# WIRELESS WEEKLY

3D

THE 100% AUSTRALIAN RADIO JOURNAL

Vol. 4
No. 14

REGISTERED AT THE G.P.O., SYDNEY, FOR TRANSMISSION BY POST AS A NEWSPAPER

FRIDAY, JULY 18th, 1924


**This Week's Feature: Detector Panel (By "Insulator")**



# Open Sets at Last!

## NEW REGULATIONS HERE AND PROVIDE FOR THE FOLLOWING

(a) Open Sets, no restrictions.

(b) License Fees:
Zone 1 (radius 250 miles), 35/- year.
Zone 2 (extending 150 miles beyond Zone 1), 30/- year.
Zone 3 (remainder of State), 25/- year.

(c) All licences will be obtained from the Department.

(d) Broadcasting to be competitive; advertising to be allowed.

(e) Experimental licenses to be granted bona fide experimenters as under:

| | |
|---|---|
| Zone 1 | 20/- per year |
| Zone 2 | 17/6 per year |
| Zone 3 | 15/- per year |

# VOLMAX

"Guaranteed Range" Broadcast Receiving Sets. These Sets are of the most high-class construction and are designed by RADIO ENGINEERS, not amateurs.

THEY WILL RECEIVE ALL SERVICES WITHIN RANGE.

All sets are fitted in beautifully finished Maple Cabinets of most superior design.
Simplicity of operation is a main point in all our designs, and full working instructions are supplied with every set.

THE VOLMAX RB SET.—2 Valve, Crysal reflex receiver set, normal range, with head phones, 350 miles. Price complete, with all accessories and one pair phones .. £32/10/-

THE VOLMAX RC SET.—3 Valve Receiver, complete with all accessories and loud speaker. Price .. £45/10/-

THE VOLMAX RD SET.—4 Valve Receiver (1 radio, det. and two audio) complete with all accessories and loud speaker. Ideal for ranges up to 400 miles .. £55/10/-

THE VOLMAX RE SET.—5 valve (2 radio, det. and two audio), complete as above. Gives excellent results to 1000 miles .. £65/-/-

THE VOLMAX RF SET.—5 valve as above, but with "push pull" amplification; same range as above, but gives louder operation. Price complete .. £94/10/-

All the above sets are complete with all accessories, including valves, batteries, 'phones, plug, aerial wire, insulators, earth-clip, etc.
Installation work (if required) is charged at actual cost or as arranged.

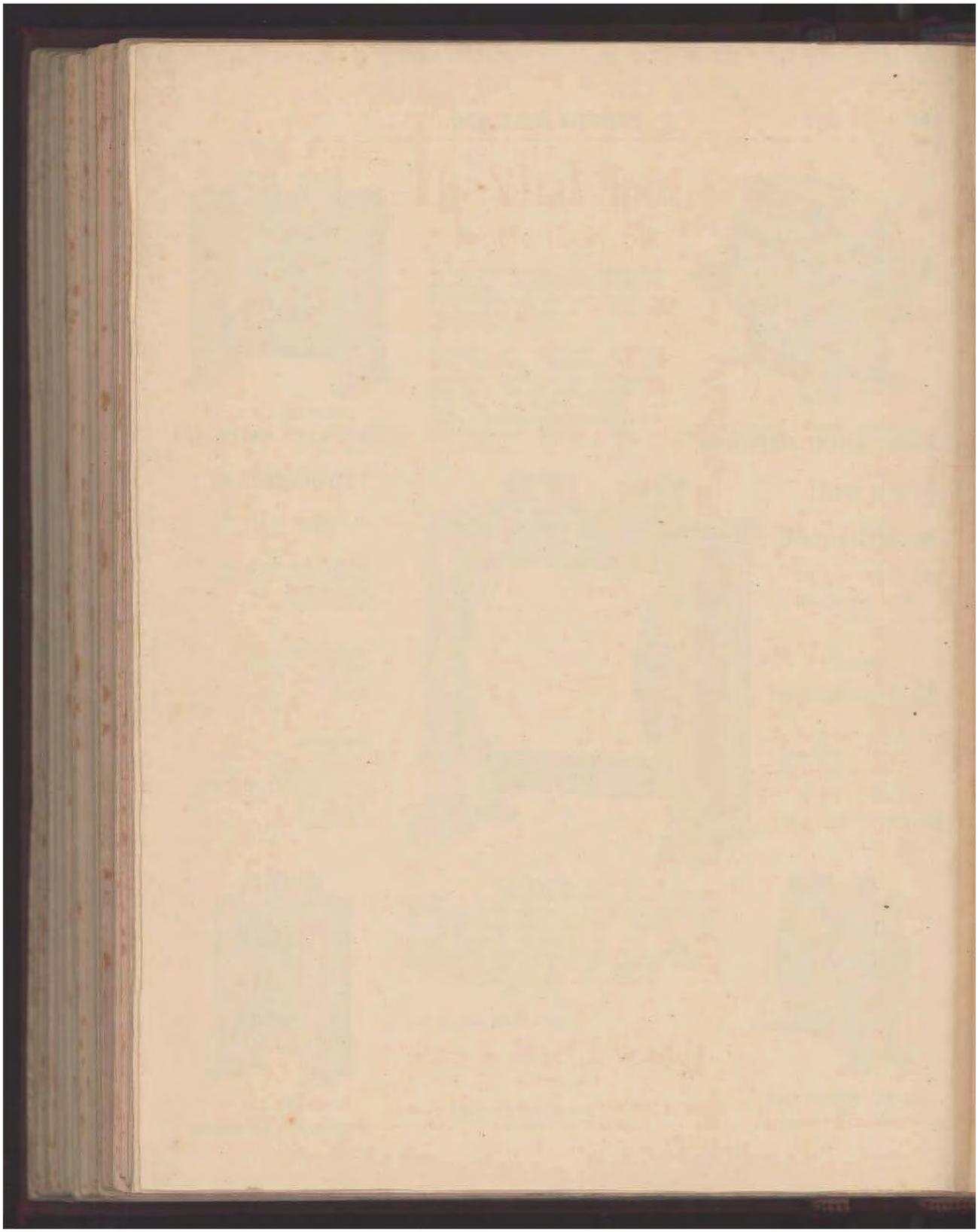
## Don't Forget that all Our Sets

are "GUARANTEED RANGE" Sets, and all orders for same have the personal supervision of our MR. RAY EVANS, a Radio Engineer of considerable experience with the Department of the Navy.

"SOME SETS ARE MADE TO CATCH THE PEOPLE—OURS ARE MADE TO CATCH THE MUSIC."

# WIRELESS SUPPLIES LTD.

21 ROYAL ARCADE, SYDNEY
PHONE M 3378



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# FAMOUS FROST PARTS

## THE MOST COMPLETE LINE RADIO PARTS EVER ONE PRICE

FROST



FROST-RADIO



FROST-RADIO

### FROST SOCKETS

615 SINGLE SHOCK ABSORBER SOCKET, for Standard Valves ... 8/0

617 SINGLE SHOCK ABSORBER SOCKET, for UV199 and UV99 ... 6/3

(All above sockets are made of bakelite and have sponge rubber cushions)

612 BAKELITE SOCKET, for UV99 and UV199 Valves ... 4/-

140 BAKELITE SOCKET, for Standard Valves ... 4/-

614 2 GANG SHOCK ABSORBER SOCKET, for Standard Valves ... 24/6

618 2 GANG SHOCK ABSORBER SOCKET, for UV199 Valves ... 24/6

### FROST RHEOSTATS & POTENTIOMETERS

COMPLETE WITH TAPERED BLACK BAKELITE KNOBS, METAL PARTS HIGHLY NICKELLED, ENGRAVED TERMINALS, TECHNICALLY PERFECT.

650 RHEOSTAT, 6 ohm (Marston Bakelite) ... 7/3

651 RHEOSTAT, 6 ohm Vernier (Marston Bakelite) ... 9/6

652 RHEOSTAT, 25 ohm (Marston Bakelite) ... 9/3

653 RHEOSTAT, 25 ohm Vernier (Marston Bakelite) ... 9/6

660 RHEOSTAT, 6 ohm Metal Frame ... 5/6

661 RHEOSTAT, 6 ohm Vernier, Metal Frame ... 7/6

662 RHEOSTAT, 25 ohm Metal Frame ... 6/6

663 RHEOSTAT, 25 ohm Vernier, Metal Frame ... 7/6

664 POTENTIOMETER, 400 ohm (Marston Bakelite) ... 8/6

665 POTENTIOMETER, 200 ohm, Metal Frame ... 5/6

663 POTENTIOMETER, 400 ohm Metal Frame ... 6/6

### FROST MISCELLANEOUS

304 EXTENSION CORD, complete with Adapter and Plug 30ft. ... 30/6

310 LOOSE COUPLER or Receiving Transformer ... 75/-

316 CRYSTAL TUNING UNIT, SLIDER (1100 metre range) ... 25/6

501 RADIO JACK BOX (for 4 jacks) ... 26/-

611 ADAPTER, for UV199 or UV199 ... 5/6

"Applause" Cards Furnished Dealers and Clubs Without Charge

**United Distributors Ltd.**

(WHOLESALE ONLY)

*MANUFACTURERS OF RADIOVOX SETS*

*A FEW TERRITORIES OPEN FOR AGENTS*

28 Clarence St., Sydney Hobart

Friday, July 18, 1924 WIRELESS WEEKLY Page Five

# "LIKE POSTAGE STAMPS——————USED EVERYWHERE"

## OF GUARANTEED QUALITY OFFERED IN AUSTRALIA

ALL DEALERS

FROST

FONES

### FROST JACKS AND PLUGS

NICKLE PLATED, FORMICA INSULATION, NICKELLED SILVER CONTACT SPRINGS, PURE SILVER CONTACT POINTS.

135 OPEN CIRCUIT JACK ... 4/6

141 DOUBLE CIRCUIT JACK ... 8/-

130 FILAMENT SINGLE JACK ... 6/-

136 FILAMENT DOUBLE JACK ... 8/6

138 NEUTRODYNE CIRCUIT JACK ... 4/6

140 PLUG, DOUBLE (2 connections) ... 5/-

139 PLUG, SINGLE ... 3/6

### FROST MISCELLANEOUS

830 RESISTANCE UNIT, 25 ohm (to increase resistance) ... 5/6

831 INDUCTANCE UNIT (to increase wave length) ... 6/-

829 INTERTHROWTER SWITCH ... 5/-

821 PARALLEL SWITCH ... 5/-

818 PUSH-PULL BATTERY SWITCH ... 4/-

### FROST HEAD FONES

STANDARD THE WORLD OVER

121 FONES (Aluminium Head Pieces) 1000 ohm ... 32/6

111 FONES (Aluminium Head Pieces), 600 ohm ... 27/6

127 FONES (Marston Moldrite Head Pieces) 2500 ohm ... 25/-

THE MAGNETS IN FROST FONES ARE TREATED WITH COPPER TO PREVENT CORROSION BY MOISTURE and SALT AIR.



