behaviour as a low frequency amplifier appears in consistent with efficiency as a detector, but this is not the case, as it is shown that with an anode voltage of 30 to 45 remarkably good results are obtained.

The characteristics of the valve are as follow:—

- Filament volts—5.
- Filament amperes—.85.
- Plate volts—30 to 150.
- Impedance—35000 ohms.
- Amplification factor—8.



GeoValves are manufactured at the Osram Works of the General Electric Company, England, and it may be of interest now to refer briefly to the design of the R.5v. valve, and to describe some of the manufacturing processes used, which differ in detail from those employed in the production of other types.

This valve is of the bright-emitter type, requiring a filament voltage of 5 and taking a filament current of 0.66 ampere. The filament is in the form of a vertical triangular loop, and the grid consists of nickel wire wound round a U-shaped support so as to form a flat cage. The anode, which surrounds the grid and filament, is in the form of a Battend cylinder, and is made of thin nickel sheet. The supports for the grid, anode, and filament are of stout nickel wire, to which is attached, by spot welding, a short piece of composite wire consisting of a nickel core with a copper coating, the combined co-efficient of expansion of the two metals being practically equal to that of glass. This part, when sealed into the glass pinch, forms a gas-tight joint, and a length of copper wire, spot welded on to the other end of the composite wire, enables the electrical connections to be made. Four of these supports are required for each valve—one each for the grid and anode and two for the filament; an additional support, not electrically connected with the exterior, is provided to hold the upper end of the filament loop.

(Continued from Page 19)

management. The test was so successful that the management of these theatres which are established in many of the suburbs, has asked Mrs Hume to arrange a programme for Boxing Night, December 26, and have undertaken to compensate the artists. Mrs. Hume has already engaged several well known local artists including Messrs. Fred Williamson (late of J. C. Williamson), Alfred Garret, and Athol Lykke, Mrs. Leslie Todd, Miss Angelita Davis, M.B., A.C.T.L., and Miss Murial Marks for this occasion. The programme will take from 8 p.m. to 10 p.m. and will be picked up by a receiving set in every Star theatre. An experienced operator will be in charge of each set. The operator at 5DON N will be Mr. L. C. Jones who will be well remembered by all old interstaters as the owner of station 5BQ. 5DON N is still working three nights a week, and the enjoyment of the programmes has

been enhanced by occasional items by local artists, a number of whom have been heard during the past.

A Conservatorium Concert.

Through the medium of 5DON N another Conservatorium Concert was broadcasted a fortnight ago. The transmission was on the usual power and reports have since been received that the music was strong and clear.

United Distributors Ltd., open new Branch in Adelaide.

A wholesale branch of this well known firm of radio dealers has been opened at 27 Chesser Street, Adelaide. Mr. J. J. Higgs has come from Sydney to take charge of the branch and expects to do a great business when broadcasting starts.

Association of Radio Dealers.

About fifty radio dealers in and around Adelaide have formed themselves into an Association to watch broadcasting interests in this State. Many of these dealers have been in business for some considerable time and, through the unsatisfactory delays in granting an A class license, have been heavy losers financially. Mr. Miller was elected Chairman of the first meeting and Mr. W. R. West honorary Secretary pro tem.

WIRELESS INSTITUTE OF AUSTRALIA.

South Australian Division.

The December meeting of the South Australian Division of the Wireless Institute of Australia was held on Wednesday, December 6th in the Prince of Wales Lecture Theatre, Adelaide University. There was a very large attendance which was presided over by Mr. R. B. Caldwell (President). The controller of wireless in reply to the Institute's letter regarding the amateur operator's examination, stated that rather than risk charges of unfair discrimination by dispensing with the examination, it had been decided to apply the regulations with very few exemptions, which would be granted only in very exceptional cases. A letter was received from the New South Wales Division enclosing extracts from the minutes of a combined meeting of the Executives of the Victorian and New South Wales Divisions. A letter was also received from the Victorian Division stating that they had asked transmitters in their division to stand by on a wavelength of 150 metres between 7 and 7.15 p.m. and between 10 and 10.15 p.m., to listen for Interstate transmitters, also that those intending long distance transmission should learn Esperanto as a means of communicating with other countries. What proved to be a great

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attraction was the testing of a number of loud speakers by Messrs. Harry Kauper and H. L. Austin.

The set was worked from a loop aerial, and a coil and shunted condenser were connected to an outside aerial and used as a pick up device, being loosely coupled to the loop set, the distance between the two coils being about 4 ft. Mr. Kauper explained the method of using an exterior aerial in conjunction with an indoor loop aerial for reception. Mr. Buckerfield 5DA, obligingly transmitted music for the tests. At the close of the meeting a vote of thanks was tendered to Mr. Kauper and Mr. Austin for their assistance and also to Mr. Buckerfield and to Messrs. Newton, McLaren Ltd., who loaned several loud speakers for the test.

AUSTRALIAN WIRELESS MANUFACTURE.

DURING the course of the year we have seen many new ideas and adaptations of old ideas in new form in regard to wireless. Some of these developments have been in regard to imported apparatus; others have been evolved locally. In considering new apparatus we oftentimes lose sight of the fact that it is far more valuable from a national point of view if such apparatus has been produced in Australia. Australian manufactured wireless products are steadily making headway, and it has been acclaimed by many experienced users that the locally produced article is in many cases far superior to the best imported. It is rather a pity that so much wireless apparatus has been imported into Australia, for it but enriches one or two importers and the foreign manufacturer at the expense of the Australian artisan who is deprived of continuous employment to the advantage of foreign labor. It is however, pleasing to record that a wide range of wireless apparatus is being produced at the Radio-Electric works of Amalgamated Wireless (A/sia) Ltd., at Sydney. Some of the particular products produced by this company during the year include ships marine installations of the very latest type, several 5 k.w. broadcasting transmission sets and 2 k.w. broadcasting transmission sets, several types of Radiola receiving sets, including the Radiola Super-sonic 6 valve receivers. In the way of accessories and component parts the company has manufactured extensive stocks of Audio Frequency Transformers and Honeycomb coils which are giving excellent service throughout Australia.

The Company has lately installed a new valve plant comprising the very latest machinery for the production of every type of valve, and during the

year a deal of research and experimental work has been concentrated on the production of two valves—one the AWA33 and the other the AWA39—and the excellent results that have been achieved by both experimenters and broadcast listeners-in augurs well for the extensive use of these valves during the coming year.

Where quality and price of Australian-made apparatus compares favourably, as it does, with the imported article it should not need much argument to convince Australian experimenters and broadcast listeners-in that in supporting Australian industry they are helping to build up a national wireless industry that should serve Australia well in times of both peace and war, and tend to make Australia self-supporting and independent of foreign manufacturers in respect of the industry. Apart from keeping money in the country which would otherwise go abroad, an unassailable argument in the support of the local industry is that it helps to find employment for Australian workmen and careers for Australian radio engineers who can find scope for the application and development of their talent in Australia.

