

The Queensland Radio News

"Your Own Wireless Journal"

6^D



Vol. II.

Thursday, 1st April, 1926

No. 3



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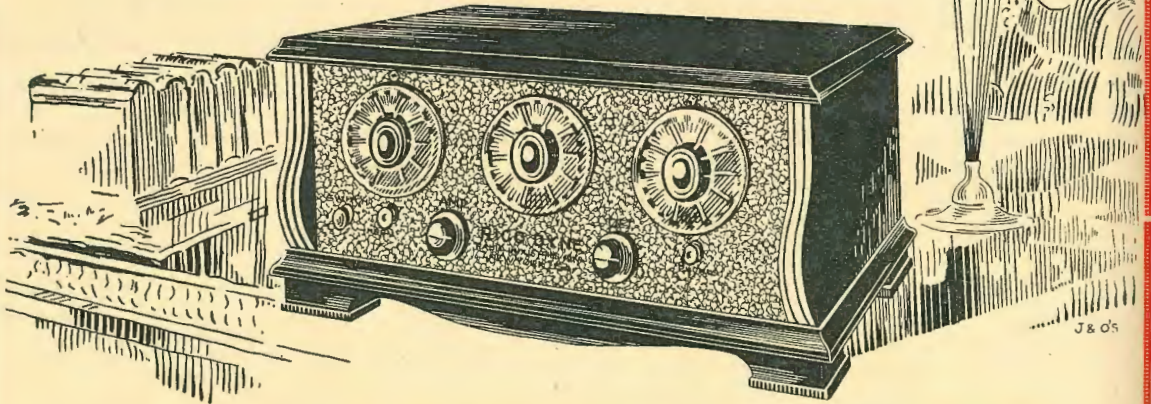
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Dear Sir,

It has been my pleasure to peruse the advance proof of "Wireless," by Messrs. J. W. Robinson and G. Williams.

Wireless experimenters and club members will welcome this book, as it deals with technical subjects in a simple manner, which can be quickly understood.

I would also recommend it to the broadcast listener who seeks information on the transmission and reception of programmes, or the control of his set.

The book is profusely illustrated with circuit diagrams and photographs, and is written for Australian conditions, by two well known Australian radio experts.

In fact, here is a book which every prospective buyer, or owner, of a radio set should possess.

I congratulate the authors, and feel sure their efforts will be appreciated by all wireless enthusiasts.

Yours for radio,

HUBERT KINGTON,
President, Wooloowin Radio Club.
Chairman, All Clubs' Council.

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SOUVENIR ISSUE OF

"The Broadcast Bulletin"

TO BE PUBLISHED FOR OFFICIAL OPENING OF 4QG.

We are preparing a special souvenir number of "THE BROADCAST BULLETIN," which will be on sale during the week of 4QG's official opening. An article by the Premier of Queensland (Hon. W. McCormack, M.L.A.), an article by Mr. G. J. Reed (installing engineer at Big 4QG), a review of the temporary service by Mr. Robinson besides many other interesting subjects in connection to the new station. The price will remain at 2d. copy.

24 Pages—the size of this journal—for 2d.

FANATICAL CENSORS NOW SEEK TO BAN "INDECENT" MUSIC.

Almost any radio fan will agree that there is a lot of "crazy" music on the air these nights, but few would undertake to say that any of it is "indecent." The problem of determining that very difficult difference, however, came up recently in the capitol city of our fair land, when from a musty file of police regulations some one dug up an order forbidding "indecent music" and put it up to the Washington guardians of the law and order to enforce the official "don't"—if they can agree on what it prohibits. The difficulty seems to rest with deciding whether swaying intonations are to be blamed for men forgetting home and babies, temporarily, or whether the important thing is that the tom-tommy sort of Oriental music should be confined to its point of origin, somewhere in the deserts, where, as one of the policemen said "the desert natives have self-respect enough to dance by themselves. At last reports the authorities were wide apart in defining a standard.

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Published Monthly



Vol. 2

THURSDAY, 1st APRIL, 1926

No. 3

The Official Organ of the Queensland Division of the Wireless Institute
of Australia and Radio Societies of Queensland

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LITERARY CONTRIBUTIONS.

especially original articles of interest to readers, are invited. Accounts of Club doings or unusual receptions, &c., &c., will be welcomed. This journal reserves the right to reject any contribution deemed unsuitable.

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"Sour Milk"

A milkman who drove around the suburbs of Brisbane, crying "Sour Milk," could hardly be expected to attract much business—rather would he repel it.

Yet, during the past few weeks there have been those directly interested in the radio trade, who have publically denounced new 4QG, and all connected with it, through the columns of the daily press. By so doing, they are not only driving new business away from their own and everybody else's counters, but they are killing the slowly maturing seed of public enthusiasm, which is worth more to them and everybody else than they seemingly imagine.

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Remarkable Claim by World's Scientist.

The "Evening Standard" (London), says that Sir Oliver Lodge, after three years' secret experiment at the Penivate laboratory, announces that he has succeeded in doing away with oscillation, which hitherto has puzzled wireless operators throughout the world. Sir Oliver Lodge, who introduced the method of aerial tuning in rendering wireless communication possible without chaos, has now abandoned it. He declared that perfect reception is guaranteed, because the use of reaction is avoided. This will not add to the cost of the new set. It will mean a comparatively inexpensive alteration of existing receivers.



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THE QUEENSLAND
RADIO NEWS



A Magazine for Amateurs
A. T. BARTLETT, Editor

THE EDITOR'S PAGE

Enter Big 4QG

THE month of March, 1926, has been a memorable one for Queensland Radio. During the greater portion of this month Station 4QG has been transmitting on full power, and has succeeded in reaching the uttermost corners of Australasia.

Whilst country and interstate listeners have been rejoicing because of the added entertainment afforded them through the opening of this giant station, a fierce and bitter war has been waged in the columns of the Brisbane dailies upon the question of 4QG's overpowering interference to receivers operating within a 20-mile radius of this station. Dozens of letters have appeared, some wrathfully denouncing the station, others championing 4QG's cause.

Now that the fury of the fray has abated somewhat, it would be interesting to know just what has been accomplished. So far as we can see it has achieved naught; rather has it turned the tide of public opinion in a measure against Radio, and has sown seeds of doubtfulness in hundreds of prospective listeners' minds.