FROST-RADIO

FROST COMBINATION POTENTIOMETER-RHEOSTAT

COMPLETE WITH KNOBS, ALL HAVE ENGRAVED RHEOSTAT AND 400 ohm Potentiometer ... 17/6

COMPLETE WITH KNOBS, ALL HAVE ENGRAVED TERMINAL POST CONNECTIONS, AND ARE TECHNICALLY PERFECT.

619 TUBE CONTROL UNIT, a combination of a 30 ohm Vernier Rheostat and 400 ohm Potentiometer ... 17/6

107 TUBE CONTROL UNIT, a combination of 6 ohm Vernier Rheostat and 200 ohm Potentiometer ... 17/6



FROST-RADIO

"Applause" Cards Furnished Dealers and Clubs Without Charge

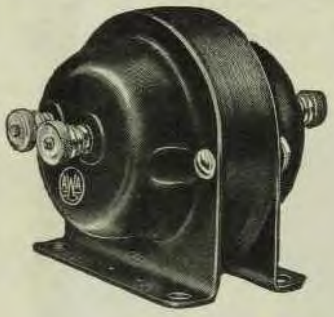
**United Distributors Ltd.**

(WHOLESALE ONLY)

*MANUFACTURERS OF HOME ASSEMBLY SETS*

SEE ADVERTISEMENT ON PAGE 1

Perth Brisbane Adelaide Melbourne



Audio-Frequency Transformer
37/6

# Volume–undistorted!

*With the A.W.A. Audio-Frequency Transformer*

—Complete and efficient shielding to prevent interaction between fields.

—Solidly constructed to withstand rough use and much handling.

—Exact construction to eliminate distortion in each stage of amplification over the widest possible band of frequencies.

*The Symbol of Quality.*

*Especially Designed for Broadcast Receivers.*
*Australian Manufacture.*

**Amalgamated Wireless (Australasia) Ltd.**

"Wireless House" 97 Clarence St, Sydney.
"Collins House" Collins Street, Melbourne.

THE WIRELESS WEEKLY

A Journal Devoted to the Interests of Wireless Enthusiasts both Amateur and Professional

Vol. 4. Official Organ of the Australasian Radio Relay League No. 14.

# THE SECOND ADVENTURE.

AFTER almost endless delays, Australia, according to the daily press, has embarked upon her second adventure in the realms of Broadcasting. While at this stage it is somewhat difficult to properly analyse the new Regulations, as reports to hand are somewhat meagre, a few brief remarks will not be out of place.

The predominant feature is, of course, the fact that open sets replace the sealed ones. There can be no question but that this will mean a rapid growth in the Australian Wireless Industry, attended, it is to be hoped, by a large absorption of Australian-made apparatus.

The clause relating to hotels, etc., "where profit is to result," immediately raises the question of whether the hours at present used for Broadcasting are satisfactory. Since this form of entertainment, if judiciously used, must tend to popularise Broadcasting, it would perhaps be wise to endeavor to devise some means whereby hotels and restaurants could be provided with a service at the most useful times—over the meal hours.

That there must be complete co-operation between the Broadcasters and the Dealers is evidenced by the fact that lack of co-operation in the past resulted in failure. Dealers are in immediate touch with the public, and it will be to no small extent due to their efforts that the new Broadcasting Scheme will meet with success. Therefore, a committee representing both Broadcasters and Dealers to go into the question of demonstration hours, programmes, etc., is a necessity. This system is now being used with marked success in England, resulting in much larger sales, more fees to the Broadcasters, and a better service to the public.

The vexed question of "What Is An Experimenter" hinges around the clause containing particulars of the amounts to be charged Experimenters. The statement that the applicant must possess sufficient knowledge to undertake scientific research is altogether too broad to discuss.

Further particulars are necesssary before it is possible to consider whether justice has been done those whom we may aptly term the fathers of Broadcasting—the Experimenters.

## Roster for Week ending 23rd July, 1924

| | 7.30 to 8.0 | 8.0 to 8.30 | 8.30 to 9.0 | 9 to 9.30 | 9.30 to 10 | 10 to 10.30 |
|---|---|---|---|---|---|---|
| Thur, July 17 | 2 RA 2 GR | 2 IJ 2 JM | 2 YI | 2UW ZN | 2 YG 2VM 2 ZZ | 2 ZG |
| Friday, 18 | 2 IJ 2 GR | " | " | " | " " | " |
| Saturday, 19 | 2 RA 2 GR | 2 IJ " | " | " " | " " | " |
| Sunday, . 20 | 2 RA 2 GR | " | " | " " | " " | " |
| Mon., ..... 21 | 2 RA 2 GR | 2 IJ " | " | " " | " " | " |
| Tues., " 22 | 2 IJ " | " | " | " " | " " | " |
| Wednes., .. 23 | 2 RA 2 GR | 2 IJ " | " | " " | " " | " |

From 6.55 p.m. until 7 p.m. every Saturday and Sunday, time Signals are sent by 2MU on a wave-length of 200 metres

# LONG DISTANCES ON CRYSTAL AND OTHER MEANS OF CONVEYANCE.

(By "Crystalion.")

WHAT are from some points of view regarded as extravagant claims, are frequently cropping up in the matter of crystal reception. One of the latest is from Dubbo, where an enthusiastic crystalophile claims to have heard Farmers, of Sydney, remarkably well, at a distance of close on 180 miles. To have heard Farmers ploughing up the ether at that distance, even on a valve set would be a creditable achievement for most inhabitants of Woop Woop, as the modest claimant terms his inland hometown, but he further claims to have been the first that ever burst into that silent sea, and he won the race by a catswhisker.

Other claims ranging from 50 to 200 miles often appear in the English press, and are frequently substantiated, so there is little reason to doubt our Dubbo friend, but there is always a fly in the ointment, or, in other words, a valve set in the vicinity. Some nasty valvealater generally rises to remark that the crystal has become intoxicated by the re-radiated verbosity of some circumambient valve set or sets.

Doubtless, Dubbo, too, has one or several, and intervening between Dubbo and Sydney there must be hosts of other valves all afire with one tremulous desire to follow in Farmer's footsteps. The question arises whether it is unconsidered trifles falling from these valves that have energised the catwhiskers of Dubbo, or whether it is a dinkum straightout honest-to-goodness reception straight from Farmer's stable. *Quien sabe?*

It is of course well-known that anyone can hear America in England now on a crystal, since the B.B.C. started re-transmitting J.D.K.Z., or whatever brand it is they get from America. But it would be extremely interesting at this juncture in Australia to carry out a series of tests in the Never Never so as to determine exactly how far away from everywhere a crystal can be effective on its own. Under rigid conditions of no possible re-rediation, it is generally accepted that about 10 miles is the crystal limit for broadcasting stuff sent out at about 1½ kilowatts. We have, however, plenty of vacant spaces in Australia where the valve ceases from troubling, and the crystals are at rest, and before the boom for universal ether swiping sets in, it behoves experimenters to establish standard records of straight reception, not only for crystals, but also for other accessories and circuits. How often do we hear of some innocent and totally unnecessary circuit getting blamed for being an expert receiver of stolen goods that some other dastardly valve in the neighbourhood has dropped in its agitated purloinings of the ether.

It is not only crystals that are open to suspicion on this count, but at the same time one's heart goes out to the humble crystal, the Cinderella of wireless, and refuses to believe that a valve could be so neighbourly as to re-rediate music with such unimpaired perfection and clarity as the Dubbo crystallician claims to have received.

It is all the more interesting to read of Mr. England's Dubbo achievement, as in the same issue of "Wireless Weekly" appears the news of Mr. Allsop's reception of 2LO on nine valves. "England" receives Sydney; Sydney receives England. One on nine valves, and the other on the whisker of the animal with nine lives. The reciprocity is delightfully evident. But at the same time, when valve users delight in discounting the alleged performances of a crystal, one is tempted to wonder whether Mr. Allsop's achievement also was not most obligingly assisted, all unawares, by the innumerable valves in England and America that were all tuning-in at the same time to 2LO.

The whole question of re-radiation opens up unlimited and complicated possibilities, as, for instance, suppose on that marvellous May month, when all of us Australians first sat up listening for America, would some of us have heard so much if others hadn't heard, or just missed hearing a little also? Jim Jones logs YZ, and Bill Smith logs UBD, but Billjim Smith-Jones logs 'em both and romps home a winner, with considerable vim into the bargain, but perhaps only because he happened to catch Jim and Bill on the re-bound so to speak.

The suggestion is distressing, but quite feasible, and perhaps Billjim really ought to go fifty-fifty with his confreres, for, after all, and idle joking apart, it really seems too excitingly like what has happened, and does actually happen, if one may put it that way. How are we to tell second-hand waves from the pure virgin gold direct from the mint?

There seems to be some moral somewhere in the vicinity of these reflections, but one also wonders what would happen if all of us simultaneously listened-in to England and did some S.B. for each other as was done, perhaps, last October, and more recently when K.G.O. was heard. Also, what would happen if American amateurs dropped all their divergent interests and got busy wallowing in the ether at 2FC's wavelength? Two million of 'em, so they say, and all at once! Possibly poor 2FC himself would be deafened by the re-echoing, and even old Mars would murmur drowsily: "What! Amurrica again?"

Anyway, now or never is the time in Australia to test out direct transmission and reception, and if 2FC would kindly arrange a secret test with Dubbo on some other wave length, at the same power, and if the same set were taken to some other district, innocent of valve, the other sort of Thomas who is not adorned with catwhiskers might find his doubts less redoubtable. Also, if on some silent night we all went deaf as well as dumb, except one favoured listener-in, would he alone, with all his valves, hear KGO in Sydney, or even 2FC in Melbourne? I ask you.

Give the crystal a sporting chance, you valve-grinders. You all feed out of each other's manger, so don't put on so much dog when a crystal comes hopping in to share the feast that the Farmer spreads for you. If, from all the din of "joeys," Dubbo was able to sort out a concourse of sweet sounds from Sydney, it was a most creditable achievement for all concerned.

If others with valves were concerned as well as Mr. England, with his crystal, it is almost incredibly a record of excellent reception, as anyone will admit who knows the misdeeds of valves. Mr. England used a loose coupler, which means selective tuning. If he was able to cut out the mush of oscillating and re-acting and regenerating, and supering, and heterodyning valves, so as to get at the very heart of Farmer's transmission, and stay there by the hour, to hear, "an interesting lecture," and relish the music, what more is wanted? Perhaps that dreadful word, "volume" transpires.

Volume is the howling infant of wireless, and is undoubtedly shapen

SEE ANNOUNCEMENT OF HOME ASSEMBLY SETS ON PAGE 3.

in iniquity, so much so that no method of regeneration yet devised can convert it from its original din.

If Melba herself sang into a megaphone there would be little left but the very middle of her name, very much aspirated and intensified, and lesser noises would hardly be less exasperating. At any rate, you can't amplify a squawk into a fanfare, and the very best of present microphone transmission is squawky in its harmonics at the source, and much more so after rectification through the usual valve circuits.