"THE CRYSTAUDIO."

THIS novel piece of apparatus has been designed by Cole & Cureton for use in homes where loud speakers are not used. We were asked by the manufacturers to test one of them and publish an unbiased report. The "Crystaudio" is a simple invention, but one that will be found a boon to those who are unable to get a loud speaker or extra telephone to enable all the members of the family to listen in at the one time. It consists of a diaphragm contained in a central piece from which radiate eight rubber tubes each equipped with a cap for inserting in the ear cavity.

The caps of the ordinary telephones are unscrewed and the ear pieces clamped one each side of the diaphragm of the Crystaudio; thus eight persons may listen in at the one time.

On Farmers and Broadcasters we found this novel instrument gave excellent results with both crystal and valve sets.

Max Howden, 3BQ, seems to be compiling a list of British amateurs by the direct action method. To December 21st he had actually worked the following "G's": 2OD, 2DX, 2SZ, 2NN, 2KF, 5LF—and has also twenty-one Americans to his credit.

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STRATHFIELD AND DISTRICT RADIO CLUB.

The usual weekly meeting of the Club was held at the Club-room at Mr. Powell's residence, corner of Albert Road and Duke Street, South Strathfield, on Thursday evening, 11th inst.

Mr. A. F. Jacob occupied the chair and there was a good attendance of members who were treated to a very interesting lecture by our genial friend, Mr. C. M. Cutts, well known in wireless circles as the popular Secretary of the Croydon Club and for his activities in connection with the Wireless Institute. His subject was "Selectivity in Valve Receivers, and How Obtained," with particular reference to the 3 valve, 3 coil circuit employing one stage R.F. and Detector. The circuit was taken step by step and its characteristics and method of operation very fully and clearly explained. A few remarks on the working characteristics of hard and soft valves rounded off a very fine lecture and the discussion which followed indicated the keen interest displayed by members. A hearty vote of thanks to the lecturer concluded the proceedings. Mr. Cutts has kindly volunteered to deliver a series of elementary lectures to our Club when occasion permits, which will be much appreciated.

In future, commencing on Monday, 15th inst., our Club meeting will be held on Monday evenings instead of Thursday, it being a more suitable day both for officers and members and avoid clashing some other clubs' meeting nights. A party of our members visited Croydon Club recently and thoroughly enjoyed the experience. While on this subject I might mention that visitors from other clubs will receive a cordial welcome at our meetings any time they care to come along.

New and remarkable developments in the wireless world are matters of almost daily occurrence

nowadays. The club movement provides a cheap and interesting way for anyone interested to keep in touch with these developments, and obtain reliable advice from competent authorities on the construction and operation of apparatus, from the humble crystal set to the multi-valver.

A few more new members would be welcomed in our Club. The Hon. Secretary, Mr. K. Campbell, 44 Bayard St., Mortlake, will be glad to supply anyone interested with the necessary particulars regarding membership.

THE GOSFORD DISTRICT RADIO CLUB.

The above club was formed on 3/7/'24, with about seven members, and meetings were held in the residence of one of the members. Buzzer practice, lectures, and demonstrations were arranged, and every assistance given to members constructing sets. The club has received much publicity through our local paper, "The Gosford Times," and there is little doubt but that this greatly assisted the Club in the steady growth that it has enjoyed. A wireless column is written by members of this club where radio hints are offered, local activities mentioned, and the articles given the local touch that helps to make this readable matter for all. Through these columns the club is always mentioned. The method of providing lectures has been that one of the members undergoes a course of instruction at the Club's expense and imparts the result of his studies to the remainder. This arrangement has proved very satisfactory, as there is always something new, and as the course covers a fairly wide scope there is something to be learned by all.

Visits to local places have been arranged. It was recognised about three months ago that a larger meeting room was necessary. The Masonic Lodge people kindly came to our assistance and placed a large and well lighted room at our disposal where we have since held our meetings. There is every facility available in the way of an aerial, buzzer sets, blackboard, etc., for conducting a wireless meeting. The club's set is in course of construction and will be a two valve reflex portable set.

The Light Horse Troops approached our Club last month with an affiliation scheme. Their work runs along similar lines to our own. This was

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accepted, and we are now working together to the mutual benefit of both parties. This year's work is nearly ended, but we would like to hear from any other go-ahead clubs with a view to exchanging lecturers, etc., next year. Address: The Secretary, Gosford District Radio Club, c/o P. Hoare, Mann St., Gosford.

STRATHFIELD AND DISTRICT RADIO CLUB.

The usual weekly meeting of the Club was held at the Club rooms, corner Albert Road and Duke Street, South Strathfield, on Monday evening 15th instant.

Due to this being the first meeting on the altered meeting night, and the difficulty in advising all members in time, the attendance was not so large as usual but a fair number rolled up. Committee business having been disposed of, a lengthy and interesting discussion on valves and their characteristics took place. The Secretary, reinforced by knowledge gained by recent visit to the Institute's Headquarters, where he witnessed the screening of the film on "The Audion," and with the aid of a suitable textbook, led the discussion and was able to explain a few of the hidden mysteries of the valve and its working.

At our next meeting, the Electron Theory will be further dealt with and the methods of plotting, and the usefulness of the characteristic curves of various types of valves, briefly explained. Matters generally are progressing favourably with our Club, and the Committee have in hand the arrangements for provision of an interesting programme of Club activities for the New Year.

Our worthy members, Messrs. T. and H. Harris of Mintaro Avenue, South Strathfield, are still keeping up their good DX form, having consistently received both American and English stations the past few weeks on one valve, and a good Australian made Expanse B at that. The writer had the pleasure of a visit to their station recently, and was agreeably surprised by the efficiency of their home-made apparatus and its operation. Several other members report having obtained excellent results of late.

Members and intending members are requested to note the alteration in the club's meeting night from Thursdays to Mondays, and correspondence regarding membership or the club's activities addressed to the Hon. Secretary, Mr. K. Campbell, 44 Bayard Street, Mortlake, will receive prompt attention.

THE LEICHHARDT AND DISTRICT RADIO SOCIETY.

On Tuesday, December 16th, the 9th and final lecture of Syllabus No. 2 was delivered by Mr. F. Thompson before the 112th general meeting of members of the Leichhardt and District Radio Society.

The meeting was held at the club-room, 175 Johnston Street, Annandale, and was very well attended.

Mr. Thompson's lecture, which dealt with the subject of "Valve Circuits," proved very interesting and instructive, and was productive of a number of questions at its conclusion, after which a vote of thanks was carried by acclamation.