Of course the average listener cannot be blamed for airing his grievances through the Press. It is rather annoying to find oneself in possession of a multi-valve set with a programme confined to one station. The pity of it is that the station should be blamed for this interference, when in reality the officials are obeying Federal instructions. Another deplorable feature in the matter was the entrance into the discussion in a condemning capacity of several who should have known better.

However, let us amend matters by saying a good word for our station. Remember it is the most modern piece of transmitting machinery in Australia. Remember also, it is still in its testing period, and that it has hardly had a chance to assert itself. Provided that the Federal authorities sanction a re-allocation of broadcast wavelength, Radio in Queensland will, despite this huge setback, move forward again upon its march of progress.

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Premier Officially Opens Big 4QG on Thursday, April 22nd

Full Services Commence Monday, April 19th

Just before we went to press your Editor visited Mr. J. W. Robinson (Director 4QG) and inquired if there was anything further he wished to make known to our readers concerning the opening of Big 4QG.

"No," replied Mr. Robinson, "apart from the fact that the Premier (Mr. W. McCormack, M.L.A.), who is away on an electioneering campaign, will not return to Brisbane until Thursday, April 22nd, and consequently the official opening will not take place until that date. The ceremony is timed for 3 p.m."

"This corrects the statement published in your last issue, which scheduled the opening date as Monday, April 19th."

"The full daily services, that is, the Midday Session, the Afternoon Session, The Children's Hour, the Farmers' Session and Evening Concert, will be inaugurated from Monday, 19th April, although, as I previously stated, the official opening will not be broadcast until the following Thursday."

Mr. Robinson then kindly conducted your Editor through the new station to view the work under progress. It was about two months since the last tour of inspection was made, and one could not help but notice the vast progress made.

Most of the scaffolding is now down, the plastering all but completed, revealing the naked splendour of the architecture in its beautiful whiteness. Had there been time we would have published photographs of sections of this handsome work, but readers may look forward to seeing some of the beauties of Big 4QG reproduced on the pages in our next issue.

From all appearances the contractors are well ahead of time so far as the studios, offices, reception room and vestibules are concerned. As is well known, the transmission rooms have been completed for some time and now house the high-power transmitters. There will still be a little finishing off work to be done to other portions of the station after the official opening.



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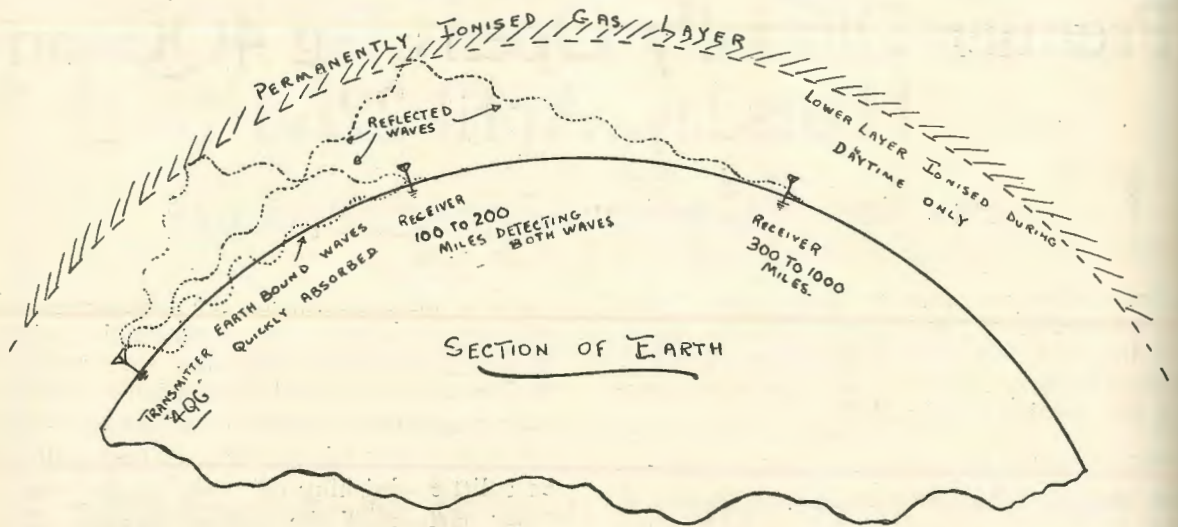
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A Peculiar Form of Distortion

(By J. G. REED.)

Many amateurs who live within a 200 mile radius of 4QG are at a loss to understand why that station should register a degree of distortion on their receivers at night time, while reports are coming to hand from greater distances, testifying to the clarity of transmission. The cause and effect are ably described in the following article.—Editor.

Many listeners within a range of 100 to 200 miles of 4QG have reported a peculiar form of distortion noticeable only at night time. Daylight reception is reported excellent but as the night draws on a humming effect similar to that caused by a faulty filter, and a coarsening of the modulation is noticed. Naturally the transmitting station is blamed for this, and to show that the receiving set is not responsible for the trouble the listener will quote the excellent reception of say 3LO nearly 1000 miles away. To the beginner in radio this is very puzzling and he can be excused along with probably 99 per cent. of others similarly situated in denouncing all and sundry connected with the transmitting station.

Every owner of a sensitive receiver has noticed that the range of reception is greatly increased during the night time, and that the daylight range is limited to about 200 miles. The reason for this is that during the daytime the transmission is carried out almost solely by means of the waves which travel along the earth's surface and by the time that they have travelled the distance mentioned above they become so attenuated that they have not sufficient strength to work even a sensitive receiver. This remark applies strictly to the shorter wavelengths as used by most of the Australian broadcasting stations. On wavelengths above 1000 metres such as that in use by 2FC, 6WF and 3LO when on 1720 metres, the daylight range is much greater due to the lesser absorption with lower frequencies. All waves radiated upwards are lost for all practical purposes due to the almost general

ionisation of the atmosphere by the sun during the daylight hours. When the sun sets the lower stratas of the atmosphere lose their electrical charge and ionisation becomes confined to a fairly sharp defined belt of rarified gases at a distance of from 50 to 100 miles above the earth. Those who have a knowledge of physics are aware that gases at a low pressure are capable of very ready ionisation, and when in this condition act as very good conductors of electricity. It will be seen that during the night time the waves radiated upwards from the transmitting station have a clear run of from 50 to 100 miles before they strike a medium different to ordinary unionised air. When any ether vibration be it light waves or radio waves, passes from one medium to another the path of travel is bent according to the difference in the refractive power of each medium, and the angle at which the wave strikes. By a combined process of refraction and reflection the wave is bent back towards the earth where on striking it is converted into an earth bound wave which travels along the surface until it becomes sufficiently attenuated to be neglected. As the vertical radiation from the transmitting station strikes the ionised layer at all kinds of angles the reflection and refraction sends them back to the earth in a similar condition. Some of the waves even have a multiple reflection before they come to earth, and it is on these that ultra long distance transmission depends. As previously mentioned the original earth bound component travels outwards for about 200 miles, and at night time gets mixed with that which comes