When we have sparked it with our bundle of transformer iron, like the ancient Roman *fasces*, to make it speak up louder, no wonder the squawk is intensified! But after all, and thank goodness, volume is only secondary to reception, and if Mr. England wants to make the walls of Dubbo fall down by a more vigorous blowing of Farmer's trumpets, he has only to add an audio-frequency stage to his crystal set, and by Joshua he'll get enough of Farmer's to plough up a forty-acre paddock. In wireless reception, pure and simple reception is the first and foremost excellence to aim at. Volume is subsidiary and often undesirable. Better the murmur of bees from a headset than the bray of asses from a loud speaker fifty yards away. Are we to have our tastes in music spoilt by the mutilated monstrosities of an unmitigated megaphone!

It is admitted by most parties that crystal reception is superior to valve reception in clarity, or in scientific terms the straight-line portion of the crystal curve is more definite and dependable. Musical notes in the upper register become flattened on a valve set, and consequently all notes, including those of ordinary speech, become distorted more or less when they contain these notes or their harmonics. These distortions are perpetuated, and others add to them by any system of amplification or magnification making use of more valves.

There are times and places where we cannot be content with head-phone reception. Intensification then becomes inevitable, but if you can't hear Melba in the back of the gallery, why go out and kick the cat—it's not music! The limitations of wireless should not be aggravated, but alleviated by a common endeavour to receive first of all with the minimum of distortion, and then to amplify by some means that very probably still lies hidden in the deeper depths of yet unplumbed crystallegraphy. Who will do the galening in this un-Farmered field? There are reasons for supposing that crystals will pave the way.


32 Belmore St.,
Burwood.
July 7, 1924.

The Editor,
"Wireless Weekly."

Dear Sir,

I have read a lot lately in your valuable paper concerning the reception of 2FC in the country.

As you have heard from me when I lived in the country (at Nowra), when broadcasting was in its infancy in Sydney, I beg to ask where are the records of spark reception? To-day we very rarely hear of amateurs doing any long distance spark reception.

While in the country I picked up Keita (VIU) several times, and to my mind that is a far better record on a crystal set than the reception of 2FC.

Sincerely yours,
E. B. WHITE.

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Editor,
"Wireless Weekly."

Dear Sir,

In reference to Mr. Worland's report in a recent edition of "Wireless Weekly," about his reception of K.G.O. on two valves, I wish to give a report of my own experiences on the reception of this station. I have been receiving this station for the past two weeks on two valves, 1 detector and 1 audio, using 2 pairs of high resistance 'phones. And when using three valves, 1 detector and 2 audio, K.G.O., came in with moderate strength on the loud speaker at times. Last night I decided to try for him with one valve, and with very careful tuning I succeeded in bringing him in, his announcement coming in quite plain: "Transmitting from the Garden Room of the Hotel Francis, San Francisco. This is station K.G.O. signing off now at (static obliterated the time, but going by the time he usually shuts down, when heard with two valves, it was 12.55 or 1 a.m., Pacific time). The reception was carried out on a plain three coil receiver, and of my own construction. The honeycomb coils also were home-made, being wound with heavier gauge wire than is generally used in the bought ones.—Yours sincerely,

E. C. READING.
Box 33, Bungalow, N.S.W.

REPLIES TO CORRESPONDENTS.

"W.T.L." (Bankstown): If we published the contents of your letter, the undertaker would be running the tape over us the next morning, and the Radio Inspector would nick another notch in his rifle. What you say is decidedly interesting, but to use your discovery it would be necessary to hold a transmitting licence, and nobody would be given a licence to use such a transmitter. Since we don't want a lot of irresponsibles to disturb the harmony of the amateur world, we can't possibly publish the particulars; and, further, between friends, we are going to ask you to take that discovery out in the back yard some dark night and nicely and quietly bury it. Thanks all the same for the tip.

---

In conformity with ancient custom, and in order to again experience that Arctic feeling, Mr. C. Maclurcan (2 CM) departed for the snow-clad slopes of Kosciusko last week, and in the delights of skiing, tobogganing and pitching tall ones around the fire at nights, he will forget the passage of time until rudely awakened on August 2nd.

Why a man should deliberately and in cold blood rush away from the present frozen atmosphere of Sydney to some place even colder, beats us—but there you are; it takes all sorts to make a world. Anyway, 2CM is assured of our best wishes for a very pleasant holiday.

The first record to be put over by 2CM on his return will probably be that classic, "Up in the Mountings."

# THE DETECTOR PANEL OF THE PROGRESSIVE UNIT PANEL RECEIVER.

By "INSULATOR."

ALTHOUGH the diagram in "Wireless Weekly," of July 4th, shows the tuned anode panel next to the tuning panel, I intend this week to give constructional details necessary to make the detector panel in order that the experimenter may be able to carry on right away.

After making this panel it is only necessary to connect it to the tuning panel, and by attacking the A and B batteries and telephones, "listening-in" may be proceeded with right away. This week the following materials are required:—

1 Piece bakelite, 9in. x 6in.
1 77a 43 .001 condenser.
1 Marco, 6 ohm rheostat.
1 Marco variable grid leak.
1 .00025 grid condenser.
1 Set of Ericsson fuse clips.
12 Bakelite top terminals.
1 3in. dial.

It may seem peculiar that I should specify Ericsson fuse clips for mounting the valve. Somehow I prefer them to the standard clips, really because they seem to hold the valve more securely, and this is a great consideration, considering the present price of V24 and QX valves. These fuse clips I obtained from the Ericsson Telephone Company, of York Street, Sydney (near Wynyard Park), and I paid 3/- a set of 4. They are sold mounted on a porcelain base, which is discarded as being of no further use in this set. The variable condenser again is a No. 77a 43 .001 capacity, which I obtained from Colville-Moore, where also was obtained the Marco rheostat and the Marco variable grid leak. You may remember me telling that I would "let you in on" just where could be purchased what I consider to be an excellent variable grid leak. Read over this paragraph again, and you will have learned something.

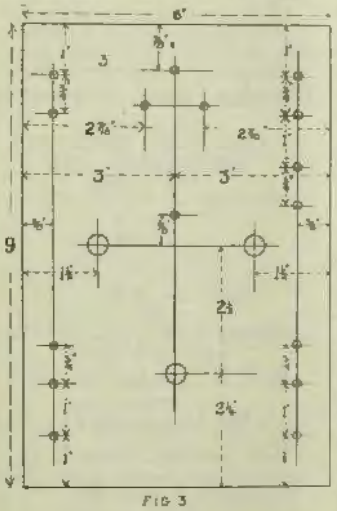


FIG 3

Bakelite top terminals I specify, as they look very nice when in use. Try and obtain the Nutmeg brand. I think they are the best. Coming back to the variable condenser, this is not really necessary, but I should strongly advise the use of it as it is of inestimable value when tuning in long distance stations, although on local broadcasting no particularly great service is rendered by its inclusion in the circuit.

As I have already written, the valve I recommend for the detector is a V24, or if desired, a Q.X. Personally, I don't think there is much difference between them. The agents sell the Q.X. as the detector and the V24 as the amplifier. Frankly speaking, the only difference I notice is in the price (Scotsman again!), and perhaps the wee bit of frosting at the bottom of the Q.X. However, both are splendid valves, hence my recommendation here.

It may seem strange to you that I should be so, perhaps, particular in my recommendation of certain brands of apparatus, but once again, I'll let you know that I don't get presented with each article I recommend, on the understanding that I specify them. I specify because I wouldn't like someone to accuse me of describing sets which will not work, if that someone doesn't use the goods I recommend. None of the local traders are so good-hearted as to send me along any particular article provided I mention it. I have to purchase, or sometimes borrow, the articles I use, so that I may know them to be suitable for the purpose. You know that Shakespeare said: "He that stealeth my purse stealeth trash; but he who taketh away my good name," etc., I think the expression goes somehow like that.

However, let's get down to "tin tacks." You will observe that this

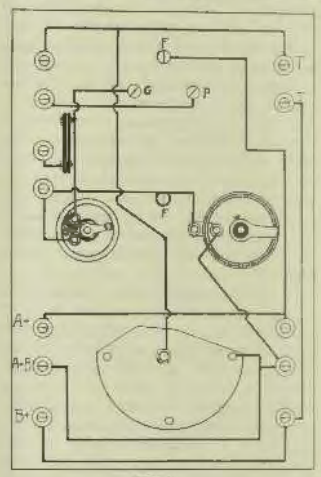


FIG 4

panel is two inches narrower than the tuning panel, and also that more terminals are required. Provision has been made for connecting the tuned anode panel to this unit, hence the seemingly three unnecessary terminals on the right hand side. However, bevel your panel, mark out and drill as suggested by Fig. 3. Note my remarks in last week's article regarding the use of a centre punch. In laying out this panel the measurements specified for the valve clips are designed to accommodate the Ericsson clips, so if any other type is used it will be incumbent upon you to re-design the lay-out to suit your own purpose. Note

HAVE YOU A HOME ASSEMBLY SET? SEE PAGE 3.

carefully the different spacing between the terminals. This has purposely been done in order that confusion may be eliminated in designing the lay-out, so that the terminals are paired, the exception of course being the terminal governing the positive of the B battery. The negative of this battery is in common with the negative of the A battery. Don't forget this now!

Having drilled your panel once more, revert to the Brasso to give it a good shine. Now assemble your components. A glance at Fig. 4 will assist you in this direction. Remember while you are looking at Fig. 4 that this shows a view of the *back* of the panel, so don't mix up the position of the rheostat with the grid leak, and don't forget to tighten each nut securely.

The wiring is the next consideration. Fig. 4 shows just how to do this, and I think I can leave it to this drawing to explain itself clearly. You see, I drew it, so it must be clear, although perhaps it wouldn't be out of place if I were to explain maybe the only two doubtful connections.

One is the negative filament which is taken from negative A terminal to the beginning of the rheostat; from the spindle of the rheostat to the bottom filament clip of the valve and thence to the minus filament return terminal to which, of course, is connected the one side of the grid leak. So much for that. Now the other side of the grid leak is taken to one side of the grid condenser and then onwards to the grid of the valve. The remaining end of the grid condenser is taken to the grid return terminal. I think that is quite clear.

When your wiring is completed, screw the panel to a similar type of baseboard employed for the tuning panel. I hope you have now made a neat job of everything.

Next thing you do is to range the detector panel alongside the tuning panel and bridge a short length of wire across from one panel to the other on each of the four top terminals. The two terminals marked R on the tuning panel are connected to the corresponding top terminals, on the detector panel; G and F terminals take to the respective terminal alongside each. Connect your aerial and earth to their respective terminals on the tuning panel and the telephones to terminals TT on the detector panel. To connect up the A and B batteries refer to Fig. 4. This shows their respective terminals, although really I have shown the designation on the wrong side of the panel, on account of lack of space in the drawing on the correct side. Realise, then, that the three terminals under terminals TT are used for the leads from the batteries. Now insert your valve between the clips, keeping in mind that the plate terminal on the V24 is coloured green. Suppose you listen in for, say, Broadcasters; use the following size coils: Primary, 35 turns; secondary, 35 turns, and tickler, 50 turns. Swing the tickler (which, by the way, is also known as the reaction) away from the secondary, don the 'phones, light up your filament and with the .001 condenser in series, turn your dial. At the same time, using the other hand, turn the dial governing the secondary (.0005) condenser until you hear the station. Set these condensers at their most critical points, and gradually bring the tickler coil nearer to the secondary until the signals are heard at their loudest. Retune slightly with the secondary condenser, but don't under any circumstances allow the valve to oscillate. Occasionally tip the back of the aerial terminal with a moistened finger tip, and if a click is heard on the 'phones when you touch the terminal, and also when you take away your finger you can bet all you have that you are oscillating, or as it is better known—howling. Rectify this by lessening your reaction, that is, move it gradually away from the secondary, or lower your filament slightly and adjust the valve on your variable grid leak. Again, turn your attention to the condenser in the detector panel, which at first should be full in, and judiciously turn the dial until you notice a change one way or the other. It won't take you long to learn how to tune correctly, and never under any circumstances turn your condenser dials too quickly. A slow motion is all that is required, otherwise you may miss the station you desire to hear.