The Society has now gone into recess over the Christmas and New Year holidays, and will recommence its activities on January 6th, when the 29th monthly business meeting will be held. A week later the 115th general meeting will be held.

CROYDON RADIO CLUB.

The usual meeting of the Croydon Radio Club was held on Saturday, December 13th, 1924 at the club rooms, "Aockleigh," Lang Street, Croydon, at 7.30 p.m. The meeting was wholly devoted to the construction of the transmitter which is expected to be completed early next year. The meeting closed after light refreshments, at 10 p.m.

All intending members are respectfully invited to communicate with the Hon. Sec., Mr. G. M. Cutts, "Carwell," Highbury Street, Croydon.

An announcer for an American Broadcasting station, recently told his listeners the joke about the first loud speaker having been made from Adam's rib. A few days later he received a letter from a fan asking him to repeat the story, as he didn't quite catch it. So our friend announced, the following day, that he had been requested to repeat the story about Adam's rib being used to make the first loud speaker, but he didn't dare repeat it, as he had also received dire threats from various women for telling it the first time. Then came the letter that capped the climax. A fan wrote:

"Since you can't repeat the story about using Adam's rib to make the first loud speaker, will you please write it and mail it to me in the enclosed stamped envelope? If it's as good as it starts, it must be a hum-dinger."

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We also have the "UTILITY" Set of Parts ready to assemble and complete with knob: 49 plate 8/6; 25 plate 6/6; 15 plate 5/8.

The Crystal Set (shown at right) is our latest Reflex Rotocoupler. It has vulcanite rotor with dial setting for secondary tuning. For selectivity and volume there is no Crystal Set to equal it. It is finished in the usual Reflex manner.

PRICE £4/5/-



To the left we have a beautiful Eismann 3 Valve Set, supplied complete, as illustrated, with all accessories, £36.

A Complete Set of Parts to make this Set (including Maple Cabinet, but not including valves, batteries or phones. . . . £16



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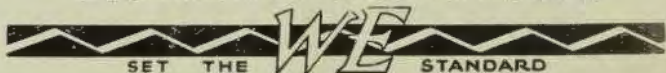
The 50 years' experience and research work associated with producing over half the world's telephones explains why Western Electric is a name to trust in buying radio equipment. With Western Electric there are no disappointments.

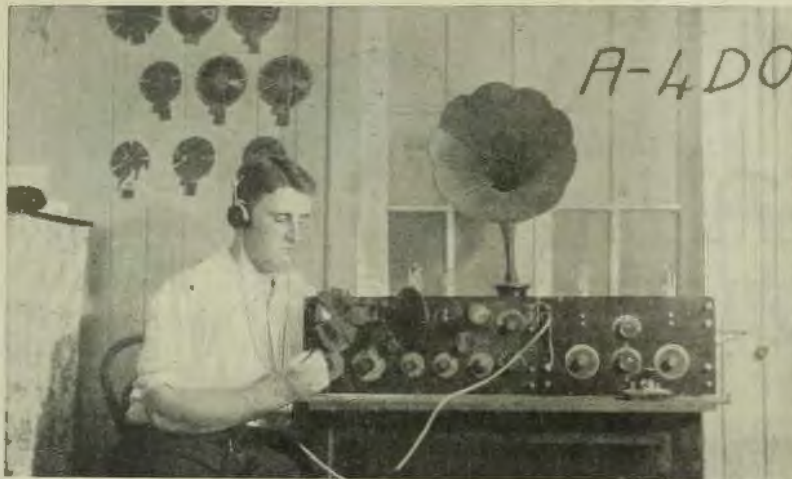
Western Electric Loud Speakers are available in sizes to suit every requirement. If not obtainable from your radio dealer, call at our showrooms for a demonstration.

Send for copy of interesting wireless booklet, entitled "Wireless Days and Nights."

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MR. A. L. HOBLER, Rockhampton, whose DX lists have been published from time to time in "Wireless Weekly." The five-valve receiver shown above gives splendid results, although as a rule only three valves are used. In three months over 60 experimental stations in all States except W.A. have been received, also New Zealanders and Americans. Briefly, results may be summed up as follows:—

Received 2BL, 800 miles airline, repeatedly in daylight on one valve. Received 2FC and 3LO, 800 and 1200 miles, repeatedly on one valve. Logged 1YA 3 feet from phones on 5 valves, 2000 miles, when this station was radiating 25 amps. The reception of KGO, 6000 miles, 29 times, including 20 times on one tube. KGO has been heard repeatedly on one valve in daylight through one headphone, and was once copied 4 feet from the loud speaker, using 2 valves, no audio. Owing to the intense QRN, listening has been practically out of the question from the beginning of October. During the "Wireless Weekly" tests it was pretty bad, and it was difficult to read any messages accurately through.

ENGLISH FIRM NOW INSURES RECEIVERS.

LONDON.—The insurance salesman now has a chance to take on one more branch of work about which to be "kidded." An insurance company here, struck by the number of Radio sets installed among its clients, has issued a new "Radio Policy"; not against lightning in time of storm, but against theft, fire, and even a general deterioration from short circuits or any wrong adjustments.

**STATIONS HEARD.
A VERY GOOD LIST.**

The list below presents one of the best we have seen for some time. The stations were logged

either on one valve or a crystal by Mr. Rex King, Court House, Tenterfield, N.S.W., who has made notes of practically all of the stations mentioned, with regard to weather conditions, etc. Quite a number were received on phone.

- 2AR, 2AW, 2AY, 2BB, 2BC, 2BF, 2BK, 2CL, 2CL, 2CM, 2CW, 2CX, 2DE, 2DK, 2DN, 2DS, 2ER, 2FA, 2FF, 2FN, 2GM, 2GW, 2GR, 2GQ, 2HM, 2IJ, 2JM, 2LI, 2LO, 2MU, 2ME, 2OI, 2RA, 2RJ, 2TS, 2UW, 2VM, 2VX, 2VK, 2WN, 2WV, 2XX, 2YG, 2ZG, 2ZZ, 4AA, 4CM, 4AG, 5DN, 5L(?)O, 3GB, 3BD, 3LO, 3AR, VIS, VIA, VIB, VIC, VII, VIJ, VIM, VIO, VIP, VIR, VIT, VIW, VLA, VLC, VMR.

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Friday, December 26, 1924.