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"We were considerably astonished to find that by using the B.406 on our standard 3-valve set volume was raised about 30% over any other valve. But the writer's greatest satisfaction was the beautiful tone, for, in spite of the volume, both speech and music maintain a clarity that is astonishing, being devoid of all distortion. Of course, all valves have been tested in conjunction with high grade apparatus, and therefore the comparison between the B.406 and other valves was a fair one."

*Of All
Dealers*

17/6



down from the ionised layer (known as the Heavyside layer). These two components travel different distances in reaching the same spot, and due to the fact that the reflecting surface of the ionised layer is in a continuous state of unrest they will periodically fall in and out of phase causing a variation of signal strength. In U.S.A., G. W. Pickard (the inventor of the crystal detector) investigated this phenomenon and took records by means of an oscillograph of the fluctuations of signal strength. He used the unmodulated carrier from station KDKA in his experiments and the oscillograph records showed that the phasing and dephasing of the earth and reflected components of the signal caused a ripple in an otherwise practically pure D.C. carrier equivalent to a modulation frequency of up to seventy cycles. As this is very near to the frequency of the commercial lighting and power supply it would be very easy to mistake the effect for imperfect smoothing of a rectified alternating current plate supply. Readers who may be inclined to doubt my statements and maintain that the plate supply at 4QG is not effectively filtered should ponder over the fact that the plate supply is obtained from a double wave three phase rectifier which gives a rectification ripple of 300 cycles per second. Such a frequency if allowed to modulate the carrier would make the station emit a signal somewhat like VIB where a similar frequency is applied direct to the plate of the valves to obtain tonic train telegraph transmission.

Receiving stations located outside the critical distance where the earth and reflected waves interact do not experience the abovementioned form of distortion, but in its stead the erratic reflection causes periodic fading of signal strength. During the early hours of the night the upper layers of the atmosphere are in a very disturbed condition and the fading periods will be very close together, but as the night wears on conditions up above steady down, and the fadings are few and far between, while a few hours before sunset the conditions are almost perfect. As soon as Old Sol puts his head above the horizon it is a case of Paradise Lost for long distance reception, and we must wait for the evening shadows to hear 3LO once again.

The sketch on page eight will make clear to readers the paths traced out by the earth and reflected components of ether waves which carry the signals from the transmitting station to their receiving aerials. No attempt has been made to draw the waves, etc., to scale as this would make the various items in comparison to the height of the ionised layer so small that they would be practically invisible.

This effect upon radio signals by the sun's rays has been known to radio engineers and physicists for many long years and with the publicity that the Heavyside layer has had in the press during the last few years it seems remarkable that broadcast listeners do not know more about it. It was the writer's own experience during the tests at the new 3LO, Melbourne, to receive a letter from an individual in Holy Adelaide (who, by the way, had taken unto himself the title of radio engineer) asking if the periodical fluctuation of signal strength from the new station was caused by variation of the voltage

on the mains supplying the station. The writer would be extremely pleased to receive reports from any listener who experiences the peculiar form of night distortion mentioned above. At present, there seems to be no other solution to the problem than the installation of small relay stations within the effected areas and linking them up by means of land lines to enable simultaneous broadcasting to take place.

How to Preserve Your Aerial Ropes

Aerial ropes, like many things, soon attain a neglected old age unless treated with a weatherproof medium before instalment. Here is a process that has been thoroughly tested by the writer, and the results proved excellent. Shred one pound of paraffin wax into a kerosene tin. Add power or lighting kerosene to a depth of four inches. Place tin on top of stove, till all wax is dissolved, which it does at a comparatively low heat. Steep rope in the hot solution until it is thoroughly soaked. This method does not swell or fray the rope, but leaves it beautifully pliable. Some folk treat their ropes with tallow but this is a decidedly messy process, and is not so efficient a preservative as paraffin wax. The above quantity is more than sufficient for the treatment of 200 feet of aerial rope.

(Note.—A closed stove should be used for the dissolving process. An open fire is apt to produce unexpected and spectacular results.)—A.S.

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How to Cut Out Big 4QG

Some Selective Receiving Circuits

By J. G. REED

In this article Mr. J. G. Reed—who designed 4QG's new transmitter and supervised its installation—offers some very sound and valuable suggestions for effectively solving a problem which is at present prominent in the minds and upon the lips of many amateurs living in close proximity to Big 4QG, viz.: "HOW CAN I TUNE OUT 4QG AT WIL?" Mr. Reed is considered to be Australia's greatest Radio Engineer; in his spare moments he is also a very keen amateur (operating Station 2JR). This article coming from the pen of an authority in the position to view the question from both the transmitting and receiving standpoints will be read with profit and pleasure by every amateur.—Editor.

The commencing of transmission from the new high power station for the Queensland Radio Service has occasioned much comment from amateurs and broadcast listeners. The main difficulty is to cut out the local station and bring in as before, the interstate stations, working on wavelengths in close proximity to that used by the Brisbane station. Those living more than about ten miles from the station have its initial strength toned down sufficiently to enable this reception to take place without too much interference but for those within this range special means will have to be employed to minimise the amount of energy picked up from the big station.