Perhaps I may tell you this, that when your set is oscillating you are impressing a small current on the aerial. This current is actually a small carrier wave, so, virtually, under oscillation you have a small transmitter which is sending out a whistle, and disturbing the transmission and reception of others, which is decidedly not fair. Always be careful on this point. Reaction, properly controlled, is a splendid thing, and a great aid to signal strength, but when out of control it is a veritable curse, so much so that the powers that be prohibit its use in cities. The city man, to abide by the regulations, must short the two reaction terminals. This, of course, cuts out the reaction so there is no need to fear about interference. Once again, let me remind you that a full size blue print of Figures 3 and 4 may be had for 9d. by writing me. In the meantime, I am going to indulge in a nice hot bath, and then off to bed.

## IRISH BROADCASTING.

THAT the position of broadcasting in the Irish Free State is not as satisfactory as could be desired, is shown in an editorial in "Irish Radio Journal," of May 15th.

Some time ago we published in "Wireless Weekly" details of a scheme recommended by the P.M.G. of the Irish Free State. This was placed before the Dail. It proposed the formation of one broadcasting company, representing the interests of five public companies. This scheme, however, appears to have fallen through, and a counter proposal that broadcasting services be owned and run by the State seems to be the alternative offered the public. Grave fears are entertained by the editor of "Irish Radio Journal" as to the success of such a scheme. Evidently, when it comes to broadcasting regulations, Australia has a companion in misfortune in the Irish Free State.

## HOW THEY TREAT 'EM IN THE STATES.

The incident which occurred recently, when some misguided individual used some broad language to 2CM, was unfortunate in several ways. Unfortunate in that the incident occurred, and unfortunate in the fact that genius has not yet devised some means of locating the origin of the language. Whether Mr. MacClurcan used any hard words is not stated. Anyway, if he did he probably went outside and spoke them to the stars.

However, here's a cutting from the "Electrical Review," which demonstrates that although the old six shooter days have gone, they have a way of dealing out vengeance in America which is equally effective:—

"The Chief Wireless Federal Supervisor for the Middle West has ordered the dismantling for one year of amateur station 9AQB, of St. Louis, on the ground that its owner not only 'cluttered up the atmosphere with dots and dashes any time he chose,' but also radiated impolite language."

So that's that!

FROST RADIO APPARATUS IS FEATURED ON PAGES 4 & 5.

# RADIO COMMUNICATIONS IN PERSIA AND MESOPOTAMIA.

THE communications of the adjoining countries of Iraq (Mesopotamia) and Persia are not quite as primitive as one might imagine. The people of these countries are strangely averse to any kind of innovation, and for this reason the technical services are in the hands of foreigners. It is unfortunate that for economic reasons very little development or improvements can be made, and for this reason, radio has so far hardly penetrated these countries, where its use would undoubtedly effect a great saving in the cost of maintaining long lines which are frequently subject to interruptions of one kind and another. It is not at all an uncommon occurrence for engineers to be called upon to replace sometimes miles of copper wire, stolen by a wandering tribe to be melted down and shaped into cooking utensils. Such losses materially increase the operating costs of a telegraphic system and make the use of radio desirable for this and many other reasons.

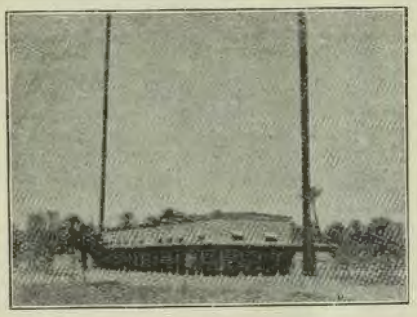
Prior to the war there were a few radio stations in the Persian Gulf owned and operated by the Indian Government and used for transgulf communicatoin whilst the only other station was owned by the Russian Government, and situated in the Russian sphere of influence in Persia and Enzeli, on the shores of the Caspian Sea. This station has now been taken over by the Bolsheviks and forms a valuable link in their only private means of communication with Moscow through the high-powered station at Baku, the Caspion oil port in the Caucasus.

During the war the Germans erected a large radio station at Baghdad, the proposed terminus of their Berlin-Baghdad railway, but before its completion it was blown up by them to prevent its falling into the hands of the Allies. This station, if completed, would have been capable of direct communication with the huge station at Nauen, Berlin.

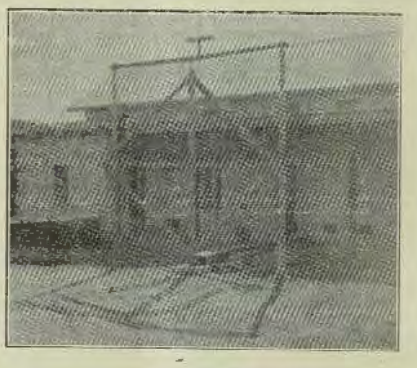
The British military forces in Iraq and Persia were well equipped with field wireless stations, and one Australian and one Indian squadron were utilised to maintain radio communication over the wide areas in which military operations were taking place. It is interesting to note that until quite recently radio in the British army was only utilised when no other means of communication was available, and was considered chiefly as a means of standby communication. Owing to frequent interruptions in land line communication during operations against the Turkish forces radio was used to a large extent during the early part of this campaign, and earned high praise from the commander-in-chief. Communication with India was by submarine cable and as a standby in the event of possible interruption a 30-kilowatt synchronous spark set was installed at Busrah, the port of Iraq, situated at the head of the Persian Gulf. The military also installed medium power stations at certain towns in north-west Persia and thus kept in touch with the sister forces operating in Mesopotamia and the Caucasus. Thus radio played an important part in the success of these small but important campaigns in the Near Orient.

The present telegraph systems of the two countries are under the control of four administrations. Persian State Telegraphs is staffed by Persians with an American director. This system deals with communication with the interior only. Traffic with India is handled by a company controlled by the Indian Government, while a telegraph company operates the lines north of Teheran, the Persian capital, and takes traffic for Europe. Excepting the four radio stations in the Persian Gulf owned by the Indian Government no other commercial radio stations exist in Persia. Thus Persia is woefully behind in radio. Unfortunately the erection of private stations is absolutely forbidden, and therefore there is no incentive for the Persian student to take up the study of wireless.

In Iraq the situation is better. Due to the large volume of traffic from the British military forces the civil telegraph department manages to show a



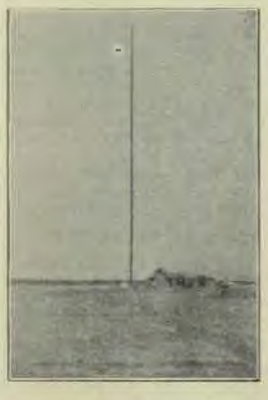
*30-Kilowatt Station used by Indian Government for communication between larger cities.*



*Frame Aerial used for Loop Reception at Busrah, Persian Gulf.*

DEALERS WILL BE INTERESTED IN HOME ASSEMBLY SETS. SEE PAGE 3.

profit on its work, and has utilised the money to instal an up-to-date automatic telephone system, the first in that part of the world. In the matter of radio she has one of the best equipped stations in the Near East, and her three-kilowatt tube transmitter equipped with automatic transmission and reception regularly communicates with Karachi, Beyrout, Cairo and Constantinople, handling traffic to and from Europe for India, which is not yet in direct communication with the mother country. This station replaced the antiquated 30 kilowatt station at Busrah, and in addition to its long distance traffic it is the most important coast station in the district and deals with the Anglo-Persian oil tankers which load their cargo at the refineries quite near Busrah. The station at Busrah has a staff of Arabs supervised by an English inspector and in this connection it is interesting to note that all the operating staff of the Mesopotamia telegraph department are Arabs, some of whom are no more than 15 years old, but extremely efficient as operators and with a fair knowledge of English.



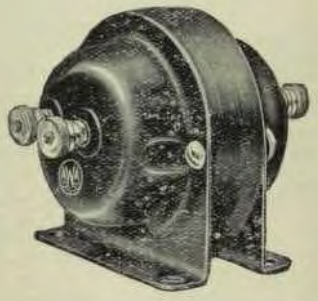
*333-foot Mast at Radio Station, Basrah.*

The Anglo-Persian Oil Company has realised the possibilities of radio-telephony, and their prospecting parties are being equipped with radio outfits to enable them to keep in touch with headquarters at the main oil wells and report progress or, in the event of attack by hostile tribes, a very likely contingency, to be able to call for help.

India is commencing a huge programme for the development of broadcasting and commercial radio-telephony now that the Government embargo on amateur radio has been removed and concerns are being permitted to erect their own private radio-phones, besides which amateur licenses are also being granted in certain cases.

The possibilities of radio in these out-of-the way places cannot be over estimated, and there is no doubt that the time is not very distant when radio will replace land-line telegraphy as a cheaper and more efficient means of communication in the countries of the Near East, where distances are too big for the efficient maintenance of lines with the all-too-limited staff that a limited revenue can command.

## THE A.W.A. AUDIO FREQUENCY TRANSFORMER.

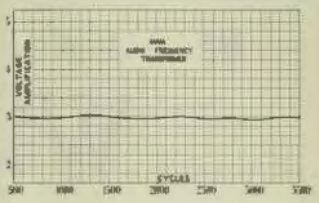


THE necessity of a good transformer on a wireless set is known to every experienced amateur. Perfect radio reception depends to a large degree upon the efficacy of the transformer to faithfully build up the low frequency oscillations.

A new transformer on the market is the A.W.A. audio frequency transformer, the product of the wireless laboratories of Amalgamated Wireless (Australasia) Ltd.

The A.W.A. transformer is so designed as to give uniform amplification over the widest possible range of frequencies, and it will be found the ideal transformer for use in all the newest complex 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. A few of its characteristics are as under:—




Primary and secondary ratio, 1-3½. The current carrying capacity of each winding, 10-12 milliamperes. D.C. resistance of primary is 1000 ohms, and of secondary, 6000 ohms. Test voltage between windings and between windings and core, 300 volts at 60 cycles. Useful frequency range, 60 to 3500 cycles.

The chart serves to show the extremely uniform amplification of the A.W.A. transformer.