WIRELESS WEEKLY

Page Forty-Three

Kilbourne & Clark RADIO PARTS

PHILMORE RADIO PARTS JUST LANDED

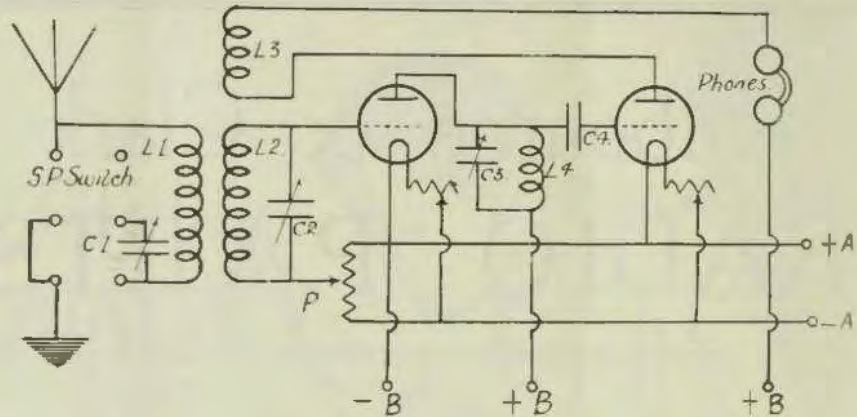
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SOLE AUSTRALIAN DISTRIBUTORS



A VERY GOOD CIRCUIT

THE diagram above shows a two-valve tuned anode circuit, which gives very good results. The potentiometer P should be between 200 and 600 ohms.

Condenser values as follow:—C1, .001; C2, .0005; C3, .0005—all vernier, if possible; C4, .00025. It will be noticed that provision is made for different values of high tension battery on the valves.

The coils required for the various wavelengths are:—

	Amateurs.	2BL.	3AR.	2FC.	6FF.	3LO.
L1	25 ..	35 ..	50 ..	100 ..	150 ..	200
L2	25 ..	50 ..	75 ..	150 ..	150 ..	200
L3	35 ..	50 ..	75 ..	100 ..	100 ..	150
L4	25 ..	50 ..	50 or 75.	150 ..	150 ..	200

Of course, these values are only approximate, as different aeriols require different coils.

A strange radio freak is reported from Port Arthur, Canada, mystifying the experts, who believe that a vagrant leakage of high voltage electricity from some power plant is responsible for the peculiar conditions.

The strongest power stations cannot communicate with grain ships more than seventy-five miles distant, except by using four hundred metres, which wave length gives normal results. Any other wave length is subject to interference.

Experts from Toronto and New York spent weeks in trying to solve the mystery without result.

Eighty colleges and universities in the United States have broadcasting stations.

If the B. Battery voltage is accidentally applied to the vacuum tube and the filament of the tubes do not burn out they are made inactive unless a plan is made to "break" them. This consists of leaving them lighted in the sockets for a half hour or so without the B. battery connected. This

generally restores them to a normal working condition.

When winding a loose coupler both coils must be wound in the same direction to ensure the best results.

In our last issue an error was made in Mr. Malcolm Perry's article "Radio Enters The Home." The second paragraph read "Some people have attempted to judge radio music by demonstrations they have heard on ships." The last two words should have been "in shops." Incidentally Mr. Perry mentions that ships would provide the very best possible field for demonstrations, situated as they are so far away from interference.

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Maple Loose Coupler Ends Set of 4	2/3	UV 199 Radiatron Valve	30/-
Contact Stops, N.P. per doz.	1/-	Socket for UV 199 Valve	4/-
Contact Studs, N.P. per doz.	1/-	"Modern" 4 to 1 Transformers	25/-
N.P. Runner Rods each	1/-	"Emmeo" 3 & 5 to 1 Transformers	21/-
Crystal Detector Parts on Card	2/9	Primary Tubes, Wound	3/6
S.P. D.T. Knife Switch	2/9	2200 Pico Head Phones	25/-
D.P. D.T. Knife Switch	5/-	4000 British Mel. Head Phones	25/-
Valve Sockets, "R" Type	2/6	4000 Brande's Superior Head Phones	40/-
Lin. Switch Arms	1/6	Footo Variotector	10/-
Crystal Caps 6d. & 9d.		All Types of Crystals from	1/-

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

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OUR ONE VALVE AMPLIFIER—COSTING ONLY £7/7/—READY FOR CONNECTING UP—
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Masts, wood and steel, any size from 20 ft. to 200 ft.; Aerial Wire; Insulators; Spreaders; Ash and Metal Hoops, all sizes; Rigging Wire; Screws; Halyards; Anchor Pegs; Trucks, etc.; Wireless Cabinets, any design; Portable Poles and Aerials, a speciality. Flags of all Nations and designs.

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

Sacrystal

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

Sacrystal

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

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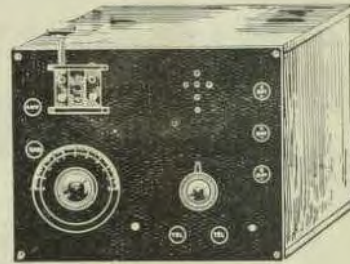
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Comparison will prove that these prices cannot be beaten in Sydney:

Valve	11 6
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Grid Condenser and Leak	4 6
.0005 Variable Condenser	9 6
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Extras required are Phones, A and B Batteries and Aerial.

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THE CRYSTAL MENACE

By "Valve"

SINCE the advent of broadcasting the lot of the wireless experimenter has been hard, much having been said concerning the interference of broadcast reception by the incautious use of valve receivers. At present this annoyance has considerably abated, but, however, a fresh trouble is now perceived and unless remedied may cause more serious jamming in the future than already noticed in the past. The offender in the present instance is the common "crystal set," usually supposed to be entirely harmless, however used.

In the first case the trouble can be detailed as follows: The valve receiver is adjusted, we will suppose, to the reception of CW transmission from another amateur station. All goes well until the operator of the local crystal set comes on watch. Immediately he connects his aerial to the apparatus the valve receiver at the adjacent stations ceases to oscillate. This, of course, stops the C.W. reception, which can only be regained by an increase of reaction and a re-adjustment of tuning. All may now be well unless the crystal operator makes any change in his wavelength. Should he do so, the wavelength of the valve set immediately changes and the CW from the transmitting station is again lost. As will be seen under these conditions the reception of CW presents considerable difficulty.

The interference to the reception of telephony is of a slightly different character, and in the case of reception of faint signals, of considerably more annoyance. The valve receiver, to obtain the loudest signals, is adjusted to the point where oscillation is obtained and reception commences. After a time we will suppose the crystal receiver comes into operation and immediately the valve receiver falls considerably from the oscillation point. To once again receive, the reaction is tightened and a re-adjustment of tuning is made. This will remain in force only so long as the crystal set's wavelength is steady. Should the wavelength be altered in any way, however, the valve set immediately oscillates violently and the reception of telephony is rendered impossible. During transmission the interference by crystal is unfortunately

very great, affecting as it does both power output and wavelength. Stability of wavelength is absolutely essential, on the part of the transmitter, as the slightest variation will cause interminable re-adjustment on the part of the receiving station. The slightest change of stray capacity or inductance is sufficient to vary the wavelength a metre or two, as well as rendering the modulation unsteady. The absorption of energy by the aerial of the crystal station can quite easily decrease the power output of the transmitter by 50 per cent., a serious matter when the experimental power output is limited to 10 watts. The introduction of loosely coupled and closely tuned circuits may serve to minimise if not eliminate the growing danger of interference. The interference or "jamming" of experimental stations would be greatly minimised if the crystal operators discontinued listening in at the termination of the broadcast programmes instead of endeavouring to pick up experimental stations carrying out tests. It should be noted that to avoid giving undue trouble to transmitting stations, the aerial of the crystal set should be connected across a lightning arrester, and not directed to earth as is the usual practice. The reason for the above is that the aerial when connected directly to earth, and if situated in close proximity to the aerial of the transmitting station, will provide an extremely easy path to earth for the current radiating from the transmitting aerial, and thus greatly decrease its effective range of communication.