Many and varied have been the theories brought forward to explain the peculiar action of the signals being emitted from the new station. The most foolish that I have heard is that the installing engineers are unable to tune the station properly and that the present tuning is broad, in fact, everything is wrong with the transmitting station and nothing with the receivers. The wavelength employed by 4QG is 385 metres corresponding to a frequency of 780 kilocycles and when this is modulated the frequency swings to each side of the normal value to an amount corresponding to the modulation frequency, producing in addition to the carrier frequency what are known as two side bands. The highest frequency handled by the modulation system is approximately 5000 cycles or five kilocycles which means that the frequency of the transmitter varies between 775 and 785 kilocycles corresponding in wavelength to approximately 382 to 388 metres. This represents the extreme limits as the Western Electric Speech Amplifying apparatus in use at 4QG does not handle frequencies much above 5000 per second. In practice about 3000 cycles is the general limit, and only the upper harmonics of certain instruments like the violin require the full range and then only very feebly. From this it will be seen that the wavelengths swings less than one per cent. due to modulation, and any reception outside of this is due entirely to the inability of the receiver to tune sharp enough.

When transmission took place from the small station, the signal strength was not great enough to seriously interfere with even the most mediocre receiver when after other stations, and as a result many traders and home set builders followed the path of least resistance and made receivers with circuits which had been thrown out in other countries years ago because of their non selective properties. By this, I mean the single circuit or two coil type, known

as the "P1" and any other form be it radio frequency direct or super heterodyne amplification in which the grid of any valve makes a direct connection to the aerial tuning system.

It is common knowledge—or ought to be—to all amateurs interested in short wave work that an aerial system is capable of being excited by other frequencies than that to which it is tuned. As a matter of fact any elevated metallic structure has generated in it voltages by every magnetic impulse that cuts it during its path through the surrounding ether, and by the employment of tuned resonant circuits the amplitude of any one of these can be magnified considerably. Across the terminals of the primary or aerial inductance there will exist in addition to the resonant voltage others corresponding to non resonant waves that cut the aerial wires, with the result that if the grid of any valve is connected to this inductance it will amplify or detect each and every one of the various potentials. Multi stage radio frequency amplifiers due to their additional resonant circuits will make a discrimination as to what reaches the detector particularly if inductively coupled circuits are used between the valves, in place of the capacity coupled tuned anode method. The latter method with its direct connection from the anode coil to the grid of the detector when using

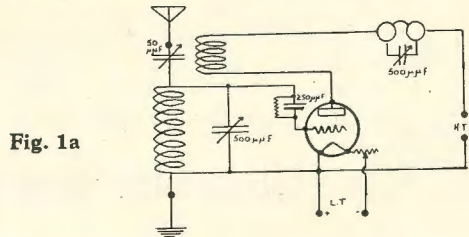


Fig. 1a

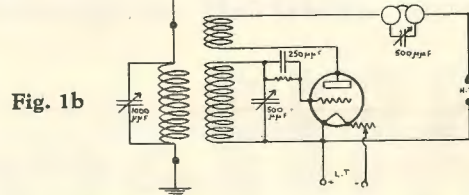


Fig. 1b

Fig. 1a.—Selective P1 circuit, using small capacity coupling to the aerial circuit.
Fig. 1b.—Three coil regenerative with marked selective properties and low radiation effects if allowed oscillate.

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**RADIO
BATTERIES**

one stage of amplification is very little different as regards selectivity than the "P1" circuit. Suppose that the interfering station is so close to the receiver that the shock excitation of the aerial induces a voltage almost equal to if not greater than that due to resonance with a distant station, then the former will come in with corresponding volume, due to the direct connection to the grid of the valve.

There is a method of overcoming this to a very great extent, and the different circuit arrangements in comparison with the "P1" connection are shown in Fig. 1. This is known as the inductive coupling method. It is not a new arrangement brought into the world along with the hosts of "Superdynes" and "Todynies" for the edification of the broadcasting public, but formed the basic idea of Marconi's famous No. 7777 patent issued nearly 25 years ago. As will be seen from the diagram it possesses two tuned circuits; one in the aerial and one in the grid circuit connected through their mutual magnetic coupling. The tuning of this type of circuit is a little more difficult than the two coil variety, but the results secured are well worth the extra trouble. Set the primary coil at about 45 degrees to the secondary or grid coil and with the secondary condenser tune the grid coil until the carrier wave whistle of the desired station is heard. It is understood, of course, that the reaction coil must be so adjusted that the circuit is in a state of self oscillation. Having located the station proceed to tune the aerial coil to resonance. If the coupling is too tight the tuning of the secondary circuit will take a sudden jump at the resonance point and possibly stop the detector from oscillating. Weaken the primary coupling to such an extent that only a slight alteration of the beat note is produced when it is tuned through resonance with the secondary. The amount by which the coupling is further reduced depends upon the degree of selectivity required. One night's handling of such a circuit will result in much more knowledge being gained than a whole book full of written instructions.

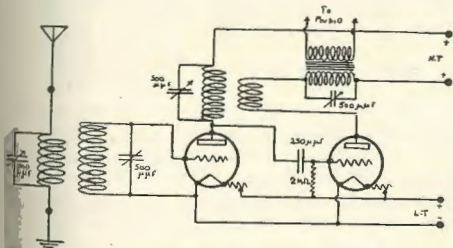


Fig. 2.—Inductively coupled tuned anode radio frequency receiver.

In Fig. 2 the radio and detector portion of the conventional four valve radio, detector and two audio is given but with the inductively coupled primary or aerial circuit connection. This circuit will require two double coil mountings to accommodate the primary-secondary and anode-reaction combinations in addition to variable condensers for the primary, secondary, and anode coils. At first it will be a little difficult to find the exact positions for all these variable components, but as there are not more than half a dozen different stations that will be required

to be tuned in it will only take a little time and patience to make out a log of adjustments needed which can be referred to at any time the set is being used. Don't be like some people I have met in other States who have howled about the difficulties before they made the attempt at tuning one of these circuits.