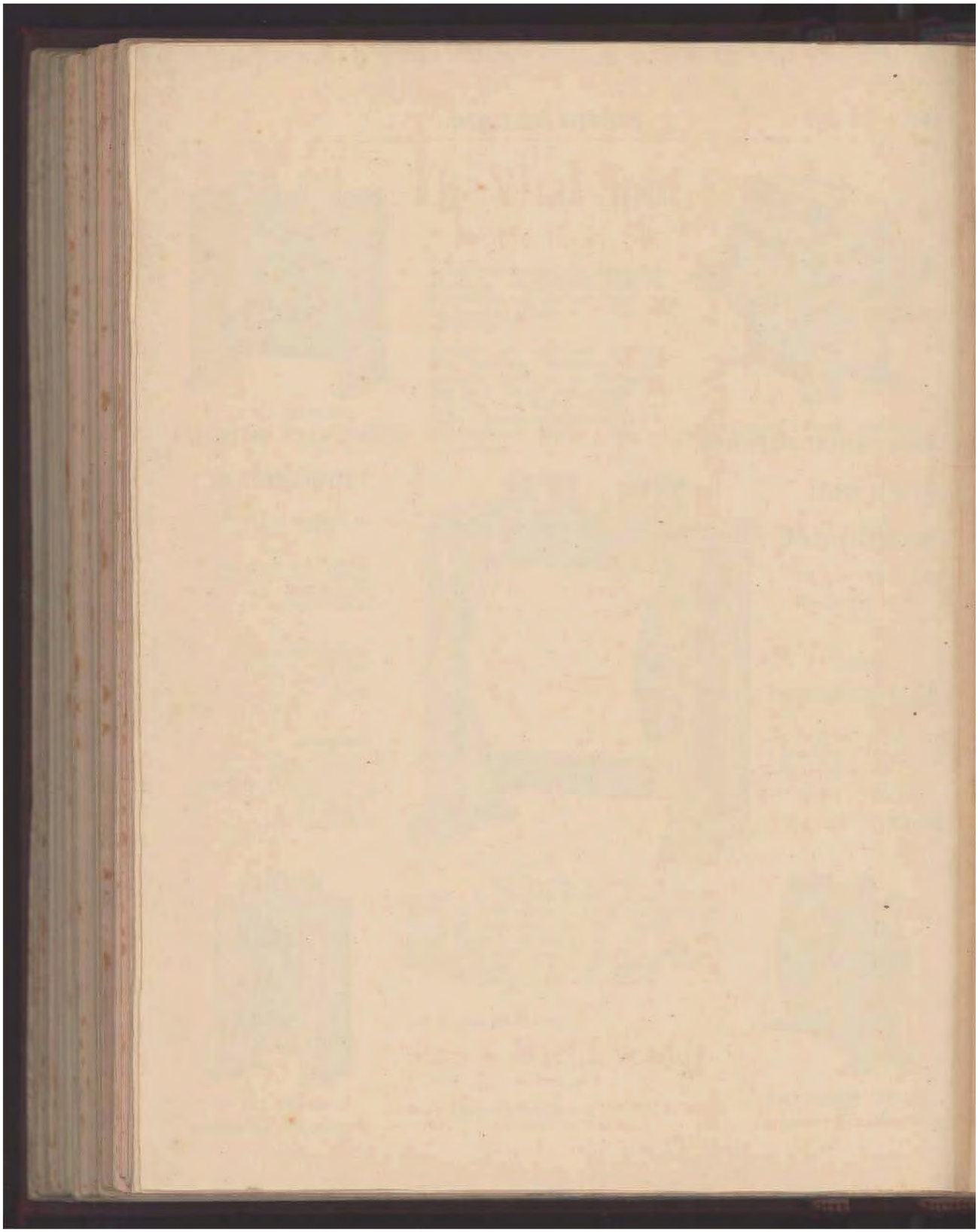
## DUNEDIN, N.Z., HEARD ON ONE WECOVALVE!

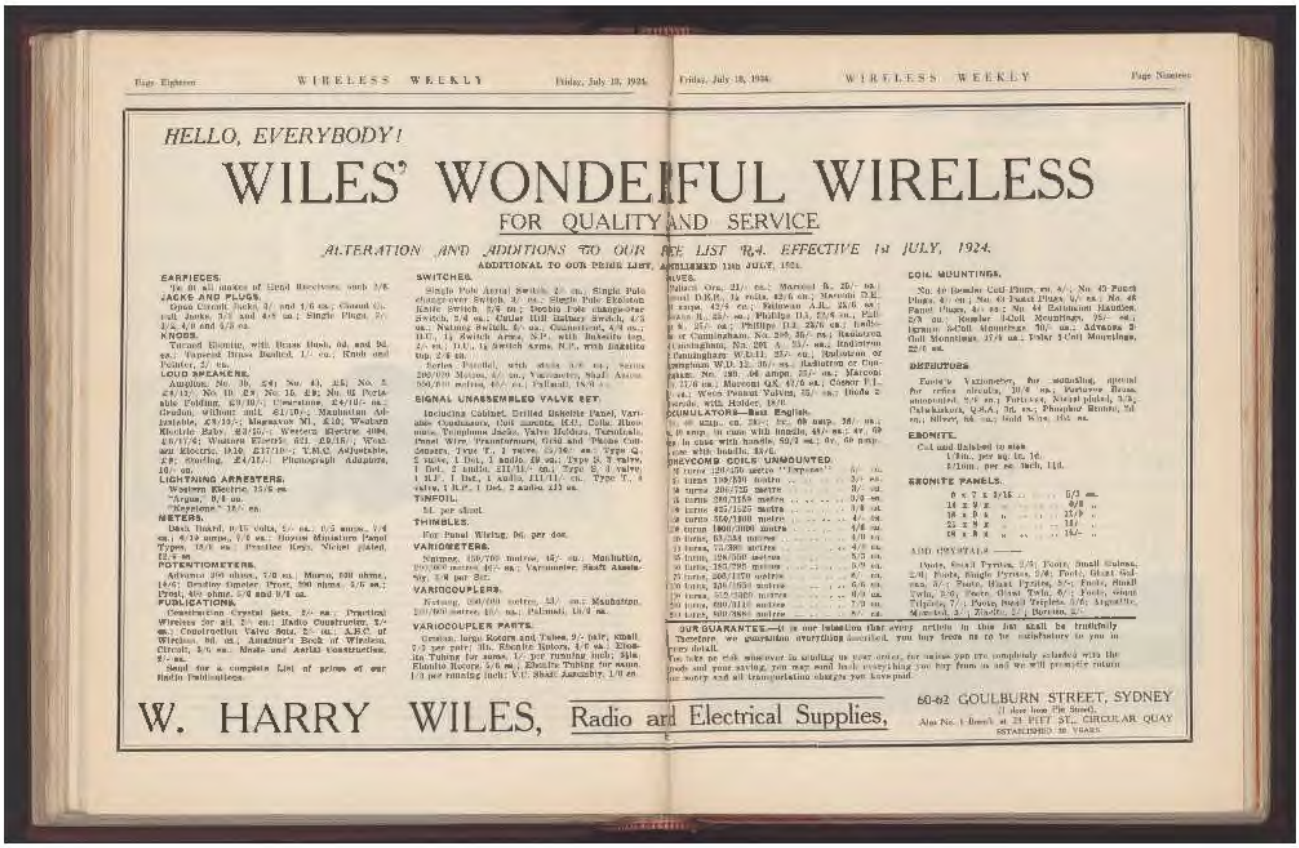
On Saturday night, the 5th July, using one peanut dull emitter Wecovalve in a standard Western Electric receiving set, Mr. H. F. Pearce, with two friends, Messrs. Smith Brothers, master builders, of Stanmore, heard 4YA, Dunedin, New Zealand, broadcasting the result of the big Rugby match played between New South Wales and the "All Blacks."

The rseult was given as New South Wales 20 points, "All Blacks" 15. This was repeated. All were surprised to hear Sydney Broadcasters, Limited, announcing the result of the same match some time latre, but givnig the "All Blacks" score as "16 points," which, of course, was the correct one.

Another item heard from New Zealand was the Dunedin Post Office clock striking 9 o'clock, the chiming and striking of the hour being heard with remarkable clearness. The watches or the listeners gave the Sydney time as 7.30 p.m.

A song, "Tit Willow," and a musical item, "The Rosary," were also clearly heard.





# Western Australian Notes.

(From our Special Correspondent.)

WIRELESS is surely advancing with firm steps in Western Australia. Proof of this may be seen in the recent installation of a four-valve wireless receiving plant at the Cabin Tea Rooms, Hay Street, Perth. The transmissions from the Westralian Farmers' broadcasting station (6WF), are received with perfect clearness through the loud speaker, which is placed at the corner of the large room, and the music is audible above the usual noise which is characteristic of public places. The Victoria Hotel, Subiaco, has the honour of the first hotel installation, and the proprietor evidently does not think that wireless drives a man to drink, as is the opinion of an English judge. The judge in this case must have been thinking of crystal sets!

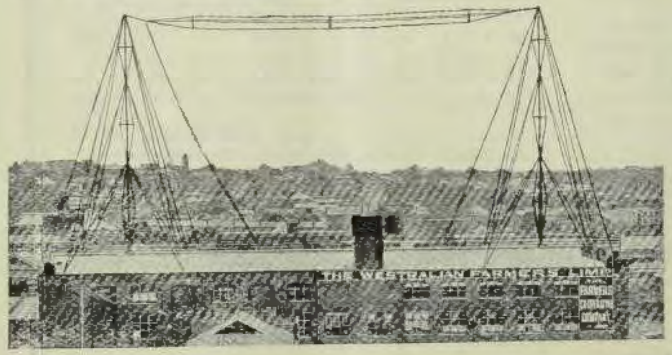
Always on the look out for novelty in the radio line, the Subiaco Radio Society, perhaps the leading society of the State, and certainly the first to be formed outside of the Wireless Institute, recently held an auction sale of radio junk. The evening was entirely satisfactory, and not without considerable humour, the auctioneer on the occasion being Mr. B. Congdon, the club's secretary. His self-control was admirable, when, upon assuring the audience that "6d. is all I am offered for this beautiful rheostat," he was in turn assured that "6d. is all you'll get." However, everyone bought some article, and everybody expressed satisfaction at his purchase. It is anticipated that this sale will become a feature of the club, and it is a certainty that other societies will follow.

The Westralian Farmers' Ltd. broadcasting station (6WF) has lately extended transmission to morning and afternoon sessions. With this move many firms in the city have had excellent opportunities of demonstrating their apparatus. The leading radio firm, Messrs. Craig & Co., have a large Brown loud speaker over the door of their store, and the music and speech is fairly "pumped" out, being audible 100 yards away. Needless to say large crowds are attracted.

Another step forward has been taken by our local brodcasting station. The music of a band is broadcasted every Saturday night. The "Blues" orchestra, under the direction of Mr. Gordon Hack, will be followed by the Cabaret Orchestra, Butterfly Orchestra and Cook's famous jazz band, those who have loud speakers will certainly be able to dance to the music.