The interference by crystal of a valve receiver when in tune for reception of C.W. is very apparent. The valve receiver is radiating a very feeble wireless wave of continuous character the whole time CW reception is being carried out. This feeble current leaves the aerial and immediately encounters the aerial of the crystal set, whence by way of the inductance and crystal it reaches earth. This leakage causes a load on the valve set, and unless the reaction is increased the set ceases to oscillate. Any variation of reaction causes a slight variation of wavelength which must be counteracted by retuning. The results referred to above were noted

(Continued on Page 54)

BUY RADIO GIFTS FOR XMAS

Why you should use the new

GEC_oVALVE

(Made at the OSRAM Lamp Works)

- 1 They are made at the factory with the greatest experience of valve manufacture in the British Empire — the Osram Lamp Works.
- 2 Because their manufacture is directed from the Research Laboratories of The G.E.C., Ltd., at Wembley—the largest in the electrical industry of the Empire.
- 3 They meet every requirement —“a valve for every purpose.”
- 4 Each valve is subjected to no fewer than eight tests before leaving the factory.
- 5 Freak design plays no part in the arrangement of the electrode system, which has proved itself the best in practice.
- 6 The characteristics of each type are chosen by scientists who are not only Valve Experts, but also experts in the design of Wireless Sets.
- 7 They are manufactured from raw material to finished product by the same British organisation.
- 8 They are made to last.



TYPE DE3.

For use with Dry Batteries. Has the exceptionally low current consumption of 0.06 amps.

Price . . . 32/6

British General Electric Co. Ltd.

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and at Newcastle, Melbourne, Adelaide, Perth, and N. Bell & Co. Ltd., Brisbane, Wellington, Dunedin, Auckland, N.Z.

EXTENSION OF HARRINGTON'S RADIO DEPARTMENT

THE phenomenal growth of the radio business of Harrington's Ltd., photo and radio warehouses, has rendered it necessary to considerably increase the accommodation of their radio department. The extensive basement of their well known premises at 386 George Street, Sydney, has therefore been handed over to the radio department.

The new department, which was inspected on November 26th, by a large gathering of leading business men and others interested in radio work, is elaborate in every detail. No expense has been spared to make the showroom complete in every respect. The large stock, which comprises every conceivable radio requisite, is attractively displayed, and contains the latest and highest quality radio receiving sets, which include the now well known "Imperia" crystal sets, valve and crystal and valve sets.

Harringtons Ltd., have long realised that in radio the first consideration must be quality, and that the only way to give their customers satisfactory results is to supply them with apparatus of first quality only. This policy is reflected in high grade equipment which is on view in the new department. The display of Gilfillan parts and Marco products is worthy of special note.

To assist customers, an expert staff is available at all times, ready to give any information or advice and to demonstrate any of the equipment.

The new department is readily accessible from the ground floor of Harrington's premises by means of a stairway on the immediate right as one enters from George Street, or by the lift.

You remember the story of the Scotchman who was not feeling as well as usual and called on his family doctor, who looked him over and gave him some pills to be taken at bed-time. A bottle of whiskey was also prescribed for his stomach's sake—a small glass to be taken after each meal.

Four days later, Sandy called again on the doctor and said he was feeling no better.

"Have you taken the medicine exactly as I instructed?" the doctor inquired.

"Weel, doctor," said Sandy, "I may be a wee bit ahind wi' the peels, but I'm six weeks ahead wi' tha' wuskey."—The Shaft.

Advice to wives—If at first you don't succeed, cry, cry again.—Life.

"What's your handicap?"

"My wife."—Life.

AERIALS ERECTED

NO SHOP RENT

THAT IS THE REASON WE CAN SELL AT WAREHOUSE PRICES

TELEPHONES with a written guarantee for - 15/-

AMPLIFIERS complete with Valve and Batteries £4 10s.

RADIO-W'LESS MFG. CO.

FIRST FLOOR, 289 GEORGE ST., SYDNEY

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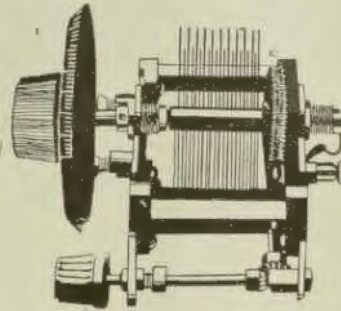
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for LONG DISTANCE

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

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



There are only a limited number of these condensers in stock—so be well advised and shop early.



There are only a limited number of these condensers in stock—so be well advised and shop early.

Two Capacities:

.001	42/6
.0005	35/-

“Smith’s Weekly’s” Advice

“**P**URCHASE of radio apparatus is an expensive, and if intelligently carried out, highly technical business,” says “Smith’s Weekly,” in their issue, dated December 20th. “Best advice is ‘Don’t buy anything unless you know all about it.’”

Next best to “knowing all about it” is to seek expert advice before purchasing. Our Mr. Hamilton is at your service. You will find it profitable to consult him.

Construct your own. Everything required we can supply: Charts, Coils, Valves, Plugs, Wiring, etc. Full range of Remler Goods in stock.

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96 BATHURST STREET

*Late 1924
 you have now
 wireless*

in a case where the experimental aerial was situated in a parallel of the crystal set. The loss of power during transmission was sufficient to reduce the effective range to 10 miles, whereas the normal range was estimated at 40. Interference will be greatly minimised between aerials of close proximity if one aerial is placed at right angles to the other. In this position the mutual induction between aerials is considerably reduced, and losses during transmission would be only a small percentage of the output.

A.R.R.L. DOES GOOD WORK.

THE American Radio Relay League has received a copy of a message from Curtis D. Wilbur, secretary of the Navy, addressed to the radio telegraph amateurs of the United States in which he expressed the Navy Department's appreciation of the assistance of amateurs in communicating with the airship, "Shenandoah."