Some listeners due to their location in districts where static is very troublesome during night time prefer to confine their reception to the short wave broadcasting stations exclusively. Where this is the case a real serious attempt can be made at rendering the receiver selective for in place of honeycomb coils and their attendant high internal losses, efficient single layer coils wound with especially heavy wire can be used. Due to the construction of honeycomb coils the distributed capacity and radio frequency resistance is always high. As the main feature in selective circuits is a low resistance both in the inductance and the condenser it will be seen that the employment of honeycomb coils is detrimental to best results. For a three coil regenerative receiver employing this type of inductance the writer recommends that the secondary be wound with 40 turns of No. 18 or 16 waxed double cotton covered copper wire on a 3 1/2 inch. cardboard or bakelite former with a static reaction winding separated from it by half an inch, and consisting of from 10 to 20 turns of similar or smaller wire. The reaction winding cannot be stated exactly as it will depend upon the make of the detector valve, and many other variable elements in the circuit. It will have to be determined by actual experiment. The method of regeneration control suggested does away with a rotary coil, and its mechanical complications and in its place a variable condenser across the primary winding of the interval transformer is used. When this condenser is at minimum value the impedance offered to the passage of radio frequency currents is very high, and the receiver is prevented from oscillating but when the capacity is increased the impedance falls, and the receiver oscillates after a critical value is passed providing the reaction winding is of suitable value. This condenser should be about 0.0005 microfarads capacity and need not be of special construction as it does not have to carry any considerable current like the secondary or primary condensers. The primary inductance should be wound on a smaller diameter coil capable of being rotated at one end of the secondary to enable loose coupling to be employed. The exact winding will depend upon the size of the aerial system, but if a small fixed condenser of about 0.0001 microfarads is connected in series with the aerial lead to minimise its tuning effect upon the aerial the winding can be made with 35 to 40 turns of No. 24 d.c.c. on a 2 1/2 inch. former. The mechanical layout will be left to the constructor as the dimensions of the material available may alter in individual cases.

In the case of the tuned anode receiver a similar type of inductance mounting can be used. For the aerial-secondary unit the same size rotary coil and fixed winding can be employed, and for the anode-reaction combination a double winding of the same size as that specified for the secondary-reaction coils for the three coil regenerative detector circuit. Capacity control reaction should be used in either case as it greatly simplifies the mechanical layout of the receiver panel.

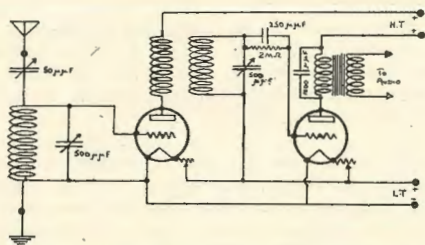


Fig 3.—Coupled radio frequency amplifier with capacity coupling to the aerial.

For those who do not desire to go to the expense of installing an additional coil and condenser the circuit can be altered to that shown in Fig. 3. In this it will be seen that an aperiodic anode coil is used and the grid circuit of the detector is tuned instead. No direct regeneration is used in the detector and consequently a valve which is particularly suited for this purpose had best be used. Regeneration is obtained by varying the coupling between the tuned grid and the anode circuit. When the coupling is very close the mutual effect between the two windings is so great that the effect on the radio valve is practically the same as tuning the anode direct, and consequently self oscillation and the consequent regeneration can be set up due to the inter-electrode effects within the radio valve. Reduction of the coupling reduces this effect and by varying the mutual relationship of the two coils reaction effects can be obtained with practically the same results as that given by the more commonly known methods.

It will be seen that the aerial is directly coupled to the grid of the radio frequency valve and trouble will be likely to be experienced if the receiver is operated very close to a broadcasting station. The coupling of the aerial to the grid circuit can be greatly loosened by connecting in series with the aerial lead a three plate vernier condenser. Using this method of aerial coupling the writer can tune in Melbourne with an ordinary "P1" receiver in Sydney when the local short wave station, 2BL is going full blast. The interference from the latter station is so small that it is entirely drowned by the strength of signal received from 3LO. In building the receiver with the form of radio frequency amplification last described, best results will be obtained with inductances which have low internal losses. Honeycomb coils on short waves have fairly high losses and the writer does not recommend their use. In place of them spider web coils wound on "Grodan" formers should be used. Wind them with No. 20 or 22 d.c.c. copper wire, which has been soaked in paraffin wax. Treat all wires with a wax bath before winding an inductance and there will be no further troubles caused by absorption of moisture during humid weather. Handy packages of this wax can be obtained from any hardware store under the trade name of "Texwax." This procedure is bound to be condemned by the half baked low loss experts who have never even tried this method of preventing erratic behaviour, but a trial with a treated and an untreated winding will convince the most dogmatic "low lossist." A two coil mounting will be needed for the anode grid coil circuit, and a single mounting

for the aerial coil. By using plug-in mountings it is possible to employ larger honeycomb coils for the reception of 2FC on 1100 metres.

In addition to the single stage of radio frequency amplification just described, additional stages can be employed if they are of the aperiodic type. Do not attempt to use more than one stage of tuned radio amplification or most of the night will be spent in twiddling with dials in an attempt to overcome the tendency of the receiver to burst into oscillation. This remark does not apply to those of the Neutrodyne class, although it is not uncommon to meet Neutrodynes which do not "neut."

Having briefly touched upon the types of circuit which will assist in improving the selectivity of the receiver we will now consider other means such as wave traps and shielding. To be effective, a wave trap must be capable of concentrating its attention to a very limited band of frequencies and must not be broad in tuning or possess high losses. This means that its components must be of the highest grade with solidly built condensers and heavy wire inductances. The use of honeycomb coils in wave traps is an absolute farce for the main consideration is a low internal resistance, upon which selectivity greatly depends. A wave trap for the absorption of the 385 metre wave from 4QG should consist of 30 to 40 turns of waxed d.c.c. No. 16 copper wire, wound on a cardboard former three to four inches in diameter in conjunction with a 0.001 m.f. condenser. It must not be placed in inductive relationship to any of the other inductances or most of its advantage will be lost.

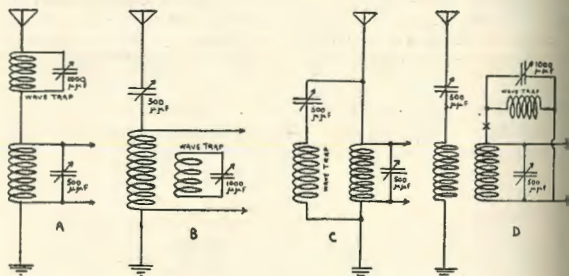


Fig 4A.—Series wave trap keeps out one station.

Fig 4B.—Inductively coupled wave trap absorbs one station.

Fig 4C.—Parallel wave trap bypasses unwanted station.

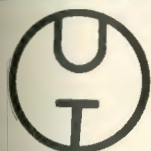
Fig 4D.—Naval rejector circuit by passes all but the desired signal.