As a specimen of the Westralian Farmers' broadcasting programme, the following will serve. (The wave length is 1250 meters). 10 a.m., tune in to Sonora; 10.5, Westralian Farmers' Ltd., items of interest; 12.25, tune in to pianola; 12.30, time signal; 12.34, market reports of the Westralian Farmers; 12.40, news service; 12.55 to 1.30, Sonora and Steck pianola; 3 p.m., tune in to Sonora; 3.5 to 4, special programme of talks, Sonora and pianola; 7.5, tune in to Sonora; 7.10, bed-time stories, by Aunt Pat; 7.40, market reports; 7.55, weather report; 8, time signal; 8.2, cable news; 8.10 to 10, concert by leading vocalists, etc.; 10.2, close down.

Reception of Sydney Farmers (2 FC) in Western Australia, seems to be limited to very few. Many, however, can "pick up" the carrier wave of the station quite strong, but are unable to distinguish any music behind it. One well-known experimenter, by name, Mr. Wilkes, of Cotesloe, W.A., has succeeded in hearing the Sydney music on a large Brown loud speaker, having an arrangement of four valves behind same. His receiving plant was manufactured by Craig and Co., of which concern he is the manager, and incorporates 5 valves, which form can be varied by numerous switching arrangements. The set is complete with coils covering a band of 200 to 30,000 meters. Extra resistances are provided for use, with dull emitter valves.




*View of aerial system at 6WF, West Australia's new broadcsting station, which operates on 1250 metres. The aerial stretches 270 feet between masts, and the height above pavement is 180 feet. Each mast weighs 3½ tons. The schedule of transmissions from 6WF, is mentioned elsewhere on this page. The station was built in Sydney by Amalgamated Wireless, A/sia. Ltd.*

## QUESTIONS AND ANSWERS.

Experimenter (Bondi): It would be better to use three Columbia 1½ volt dry cells, and use a Bradleystat. Yes, a pocket torch battery would work, but would be scarcely suitable. The life of the battery depends entirely upon how much you use it. Yes, the U.V. 199 makes an excellent detector. Particulars of the valve were published in "Wire'ess Weekly," July 4th.

### D.X.

Roy V. Thomas ('Erimo," 1 Northcote Street, Rose Bay) sends us his list of stations logged on one valve. He will be pleased to send a full report to any of those mentioned if they will drop him a card.

N.S.W.: Fone—2GO, 2HM, 2SO. C.W.—2CH, 2CR, 2WN.

READ PARTICULARS OF THE NEW FROST LINES ON PAGES 4 & 5.

Victoria: 3BC, 3BD, 3BH, 3BL, 3BM, 3BQ, 3BU, 3DB, 3DD, 3FH, 3GB, 3GQ, 3HH, 3HL, 3JH, 3JP, 3JU, 3KM, 3RY, 3SW, 3TM 3UZ, 3XF, 3XO, 3ZN.

Queensland: Fone—4CK, 4CM. C.W.—4EG, 4GE, 4FA, 4AE.

South Australia: 5BQ, 5LO.

Tasmania: 7AB, 7BN.

New Zealand: 1AA, 1AX, 2AA, 2AG, 2AQ, 2AX, 2AA, 3AD, 3AL, 3AF, 3CB, 4AA, 4AP.

U.S.A.: 6AJF, 6ASR, 6AVJ, 6BCP, 6CGW, 9ZT.

# K. G. O.

## A BIG STATION.

### SOME INTERESTING DETAILS.

DURING recent months, when so many Australian experimenters have clearly received programmes of speech and music broadcast from the General Electric Company's station, KGO, at Oakland, California, U.S.A., much curiosity has been aroused regarding the station itself, the class of programmes transmitted, and the exact situation of the plant.

By the last mail a good deal of information regarding KGO has reached Australia.

KGO is the Pacific Coast broadcasting station of the General Electric Co., and, as we have already stated, is situated at Oakland, California. Its power and antenna systems, a thousand feet away from its studios, embody all the mechanical and technical refinements that have marked the development of radio broadcasting. The aerial, multiple tuned, is strung between steel towers 150 feet high and 260 feet apart. The power house is near by, and also a small building for the tuning of apparatus at the end of the antenna.

Every part of the equipment in the power house and control rooms is in duplicate. If one transmitter or part should break down during a period of broadcasting, the other transmitter can be instantly brought into circuit.

Studio and Aerial System at K.G.O.

### THE STUDIOS.

Whilst the transmitting apparatus of KGO may claim the chief interest of radio engineers, there is a more popular appeal in the substantial two-storied brick building that houses the business of broadcasting, and in which the musical and dramatic art of the Pacific States stage unseen programmes.

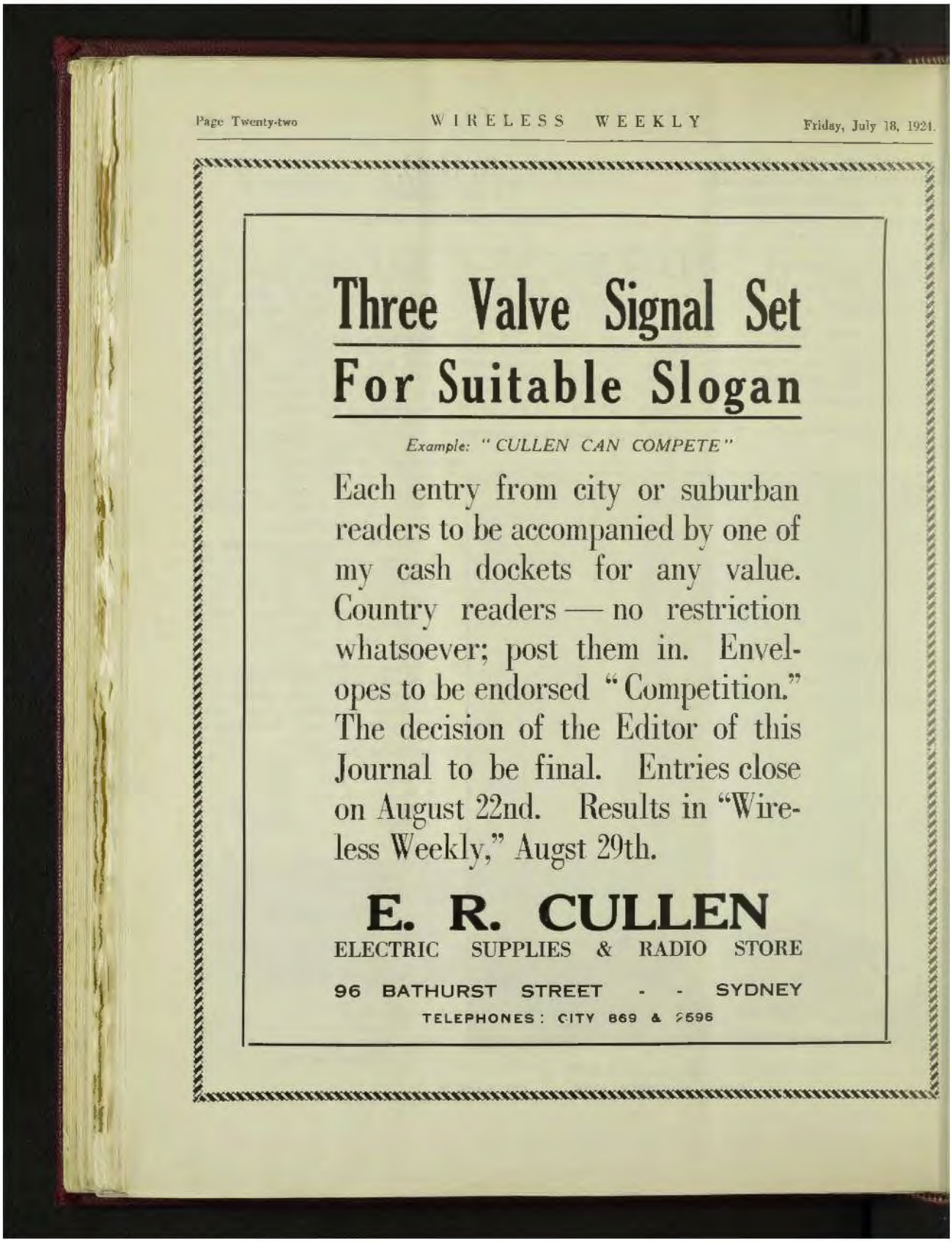
On the first floor, near the entrance, is the office of the studio manager, who plans programmes, selects artists, and co-ordinates the duties of the office and broadcasting staff. Close at hand is the correspondence room, where the business of the station is carried on. Here, a staff of assistants attends to the details of programme making, interviews callers, and keeps "logs" of all performances. A great broadcasting station receives hundreds of letters daily. These are answered and filed, and they enable the studio manager to keep in touch with the tastes and desires of his station's audience.

There is also a reception room on this floor for artists, a comfortable place of waiting for their turn to give pleasure to thousands. In this reception room wraps are checked, and from it, those who are to take part in the immediate programme go to a waiting room on the second floor, where the actual studios are located.

The performer, on being summoned to the studio, is ushered into a silent room, every appointment of which

Continued page 28 col. 2

HOME ASSEMBLY SETS. SEE PAGE 3.





# BRINY REMINISCENCES.

By "Brasso"

*(Continued from Last Week.)*

Another nocturnal visitor was Sergt. Jack Garcia, who sat for hours luridly discussing the war. Jack had been a billiard marker in Melbourne, and had a wonderful fund of anecdotes relating to the underworld. We became great cobbers, and there was always a "wad" awaiting him when he turned up some time between 12 and 4 a.m. The next occasion on which I bumped into Jack after he disembarked was when I was torpedoed, in July, 1918, and I found him (then a lieutenant, with a Military Cross), in the same lifeboat with me, floating on the grey ocean about 250 miles W.S.W. of the Lizard. The same old hard case, busily engaged in handing round "Cappo," fags to the shell-shocked and convalescents in the boat, and easing up their misery with an inexhaustible supply of humourous yarns, smutty and otherwise.

Others who frequently sought the solace of the Marconi room included a Presbyterian padre, suffering badly from "cameraitis" (he took pictures of every part of the set), and a military doctor, who would sit for an hour or so staring fixedly at the magnetic detector, and then get up and go out without having uttered a word. I always had the peculiar feeling that he regarded me as a portion of the machinery.

There was each afternoon a most interesting event, which caused me to hitch my chair close to the big square porthole, which, covered with a lattice shutter, enabled me to lower the glass window, and while myself unseen, listen to the remarks passed at the miniature courtmartial held on the deck under the canvas awning. These trials (if I may use that word) were usually short and snappy, and before long I became quite accustomed to hearing something after this style:—

"Next case. Private Blobbs. Three paces forward. Halt!"

O.C.: "What is the charge?"

Parading Officer: "He called Lieut. Blibbs a ! x ? !"

O.C.: "Forty-eight hours C.B. About turn. March. Next case."

And so on.

About 9 a.m. each day the regimental band got into mass formation about 30 feet away from the Marconi cabin, and hit up a programme of popular airs which included those old-timers "Tipperary" and "Australia will be There." This was greatly enjoyed by friend Tommy, who was on the 8 to 12 watch, until one morning, while struggling with the reception of a couple of hundred words of ten letter stuff, he found the Q.R.M. from "Tipperary" too strong. Whereupon he sought the bandmaster and favoured him with a selection in the Scottish language, and thereafter the strains of Elysian music were wafted softly from the stern of the vessel, to the great delight of the firemen down there, who joined in the choruses with gusto.