The message is a duplicate of that which Secretary Wilbur asked to have broadcasted in code from the Naval Research Laboratory station at Bellevue, D.C. The tribute to the amateurs follows:

"The Amateur Radio Operators of the United States:

"The co-operation of the amateur radio operators with the Naval Research Laboratory has resulted in increasing the communication efficiency in our Navy. The now long distance communication records made by the Shenandoah are a direct result of your co-operation,

"Interest, such as you have shown in the Navy in time of peace is the country's best guarantee of our Navy's readiness when called upon for our country's defence.

"It seems appropriate, therefore, that on Navy Day, which coincides with the completion of the wonderful transcontinental flight of the Shenandoah, I congratulate and thank you for your contributions towards a better and more efficient Navy.

"Curtis D. Wilbur."

The amateurs were useful particularly during the western half of the Shenandoah's trip when both official messages and news despatches were received from the ship and delivered.

A little newsboy was standing in a doorway crying bitterly, when a benevolent old gentleman asked:

"What the matter, my boy? Lose something?"

"Yes," between sobs. "Lost a quarter."

"Well, here's a quarter. How did you come to lose it?"

"Betting on the Giants."—Life.

**WIRELESS
For Enjoyment**



**Extra Headphones
For the Christmas Set**

David Jones' can supply reliable headphones at most reasonable prices. Buy an extra pair now for the set you bought at Christmas.

Rico Phones. Prices, pair 18/6
David Jones' Special 21/-

Foote Crystals

Prices from 1/6 to 4/6

Foote Crystals are triple tested and guaranteed.

Unmounted Galena. Price 1/6

Mounted Galena, extra long . . . 3/3

Mounted Pyrites. Price 3/3

Triple Crystal, mounted (Hertzite, Galena, Pyrites on the same mount,

Price 4/6

DAVID JONES'

For Radio Service

252 YORK STREET, SYDNEY

Columbia Radio Batteries Are the Best

COLUMBIA Radio Batteries have proven to be the best batteries for radio receiving sets that money can buy. They are made in different styles suitable for every radio equipment and will give more satisfaction than any other make.

Columbia Dry Cell "A"

COLUMBIA Dry Cell "A" Batteries for vacuum tubes of low amperage are made especially for this work. They will withstand the slow steady drain required and give satisfactory results for a much longer period of time than any other similar type of battery.

Columbia Storage "A"

For vacuum tubes of one-half ampere or over, the COLUMBIA "A" Storage Battery is ideal. It is shipped dry and charged and filled when sold, thus assuring a fresh, powerful battery. It is tightly sealed and contained in an attractive mahogany finished box with handles.

Columbia "B"

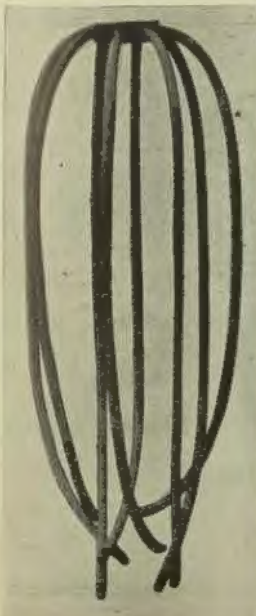
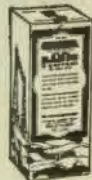
COLUMBIA "B" Batteries are made in 22½ and 45-volt sizes. They are equipped with Fahnestock Spring Clip Connectors to insure easy, secure connections. They are thoroughly insulated and waterproofed. They are portable, powerful and long lasting.

Columbia "Three"

COLUMBIA "Three" Batteries are designed so that under certain conditions they can be used as an "A," "B" or "C" Battery. They are made of extra large sized cells, and are used as an "A" Battery for light, portable sets using UV-199 tubes; as a "B" Battery for obtaining additional plate voltage; as a "C" Battery for grid biasing.

COLUMBIA Radio Batteries for Every Radio Requirement

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The Family "Crystaudio"

8 people listen in with one headphone

"In order to avoid disappointment to the numerous patrons desirous of entertaining their friends during the Xmas Season, we announce that the Crystaudio attachment may be obtained from 295 Edgecliff Rd., Woollahra any time, day or night, throughout the holidays."

For CRYSTAL or VALVE
Price - - 30/- Post Free

Manufacturers:

Cole & Cureton 293-295 Edgecliff Road
:: WOOLLAHRA ::

3AR ASSOCIATED RADIO HERE!

THIS will probably be the announcement of the new radio broadcasting station that is to be erected on "The Mercury" building, at Hobart. It is expected that the station will commence operations on a power of 350 watts in the near future. The wavelength will be 410 metres, and the aerial of the station will be of the umbrella type supported by a wooden mast on the top of the building. Mr. Brown, the Associated Radio Co.'s representative, stated that the station will be fitted with a curtained sound-proof studio, and will be connected with all the halls, theatres, and churches in Hobart by land line telephone. A regular service of three hours will be conducted from its inception, and before arrangements can be made for a regular studio evening, a first-class gramophone and a pianola will be used to supply the entertainment. Mr. Brown does not anticipate any difficulty in getting artists, as he says that 150 a week go through the studio of the company's Melbourne station, 3AR, and he expects that they will come forward with equal willingness in Hobart. The programme will begin at 7 o'clock in the evening, with "Bed-time Stories" by an "Uncle" whose name has yet to be decided. Then will follow a budget of "Mercury" news and cables, and lastly, a two-hours' entertainment from 8 till 10 p.m., consisting of musical items, educational lectures, and

church services. At the end of three months from the commencement of operations the full power of three kilowatts will be used and a special system will be installed to receive, filter and re-transmit the programmes from 3AR, Melbourne. The Associated Radio Co., intend to establish a branch of their business in Hobart, and to retail radio sets from the most elaborate 7 valve down to the simple crystal receiver. — "Anode," Hobart.

Isaac was dying, there was no doubt about it. He had been unconscious for hours. His family had anxiously gathered about his bedside. Suddenly his eyes opened. His wife leaned over him and said tenderly, "Ikey, do you know me?"

"Ach, what foolishments; sure I know you, you're Rebecca, mine wife."

"And these peoples, do you know them?"

"Ya, Jake, my son; Isidor, my nephew; Rosie, my daughter; Simon, my son, and my brother, David, and Joseph—Ach, Gott, who's tending the store?"—Black and Blue Jay.

Hugh (outside phone booth)—What's he trying to do, marry the girl by telephone?

Carl—I guess so. He just gave her a ring.—Middlebury Blue Baboon.

RADIO

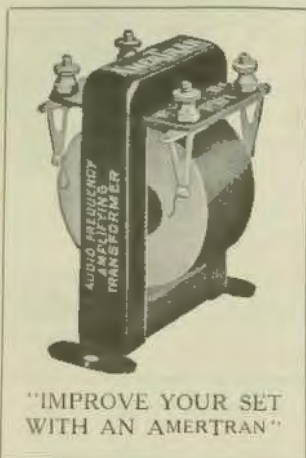
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ELECTRICAL AND RADIO CO.