There are several ways of connecting wave traps as illustrated in Fig. 4. It can either be employed to keep out all but one frequency or let in all but one frequency. Fig. 4a depicts the usual series method in which the tuned trap circuit forms a very high impedance to any frequency to which it is resonant. It has very little effect upon the tuning of the receiver. It can also be inductively coupled to the aerial or grid coil and act as an absorber of the interfering wavelength. The third method is a series connection of the trap inductance and condenser connected in parallel to the earth and aerial terminals. This connection bypasses to earth any

frequency to which it is resonant. For best results the condenser must be kept small and the inductance large, otherwise the tuning of the receiver will be effected. All these methods aim at keeping out only one frequency. In the fourth method the function is to let in the desired frequency and bypass all the rest. This type of trap circuit is used by the navy and from the writer's experience with it, it works to perfection. Too great a stress cannot be laid upon the necessity of employing low resistance inductances. In the navy type rejector—as it is called—part of the inductance consists of a copper bar about $\frac{1}{4}$ in. wide by $\frac{1}{4}$ in. thick. When using this type of trap the procedure in tuning in to a distant station is as follows: Pick up the desired station and adjust the receiver to maximum sensitivity neglecting the interference produced by the local station at first, and then close the switch connecting to the wave trap. Immediately this is closed practically nothing will be heard. Now turn the condenser of the wave trap and when resonance is obtained with the desired wave its impedance will be so high as to allow practically all of the signal voltage to be impressed on the detector or such valve in whose circuit it is connected. All other frequencies will be bypassed owing to the low impedance offered to other than those in resonance. Slight alterations will have to be made to the original tuning and reaction conditions after the trap has been connected in circuit. With the exception of the second method the trap circuit should be kept as far as possible from interaction with the other inductances.

Shielding of the internal wiring and coils of the receiver is another very important thing to attend to. It is no use going to elaborate precautions to way-lay the interfering signal at the front door if it is allowed to creep in at the back per medium of long battery leads and unshielded inductances. To shield the receiver the inside of the cabinet should be lined with brass foil obtainable at any motor supply house, and the bakelite panel covered with similar material or heavy tin foil attached with rubber solution. Cut away sufficient of the shielding to clear all screws, terminals, and condenser shafts that are liable to come into contact with it. The whole of the lining must be electrically continuous and connected to the earth terminal. If the batteries are allowed to remain in the open much of the benefit of the shielding will be lost. If practicable they should be built in to the receiver or failing this, accommodated in a separately shielded box as near to the receiver as possible.

Many of these precautions are of an elaborate nature and may deter many from giving them a trial, but if interstate reception is desired during the present ridiculous wavelength congestion amongst class "A" stations something must be done on the part of the listener in. In conclusion, I would suggest that readers who give these methods of reducing interference a trial, should communicate their results, along with diagrams, to the editor, so that others may benefit by their efforts.



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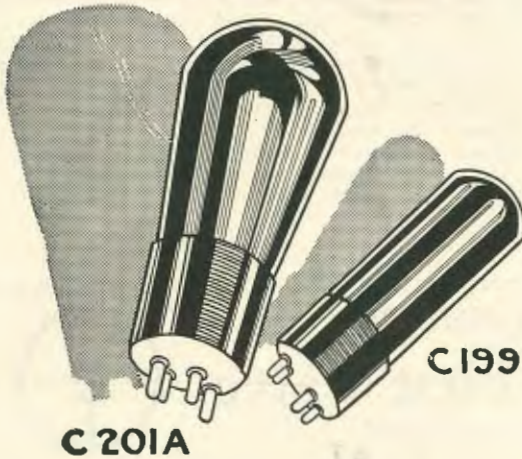
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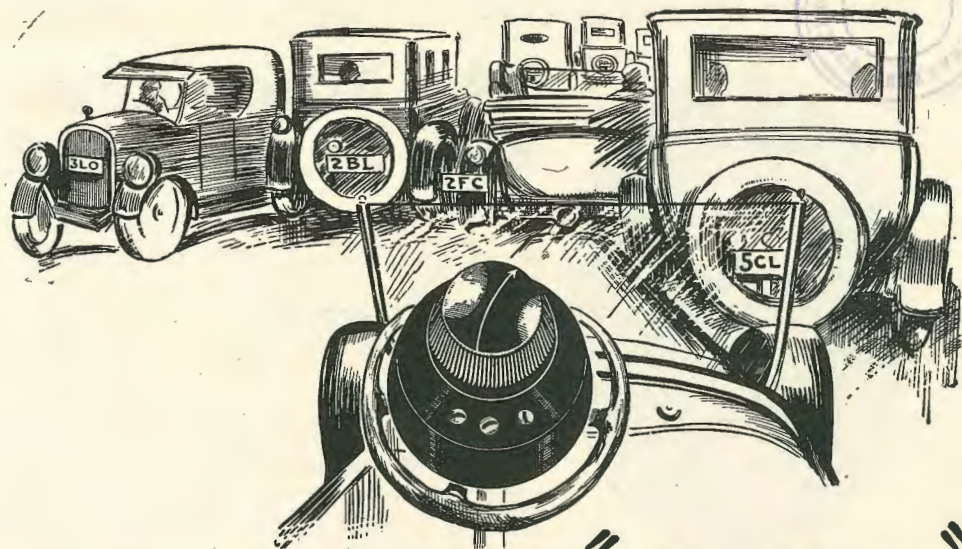
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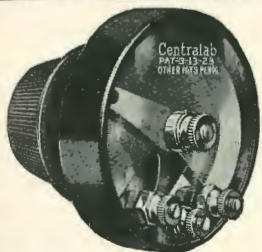
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Mr. J. MALONE.

An Open Letter to Mr. JAMES MALONE

*Chief Inspector of Wireless for the
Commonwealth*

Mr. J. MALONE,
G.P.O., Melbourne,

March 29th, 1926.

Dear Sir,—

We know you to be a man of justice and integrity. We feel sure that you have the welfare of the broadcast listeners of Australia at heart. With this assurance we write this letter to you, knowing full well that anything we may suggest for the betterment of the conditions at present endured by a section of Queensland's radio fraternity will be given your sincere consideration.