*Continued on page 30*

# Personalities in the Australian Wireless World.

MR. STANLEY M. GRIME, A.M.I.E.A.
IN CHARGE OF PRODUCTION DIVISION,
AMALGAMATED WIRELESS (A/SIA.) LIMITED.

MEN, materials, machines, blue prints, raw material, overhead charges, machine shop processes, assembling time, output and unit cost of production, so runs the gamut of Mr. Grimes' mind upon the production prbolems that daily surround him, and the result is some of the finest wireless equipment yet produced in Australia, challenging comparison with that produced overseas—and in the process he has trained several hundreds of Australians and helped to build a national Australian industry. Ten years ago most Australain business men asserted that it could not be done.

An Australian by birth, Mr. Grime commenced his apprenticeship in electrical engineering with the Strand Electric Light Company, in 1904, and on that company's plant being absorbed in 1911 by the Sydney Municipal Council, Electric Light Department, took up service with the latter body, and remained seven years, during the latter portion of which he attained the position of superintendent of the electric workshops.

In 1918 he resigned to take charge of the Radio Electric Works of Amalgamated Wireless (A/sia.) Ltd.

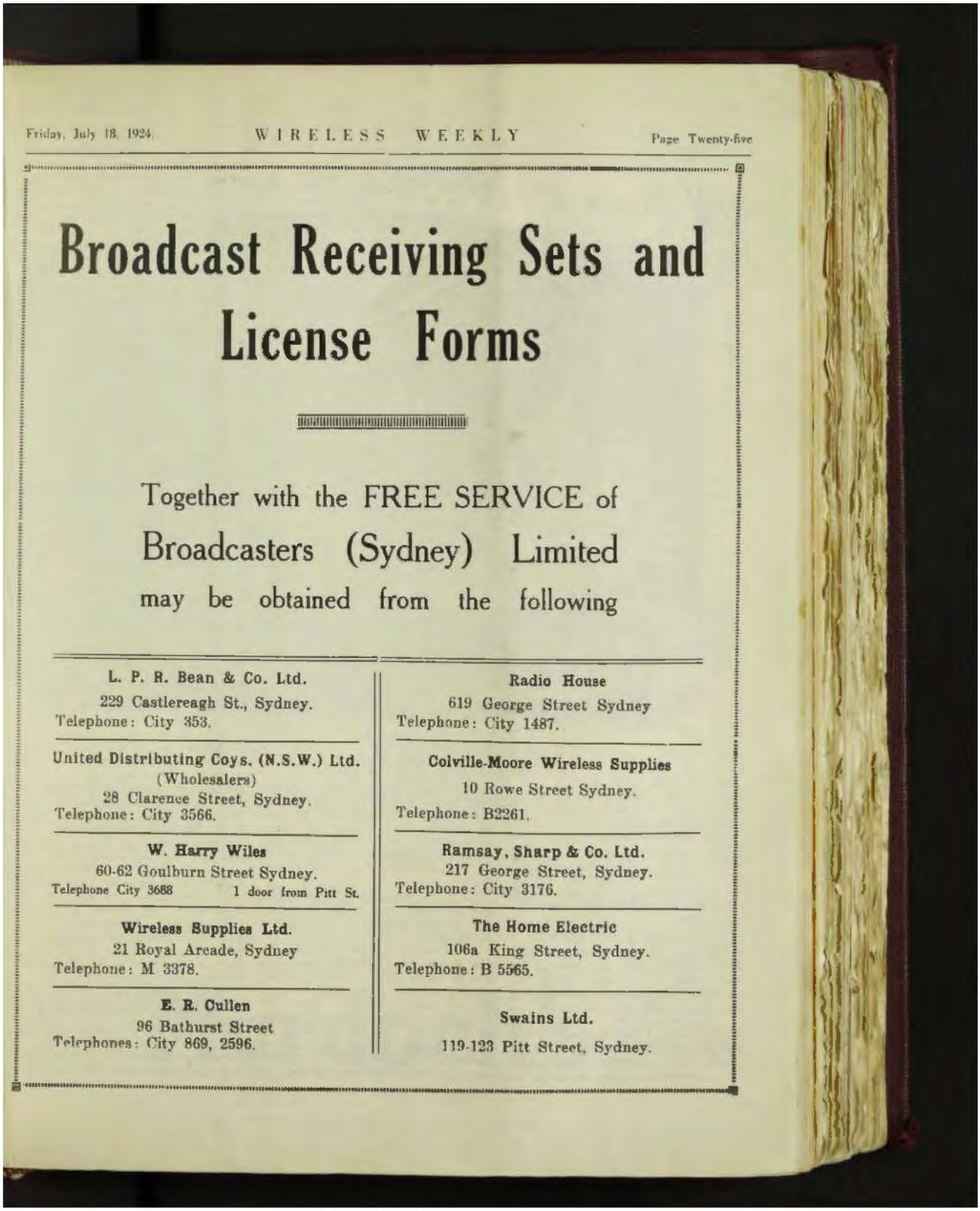
In 1922, in pursuance of its policy of sending Australian engineers abroad for experience, instead of importing overseas experts, Amalgamated Wireless (A/sia.) Ltd. selected Mr. Grime, together with several other of the company's engineers, to visit England and the Continent with a view to investigating the latest developments in th emanufacture of wireless and general electrical equipment.

While away he inspected the large wireless manufacturing works in England, France and Germany, besides visiting the general electrical workshops in Norway, Sweden and Belgium.

On his return he reorganised the radio-electric works on the most modern lines, installing the very latest machinery capable of producing every type of wireless apparatus.

There is no keener advocate of the necessity of establishing Australian manufacturing industries than Mr. Grime, and his long association with the electrical and wireless industry have confirmed him in the opinion that products equal to the best imported can be efficiently and economically produced in Australia.

Incidentally he has long held a very high opinion of Australian craftsmanship and his observations abroad have but served to strengthen his regard.





# Broadcast Receiving Sets and License Forms

Together with the FREE SERVICE of Broadcasters (Sydney) Limited may be obtained from the following

**L. P. R. Bean & Co. Ltd.**
229 Castlereagh St., Sydney.
Telephone: City 353.

**United Distributing Coys. (N.S.W.) Ltd.**
(Wholesalers)
28 Clarence Street, Sydney.
Telephone: City 3566.

**W. Harry Wiles**
60-62 Goulburn Street Sydney.
Telephone City 3688 1 door from Pitt St.

**Wireless Supplies Ltd.**
21 Royal Arcade, Sydney
Telephone: M 3378.

**E. R. Cullen**
96 Bathurst Street
Telephones: City 869, 2596.

**Radio House**
619 George Street Sydney
Telephone: City 1487.

**Colville-Moore Wireless Supplies**
10 Rowe Street Sydney.
Telephone: B2261.

**Ramsay, Sharp & Co. Ltd.**
217 George Street, Sydney.
Telephone: City 3176.

**The Home Electric**
106a King Street, Sydney.
Telephone: B 5565.

**Swains Ltd.**
119-123 Pitt Street, Sydney.


## THE LEICHHARDT AND DISTRICT RADIO SOCIETY.

THERE was a good attendance of members of the Leichhardt and District Radio Society, at the 88th general meeting, held at the club-room, 176 Johnston Street, Annandale, on Tuesday, July 8th, when the tenth lecture of the syllabus was delivered by Mr. H. F. Whitworth.

The subject set down for the lecture was "Valve Circuits," and Mr. Whitworth dealt excellently with it, a demonstration with the society's reconstructed three-valve receiving set greatly assisting towards the success of the lecture. The amount of interest shown in the subject was evinced by the large number of questions which followed the lecture, after which a vote of thanks was carried by acclamation.

It was announced that Mr. J. N. Edmonds would lecture at the following meeting, the subject to be "Esperanto: Its Relation to Radio."

Next Tuesday night a special lecture, apart from those set down on the syllabus, will be delivered by Mr. R. C. Caldwell, who will have something very interesting to say about "Tuning."

On Tuesday, June 24th, an excellent lecture on "Elementary Tuning," was delivered by Mr. E. J. Fox, one of the society's most active members, before a meeting of the newly formed Postal Institute Radio Club.

The society continues to make satisfactory progress in every way, and is always on the look-out for new members. Persons interested are invited to communicate with the Hon. Secretary, Mr. W. J. Zech, 145 Booth St., Annandale.

## CROYDON RADIO CLUB.

The usual weekly meeting of the Croydon Radio Club was held at the club rooms, "Rockleigh," Lang St., Croydon, when business in hand was rapidly discussed and attended to.

The Secretary, Mr. G. M. Cutts, briefly outlined the meeting of the delegates of the affiliated clubs. After closing the transformer competition, the number of entries totalled ten, among which were some excellent instruments. The remainder of the evening was devoted to testing them. For testing purposes the set used was a loose-coupler and crystal, with valve amplifier, in conjunction with a "Magnavox" loud speaker. A "Jefferson 41" transformer was also tested, and it was surprising to note that it fell below the standard of a number of the competing ones. During the testing most of the members had the pleasure of visiting Mr. Luckman's (2JT) experimental station.

The results of the competition are as follows: 1st, Mr. W. Craig; 2nd, Mr. A. S. Bundle; 3rd, Mr. A. S. Bundle and Mr. T. Luckman. Great credit is due to these three gentlemen for the excellent workmanship displayed in their transformers. Mr. W. Craig also won the competition for the best hot wire ammeter.

It was decided that a committee meeting should be held on Friday, 11th July, to make final arrangements for the social.

The meeting closed at 10 p.m.

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

## WIRELESS INSTITUTE OF AUSTRALIA.

THE monthly meeting of the South Australian Division of the Wireless Institute of Australia, was held in the Prince of Wales Lecture Theatre, Adelaide University, on Wednesday, July 2nd. There was a large attendance, over which Mr. Caldwell presided.

The resignation of Mr. J. M. Honnor from the position of Honorary Radio Inspector, was received. Rule 5, which provides that members wishing to pass from associate membership to full membership, must undergo an examination, was discussed, and a vote was taken which resulted in a big majority for the abolition of the examination.

Mr. T. S. Bagshaw then gave notice that he would move at the next general meeting that Rule 5 be altered accordingly.

A lecture on 'Aerials" was given by Mr. Brock, who spoke at length on how to obtain efficiency in both transmitting and receiving aerials, and explained many different types of aerials, giving diagrams and graphs for each.

A letter was read by the President from the Editor of a Sydney radio journal (not "Wireless Weekly."). The letter, which was in reply to a set of regulations for broadcasting, which had been drawn up by an Adelaide committee and submitted to the P.M.G., was to say the least of it, abusive, all because the committee had dared to back up the experimenter, who has made broadcasting possible.