No. 9 MACQUARIE PLACE

An Audio Frequency Amplifier is No Better than the Transformer it Employs



You are sure of the best results only by using the best Transformer

"AMERTRAN"

Twenty-three years' experience is built into the AmerTran—experience running back to the pioneer days when the makers of these wonderful transformers were building the large transmitting transformers for the Marconi Company's first commercial Trans-Atlantic wireless communication.

The external appearance of a transformer tells practically nothing as to its worth. The purchaser has got to buy something behind that—the manufacturers' reputation for technical skill in design and his ability to execute that design with absolute uniformity in quantity production.

Made in two types, AmerTran A.F.C. ratio 5 to 1 AmerTran ratio 3½ to 1.

RAY-O-VAC RADIO BATTERIES

French Ray-O-Vac Batteries are constructed of dependable materials by experts for use with any make of valve.

Each battery consists of a number of cells assembled and connected in series by soldered connecting leads. The exclusive design and construction features of Ray-O-Vac Batteries make them highly desirable and most satisfactory for radio use. The cells are carefully manufactured from special formulae developed for radio requirements.

Between periods of use the battery will "rejuvenate" and build up its voltage ready for another period of service.

LEFAX RADIO HANDBOOK

The Lefax Radio Handbook is written in every day language, by men who know radio—both in theory and in practice. They have studied it for years. They are working at it every day. There are probably no other men so favorably situated to know all that has been developed in this fast moving science. They have the best-equipped radio laboratory in the world at their command to settle all doubtful points. That is why the Lefax Handbook is so complete and so accurate.

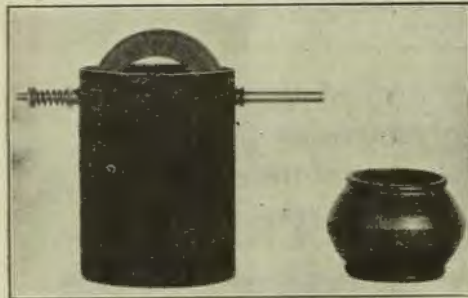
No one interested in Wireless should be without this wonderful Radio Handbook.

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GRODAN SPIDER WEB FORMERS

All the stations on
Easy to wind up to 350
turns of 26 gauge d.c.c.
wire. More efficient than
honeycomb coils
Less than half the price
1/3 each

INSTALL A GRODAN
VARIO-COUPLER
and obviate that plug-
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Obtainable in two sizes—
wound and unwound
Stocked by all the prin-
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Little need be said about the Ediswan Wireless Valves. Their performance speaks for itself. We know there are no better Valves made.

TYPE A.E.

A splendid valve of the bright emitter type, specially recommended to the amateur. May be used either as a detector or amplifier (H.F. or L.F.), and operates on low plate voltage.

Filament Volts	4
Filament Amps.	0.75
(General)	30—80
Plate (Detector)	30—40
Volts (H.F.)	40
Amplifier L.F.	80
Impedance in ohms	35,000
Amplification Constant	5.0
Emission Milliamps. Approx.	
Total	5
Cap.	4 Pin Standard, Full Proof
Price	17/6 each.

TYPE A.E. .05.

Embodying the latest improvements in the dull emitter type. It works at a filament voltage of 2.5, and the current consumption is only of the order of .06 of an ampere (0.15 watts). Thus the valve may be operated off ordinary dry cells.

Filament Volts	2.5—3
Filament Amps.	0.0
(General)	20—100
Plate (Detector)	20—30
Volts (H.F.)	30
Amplifier L.F.	50—100
Grid Bias Volts, Negative	1—3
Impedance in ohms	37,000
Amplification Constant	10.5
Emission Milliamps. Approx.	
Total	5
Cap.	4 Pin Standard
Price	30/- each.

The Edison Swan Electric Co., Ltd.

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THE HALL MARK



OF QUALITY

A Radio New Year to Everyone



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Used in the construction of the
FAMOUS "IMPERIA" RADIO RECEIVERS

Gilfillan parts cover a complete range for Radio set Manufacturers

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Covers all Australian Broadcasting Wavelengths (205—2020 metres)

IDEAL FOR THE PI CIRCUIT

Obtainable at all Radio Dealers

Photo and Radio Warehouses
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ADELAIDE, 10 Rundle St.
WELLINGTON, N.Z., 42 Willis St.
AUCKLAND, N.Z., 140 Queen St.

Figure Out what "Electron" Wire will Save You

Not only does this Wire make the *Most Perfect Aerials* —

As a matter of fact in many instances quite abolishing the necessity of outdoor aerials with all their complicated accessories—but it is equally perfect earth wire and lead in, and for the extension of the 'phones, loud speakers, batteries, and all the connections on instruments. Suspend the "Electron" wire where you will, lead in direct to the set, and a greatly improved reception is the result. Enthusiasts who are using "Electron" wire in all parts of England and America report wonderfully clear results with either crystal or valve sets. The ether wave penetrates the protective covering and all the incoming signals are held.

The heavy insulation is perfect, ensuring the following important advantages:

- (1) Insulators abolished.
- (2) Independent lead in, lead in tubes, hooks, etc., are unnecessary.
- (3) Soldering abolished.
- (4) Protection from sea air corrosion, verdigris in large towns.
- (5) Protection from soot, dust, and rain.
- (6) A marked increase in efficiency.
- (7) Electron wire is a perfect earth wire.

THE PERFECT AERIAL

Awarded the Certificate of Excellence by the Radio Institute, New York.

PRICE (per 100ft.) 3/6

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Radio Service Multiplied by Three

30s. each



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

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THE MAN WHO INVENTED BROADCASTING

DE FOREST VALVES

TYPE D.V.2—Takes 5 Volts at 1/4 Amp. on Filament 30/- each

Plate Voltages, Detector . . 18-22 1/2 Volts
Plate Voltages, Amplifier . . 60-150 Volts

TYPE D.V.3—Takes 3 Volts at .06 of an Amp. on Filament 30/- each

Plate Voltage, 16-22 1/2 Volts, Detector
Plate Voltage, 60-120 Volts, used as an Amplifier.

Both Types Fit Standard American Socket.

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AND
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These Coils are
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"RADION" Panels and Parts meet every require- ment of the radio set builder

There are many reasons why you should build your radio receiving set with Radion panels and parts.

First: Radion has proven beyond a doubt to be the supreme insulation. It is made exclusively for radio work and far excels any other material in the four main characteristics required for wireless, namely, low angle phase difference; low dielectric constant; high resistivity and the low absorption of moisture.

Second: Radion is easily worked. It can be sawed, drilled, machined and otherwise worked without the slightest danger of chipping or cracking.