You have doubtless learned, Mr. Malone, that the opening of the new high-power station—4QG—has caused serious controversy among listeners who operate receivers within a 20-mile radius of 4QG. On account of the great power of this station it is utterly impossible to tune him out (without special devices) on its present wavelength, and you will admit that one does not pay his license fee to be restricted in his choice of programmes.

In our opinion, Mr. Malone, a revision of the allocation of "A" class Broadcasting Station wavelengths is absolutely imperative to ensure reception of all stations from any one point in the Commonwealth. It seems incredible that three Australian 5 k.w. stations should be operating within 24 metres of each other. Why they are huddled together so closely when there is such a wide margin above and below the broadcast band is indeed a mystery.

The position in Queensland is likely to develop ugly proportions unless a swift and decisive endeavour to right the position is made by responsible officials. The correspondence columns of the daily Press are full of complaining letters, and as you can well imagine this state of affairs is going to cause a decline in Radio popularity rather than foster the great forward step that everybody anticipated would follow 4QG's opening.

In fairness to the B.C.L.; in fairness to the Government, management and engineers of the station; in fairness to the traders who have hoped for many months that the opening of the big station would offset their lean periods; in fairness to the progress of Australian Radio, we ask that you use all the influence in your power to re-allocate the Broadcasting wavelengths so as to allow the average amateur to operate his receiver without undue interference between stations.

Yours for Radio,

"THE QUEENSLAND RADIO NEWS."

A. T. Bartlett (Editor).

Wireless Conference To Be Held in New South Wales

The President of the Association for Developing Wireless in Australia, New Zealand, and Fiji (Mr. George M. Taylor) has issued invitations to a Federal conference on wireless, to be held in Sydney on May 4, and 5. The conference will discuss points that delegates may consider to be hampering the development of wireless, and the following are among the items suggested for discussion:—(1) Reduction of copyright charges; (2) reduction of patent royalties, and (3) best method of collecting license fees. It is also intended to suggest the appointment by the Federal Government of a Royal Commission to consider the decisions of the conference, and any other matter hindering the development of wireless in Australia.

In issuing the invitations the president writes:—To the conference, representatives of all radio interests are invited, so that all sides can meet in friendly discussion and reach a common understanding in the best interests of wireless, and the public, instead of the present misunderstandings and hamperings, that are not only blocking progress, but are also weakening the popularity of broadcasting. How serious this is becoming will be understood when it is pointed out that in New South Wales, where

broadcasting was first introduced, its popularity is declining; in fact, during the month of February, 3352 licenses were cancelled, with only 1694 new licenses issued. Though this decline in popularity has not yet reached the other States, it should be checked, and united effort made to add to the great work done by this association during the past three years to win best public attention to the remarkable advantages of radio; particularly broadcasting, which should receive wider appreciation in Australia than in any other part of the world, in order to bring city pleasures in "music, song, and story," to the wide-spread homes on our continent, and so help to stem the march to the capital cities that is hampering country settlement and production.

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BEAM WIRELESS

Selection of Melbourne Sites

WORKING IN AUGUST

Beam wireless working between Australia and England will commence probably in August or September.

Working is proceeding satisfactorily on the two sites selected for the Australian transmitting and receiving stations. Two Marconi beam transmitters are being erected six miles from Ballan, which is on the main road between Melbourne and Ballarat. One transmitter will send a concentrated wireless beam direct to England, while the other will similarly transmit to the Canadian station, on the St. Lawrence River, near Montreal.

On another site about 15 miles from Melbourne, near the townships of Sydenham and Keilor, will be erected two Marconi beam receiving stations. One will catch the waves from the English beam station and the other will receive the transmissions from the station near Montreal.

In addition to the main stations in Australia, Amalgamated Wireless will erect feeder stations in all the capital cities, except Melbourne. These will eventually be in communication with the main stations by wireless.

DEFENCE REQUIREMENTS.

Mr. E. T. Fisk, of Amalgamated Wireless, stated that one of the stations near Ballan would transmit to England in a north-westerly direction, and occasionally, south-easterly. Transmissions to Canada would be made approximately in a north-easterly direction. In locating the sites care had to be taken to see that the two beams would not cross.

Asked why both sites had been located near Melbourne, Mr. Fisk said that it was necessary that they should be near Melbourne or Sydney. After careful consideration the present sites had been decided on. Many factors had to be considered. The Defence authorities, for instance, required that the stations should be a certain distance from the coast and should, as far as possible, be capable of defence from the air. The receiving stations had to be capable of receiving from the north-west, north-east and south-east, and to be situated if possible within 30 or 40 miles of the transmitting station, but in any case not nearer than 25 miles.

Near Sydney, said Mr. Fisk, only two suitable sites from a technical point of view, could be found at the time the company desired to acquire land, but neither site was satisfactory from a defence point of view.

AUTOMATIC WORKING.

Wireless energy sent by the system, say, from England, will reach Australia in an ever-broadening beam in a manner similar to the way a beam of light from a search lamp widens. Energy will not be radiated in every direction, as is the case with ordinary wireless systems. How wide will the beam be when it reaches Australia?

Mr. Fisk said it would be approximately as wide as Australia itself. It was intended, however, to preserve secrecy as far as possible by working on the "core" or centre of the beam. The energy near the edges would not be so great as at the centre, and it would be stated, be possible to receive at a speed on the "core" which would not be practicable elsewhere in the beam area.

The speed of working, Mr. Fisk said, would range from 20 words a minute to 200 or 300 words a minute. By means of Creed automatic printers the striking of letters on a keyboard in Australia would result in those letters being reproduced on a tape in England.

Apart from other considerations, the beam system was not so costly to install as the high power station which had previously been decided on. With the high power station, for instance, 20 masts, each 800 feet high would have been necessary, whereas with the beam only three masts each 250 feet high were needed.

Beam working between England and Canada, Mr. Fisk added would be commenced probably next month.—"The Sydney Sun," 11/3/26.

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PERSONALITIES

Mr. Ralph Hentz, a well known Sydney amateur, recently visited Brisbane and paid a visit to 4CM's new home in the Observatory Tower. Tom Elliott took his visitor up to the "look-out," and Ralph nearly "jumped the Gap" when he beheld the view. He said that the village has grown somewhat. True, son—but—we DO miss our Harbour!

Mr. Con. Daley (late radio manager, Queensland Pastoral Supplies Ltd.) is now selling Operadios for the C.C.M. radio department.