### *TO CLUB SECRETARIES.*

*The following may prove of interest. During the week we received a letter from A. G. Henry (Secretary, Sydney Boys' High School) containing this paragraph: "Could you give me any idea as to what space is available for club reports?"*

*This was our reply: "The space is not limited in the slightest degree. This paper is essentially an amateur one, and if necessary we shut out other matter to give space to anything in reference to amateurs."*

*Needless to say, this applies to any wireless club.*

## MARRICKVILLE AND DISTRICT RADIO CLUB.

On Monday, 7th instant, at the School of Arts, Marrickville, at 8 p.m., the weekly meeting of the above club was held, Mr. W. L. Hamilton presiding.

Correspondence was read, after which the president reported on the Delegates' Conference. The remainder of the evening was taken up by Mr. D. Calnan, in a lecture entitled, "Esperanto as Applied to Radio." A most interesting time was spent, so much so that the remnants of the club were said to be seen at midnight on the footpath still discussing this most interesting subject with the worthy lecturer. Anyhow, the secretary's wife has had occasion to buy a new rolling pin, and the president was last seen on his knees praying for Friday night with its attendant cash consolation. Nevertheless, Secretary A. W. Hemming is still capable of furnishing particulars of membership to any local experimenter, who desires to affiliate with this progressive club. The secretary's address is No. 23 Central Avenue, Marrickville.

## RADIO RELAY LEAGUE. OFFICIAL ANNOUNCEMENT.

The Radio Relay League, under the auspices of the Delegates' Council of the Wireless Institute, has arranged that on Sunday night, 20th July next,

at 9.30 p.m., Sydney time, official station 2YI will call CQ, New South Wales transmitters.

A special message will be transmitted on wave length 210 metres. All transmitters receiving this message are requested to QSL 2YI, Phil. Nolan, Hon. Secretary, Radio Relay League, Box 3120, G.P.O., Sydney."

*AFFILIATED SOCIETIES.*

*The Delegates' Council of Affiliated Societies with the Wireless Institute, have arranged with the Australian Red Cross Wireless Committee, Bedford Park, Sturt, South Australia, call signal 5BS, to transmit experimental test messages to New South Wales experimenters, on the 13th, 20th and 27th July, from 10 to 11 p.m., Sydney time.*

WAVERLEY RADIO CLUB.

Mr. W. Anderson occupied the chair at the meeting held on the 8th July. After the minutes had been read and the correspondence dealt with, some argument took place with regard to the club's receiving set, which is not giving the results it should. Finally, it was moved and seconded that the

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breathes repose. Grey-blue material covers the walls with draperies of dull blue, soft toned rugs are on the floors, and comfortable chairs extend their invitation from every corner.

There are two studios similarly appointed—one large enough to accomodate a chorus or a symphony orchestra, and the other a smaller room, suitable for the broadcasting of soli or addresses. The use of the two studios also make continuous broadcasting possible. The announcer has but to step from one room to another at the end of an item to find the next performer awaiting the word to begin.

Behind the wall coverings and drapings, and built into the ceilings, is a soundproof material which prevents the slightest echo from being registered by the microphone, which is the only bit of apparatus that the artists sees. This instrument, contained in a mahogany microphone standard, collects speech and music, and converts them into varying electric currents, which are then amplified and superimposed on electro-magnetic waves.

Adjacent to both studios is the control room. Here, with headgear at ear, operators stand listening critically to every word and note, compensating for differences in tone and volume among the artists, and flashing warning through silent electric light signals to the studio manager when it is necessary to alter the position of the performers in respect to the microphone.

This control room has three stages of speech amplification, made up of two 5 watt and one 50 watt tube. A fourth stage of speech amplification is contained in the power house.

KGO is, however, not entirely dependent upon its own programmes, but by means of broadcasting pick-up circuits it is equipped to broadcast the speeches of important public gatherings.

Certain it is that KGO is a new means whereby the Pacific Coast will give expression throughout its borders to the art which it fosters, and the thoughts which inspire its noble accomplishments.

Tell Your Friends about

**"Wireless Weekly"**

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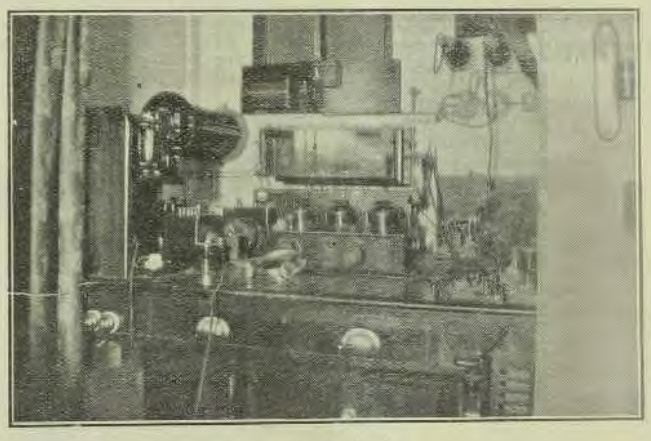
One still, hot night, with hardly a breath of air to cool things down, I was sitting on watch while a gentle stream of perspiration trickled down my face. The ether was very quiet, the only sound in the 'phones, except static being the high-pitched "spangy" note of V.P.B. coming in very faintly, as he worked a Jap. somewhere around Colombo. Soon he closed down with a final O.K., and there was dead silence. The measured tread of the guard outside, and the swish of the water sliding past, were almost soothing me to sleep, when suddenly with a roar that nearly knocked my head off, and in nice slow Morse, a Telefunken note spake as follows: "How would you like one at Belfield's now?" (Belfield's be it noted, is a certain well-known and extremely popular caravansery, situated not a million miles from the G.P.O., Sydney.) I had scarcely completed logging these few words when again from the starry sky came another :"Ool avva 'ot pie?" This was followed by a drawly laugh signal, which among Australian "brass pounders" is three dashes and one dot.

That it was no laughing matter, however, was shown by the strenuous attempt made next morning to locate the misguided wag, who, probably reduced to utter boredom had sought to enliven the proceedings. When we consider that the "Konigsberg" and another German cruiser were believed at the time to be snooping around somewhere in the Indian Ocean, and that the convoy's sole visible escort was the A.E.2, well, probably it was more nearly a matter for weeping. However, as there were several ships fitted with Telefunken sets, the offender was never rounded up, and needless to say, he passed the remainder of the voyage in the silence that is golden.

With V.P.B. (Colombo Radio) we opened up traffic with a broadside of code stuff that must have caused the operator there to wonder what had struck him. I was the first to raise him, and as there was a three days' accumulation (all code), I spent a merry two hours making things hum from two to four a.m., at which time Tim arrived and took up the battle. This went on for a couple of days, in fact right up to the time when the masts of V.P.B. hove in sight behind Colombo. Some difficulty was encountered with a Jap. ship, who was anxious to know the name of A.V.B. which was a strange call to him. Traffic was held up for half an hour while Q.R.A., Q.R.M., etc., were bandied back and forth until finally some good Samaritan chipped in, and in good round English told that Jap. where to go. Ship operators will agree with me that the two greatest nusainces they have to contend with at sea are Japs. and those others whose middle name is "Gee."

At Colombo, I was given leave to go ashore and spent a few wonderful hours wandering around that glorious place, and being robbed right and left. I have frequently read of the superiority of the white over the coloured races, but at the gentle art of grafting, the white man has much to learn from his coloured brother in Colombo. It was not until after many visits to this port that I learned the art of trading which is by tradition a profession peculiar to the native merchant.

The fact that leave for the troops was stopped made little difference. They went ashore, anyhow. A large number simply went over the side and swam ashore, while others, no doubt anxious to do the thing properly, lowered boats off the ships and rowed merrily up to the landing stage. Later on, many ship's officers, cussing mightily, had an interesting time in sorting them back into position. One sight I shall ever remember was a race meeting held in the main street of Colombo. The racing steeds were heavy bullocks taken out of native carts. The jockeys were clad in singlets and A.I.F. riding breaches, and at the side of the "course" other soldiers were busily engaged laying the odds. As the steeds were named after famous Australian horses, the effect when their huge carcasses lumbered heavily up the street while everybody cheered and yelled, was somewhat startling. The applause when "Carbine," puffing and blowing, won by half a street, would have made Randwick look foolish.

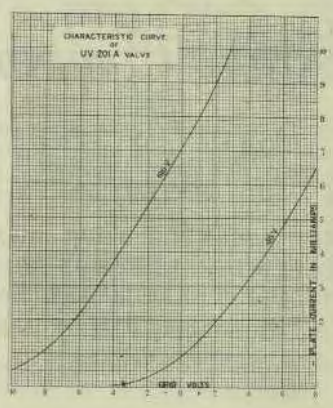


*Typical Ship Station.*

After leaving Colombo, the convoy steamed placidly along over a calm sea—overhead a cloudless sky, and and all-round the broad expanse of deep blue water with the sun throwing a glittering reflection from every little wavelet. At night, the heat was tempered by a cool breeze, and the big tropical moon set in a sky literally a blaze with stars, was a wonderful sight. The flat roof of the Marconi cabin became extremely popular with a bunch of poker players, who apparently sat there all night playing cards by the light of the silvery moon. Q.R.M. from "Raise you two," "See you," and the rattle of coin was frequent, but nobody worried much until one night, while I was calling a station, one of the roosters on the roof happened to touch the lead-in wire.

*To be continued*

## U.V. 201A VALVE





The U.V. 201A is designed to be interchangeable with the older U.V. 201, but is of the dull emitter type and requires only one-fourth as great filament current. Although, for the sake of detail, the illustration shows the bulb of the valve to be clear glass, it is in fact opaque, being silvered.

While the rated filament E.M.F. of the U.V. 201A is 5 volts, it requires only 0.25 amps. and owes its high mutual conductance to the large area made effective by a long filament.

The average electron emission is about 45 milliamperes, which is in excess of what is ordinarily needed in a receiving tube, and for this reason itis possible to obtain excellent results with 4 volts or even less on the filament.

The amplification constant is approximately 8, and the plate impedance at 40 volts is approximately 16,500 ohms. This comparatively low impedance aids in producing uniform amplification for all frequencies and so reduces distortion.

The plate and grid voltages required by the U.V. 201A are the same as for the U.V. 199, except that when the U.V. 201A is used as an amplifier, the plate voltage may be increased to 120 volts without danger of overload. In this case a negative grid bias of 7.5 to 9.0 volts should be used.

On account of its high electron emission and high mutual conductance, this valve is especially suited to operation of loud speakers.

The rectifying action is noticeably good for a valve of high vacuum type, due in part to its high mutual conductance.

The usual conditions for detection are 40 volts on the plate and grid condenser of 0.00075 M.F. and grid leak of 2 to 10 megohms.

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set be altered to one consisting of one valve as a detector and 2 audio. An amendment was made, that it be left as it is (1 radio frequency, detector, and 1 audio frequency), and thoroughly overhauled. The amendment won.

An impromptu debate, on "English manfactures versus American," was then held, with the chairman as adjudicator. The teams were lead by Mr. R. Howell (English) and Mr. G. Thomson (American). Mr. M. Perry, Mr. E. Bowman, M. Howell and others made fine speeches, the English advocates winning by a narrow margin. It is intended to hold another debate on the same lines, confining the manufacture to radio gear.

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