Third: Radion Mahogany Panels have the actual surface graining of fine, highly polished mahogany while black Radion panels have a beautiful ebony finish.

Fourth: In cost, Radion is for more economical than any other material.

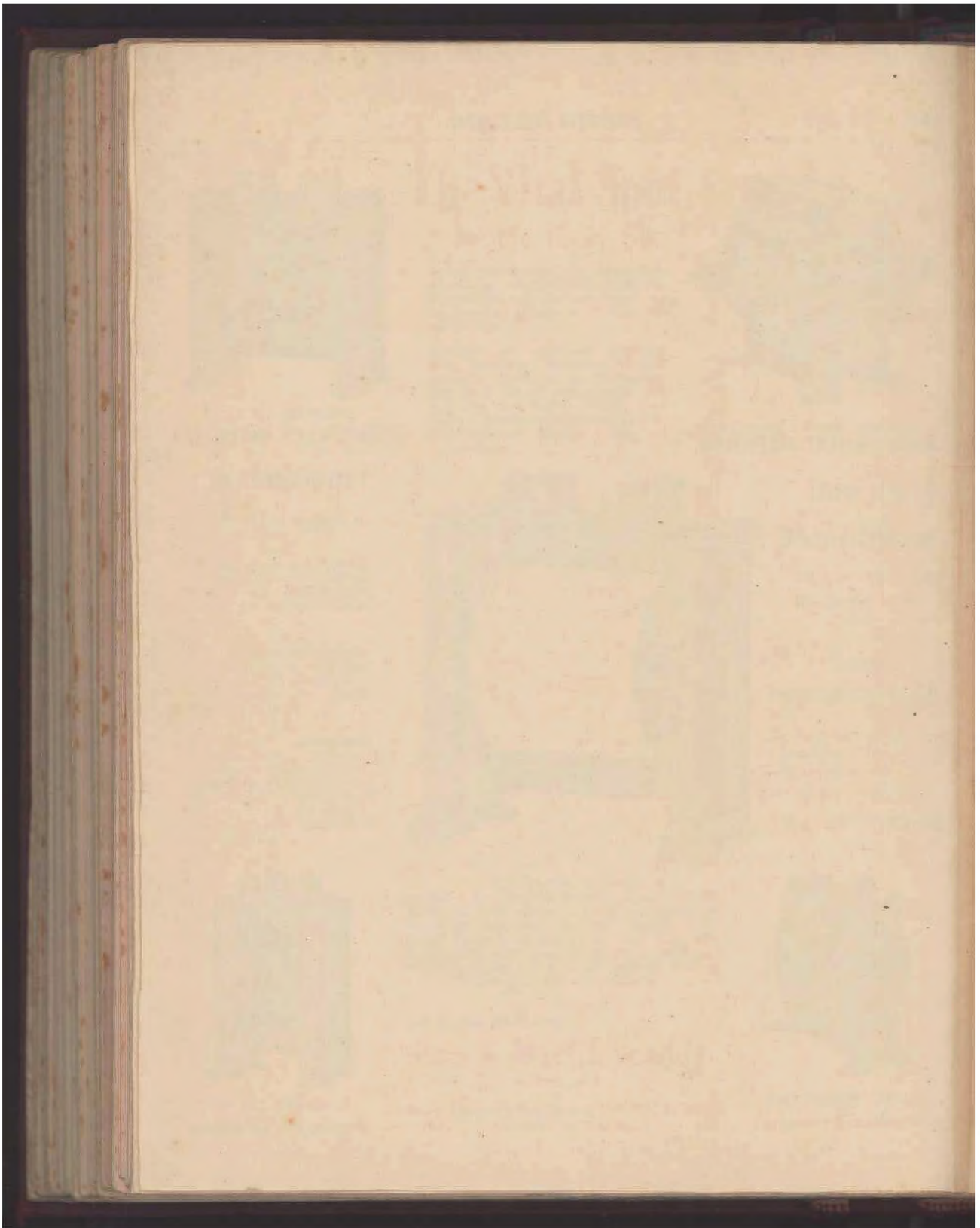
Fifth: Sets made with Radion Panels and Parts will give much better satisfaction.

Do not jeopardize the value of your receiving set by using cheap, trashy materials. It will pay you to always insist upon genuine Radion. Look for the name stamped on every piece.

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C42



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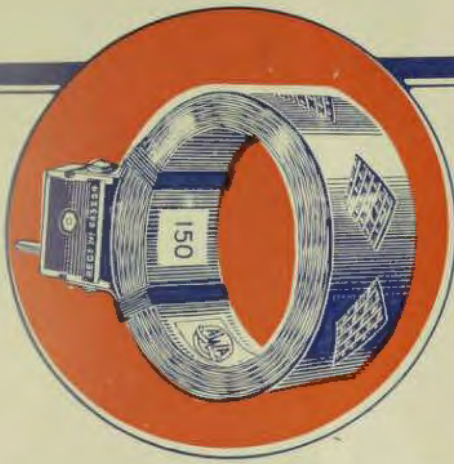
Our Everyday Prices:

One Socket	17/-	Ormond .001 Vernier Condenser	18/6
One Dutch Valve		Ormond .0005 Vernier Condenser	16/-
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4000 ohm 'Phones (Mello)	25/-	Ormond .0005 Plain Condenser	11/6
Crystal Sets from	20/-	Ormond .0003 Plain Condenser	10/6
Dutch Valves, Amplifiers or Detectors	12/6	Ormond .0002 Plain Condenser	9/6
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Tuning In

In thousands of homes people are tuning in on their radio sets.

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Is your nightly "tuning-in" as simple as this?

If you want simple, quick and more selective tuning use,

A.W.A. Honeycomb Coils

No. of Turns.	Wavelength with .001 Condenser.	Price, Mounted.	Price, Unmounted.
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35	150-525	7/6	2/2
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75	240-925	8/-	2/6
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150	500-1960	8/6	3/-
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300	1050-4200	10/6	4/3
400	1600-6000	11/8	5/-
500	2000-7500	13/6	7/-
600	3000-9000	15/6	9/-
750	4000-11000	16/9	12/-
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A.W.A. Honeycomb Coils are mounted on Igranic Honeycomb coil plugs with a black celluloid diamond strip, and then the shoulders are specially bound with black waxed thread, which holds the coil rigidly in position.

A.W.A. Coils offer very low radio-frequency resistance and self capacity is at a minimum. They may be used as tuning, loading, coupling, or wavemeter inductances, ensuring the highest degree of efficiency for your Set.

Made in sizes to suit your requirements, each A.W.A. Honeycomb Coil is attractively boxed, and the wavelength table printed on the carton. Also supplied unmounted.

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Friday, December 26, 1924.

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4,000 ohms



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STALLOY DIAPHRAGMS and DURALMIN HEADBANDS
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