Mr. J. G. Reed, the A.W.A. engineer, supervising the installation and tests at Big 4QG, has taken a fancy to Station 4AN. Mr. Reed complimented Leighton Gibson on the efficiency of his apparatus. He added that the receiver was one of the best he had ever listened on. It will be remembered that Mr. Reed owns and operates Station 2JR.

Dr. Eric Molle, a well known dental surgeon has lately interested himself in radio, and has constructed a crystal receiver. He sure ought to be nimble with those pliers after such intimate experience with the deadly forceps.

Mr. J. A. Brown, jeweller, of Brisbane, has accomplished the hitherto impossible. He has installed a four-valve receiver in his workroom so that when pressure of business necessitates overtime work, he can switch on the radio and adjust mainsprings, whilst enjoying the broadcast programmes. Mr. Brown is the first man to our knowledge who has succeeded in mixing business with radio. Of course we are not told HOW MUCH work is done.

Sh! We hear a Russelling of the Lilleys!. Both Dr. Russell and Dr. Lilley, of Hollyrood Hospital, Wickham Terrace, have dabbled their fingers in wireless, and are now quite enthusiastic listeners. But, of course, keep it dark—it was told to us in strict confidence.

We didn't see him do it—but still we'll tell you all about it. Mr. Fred Lowe, of the Brisbane General Hospital, tells us that he climbed 4CM's new aerial mast, and by careful observation and calculation, he has arrived at the conclusion that 4CM's aerial system is exactly three feet nearer heaven than 4QG's. Gee! that boy has a wonderful eye.

Mr. Hegarty, of the State Insurance, is a wild man. He recently installed a three valve set in his home in the Valley, Brisbane, and for several nights he has been fruitlessly endeavouring to tune out 4QG in

favour of 3LO. O, dry those tears, O.M.; this issue describes a wave trap that will set your worried mind at rest.

Brother Hubert Kington (President of the Woolloowin Radio Club) is at present travelling in the country on behalf of The Read Press Ltd. Mr. Kington will be out of town for at least three months, although we understand he is coming home for Easter.

4AZ! We demand an explanation! We hear you have taken unto yourself wings and have been seen flying round the city in an aeroplane. This, doubtless accounts for the rust on your key. Now, Frank, you musn't leave the old home like this. We don't mind you looping the loop or reaching dizzy altitudes. If your idea is to photograph sections of the Heavyside Layer. That would indeed be a labour of great scientific value. But if your stunting is just sheer devilment, you'd better come down to "terra cotta," and sandpaper your neglected key.

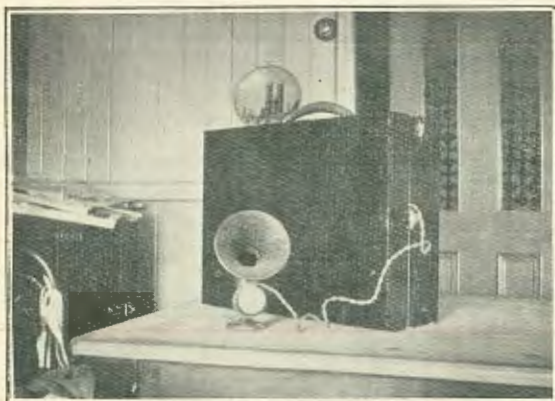
Mr. R. N. Davey, of the City Council Depot, the Valley, is a new recruit to the broadcast listeners' army. He possesses two sets—a crystal for 4QG, and a four valver for southern music.

Master Walter Scott (son of Mr. Scott, well known to visitors of Harrington's radio counter) is showing good promise in the field of radio. Although but 14 years of age, he operates his low loss and short wave receivers with great skill, having copied the world in Morse and a few of the overseas high power broadcasting stations.

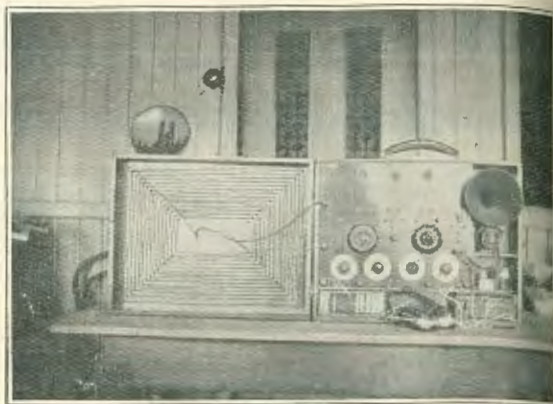
We hear a rumour that our friend, Mr. Arthur McLeod (of Wireless House Ltd.) may abandon the radio business in favour of the optical profession. If this is true we are sincerely sorry. Arthur is a fellow who has endeared himself to a large circle of friends by his genial disposition and straightforward manner. We trust that the best of good fortune will come his way in any venture he may undertake.

Camouflaged loudspeakers are making a bid to secure a place in the Australian market. We recently viewed what anybody would take to be a big handsome silver epergne, displayed in a Queen Street window. This article was modelled on the most artistic lines, having several receptacles for flowers. Upon closer examination it was found to be a new Amplion loud speaker, having the diaphragm concealed in the base.

Mr. Langford—well known radio fan of New Farm, Brisbane—has for several weeks been laid up in a private hospital, undergoing a minor operation. He is now well and strong again, and no amount of inducement can tear him away from his receiver nightly. He says radio is wonderful tonic for a convalescent.



Receiver closed, receiving broadcast programmes.



Receiver open, showing compact arrangement.

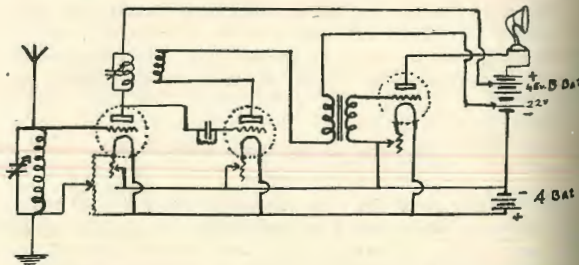
A Three Valve Portable Receiver

The following article describes a compact, self-contained, three valve portable receiver, which is very efficient, giving selectivity with good volume.

To those who are leaving the city for the week-end or on vacation, a portable receiver adds much to the enjoyment of the trip. Many so called "portable" sets merely contain the receiver itself, no provision being made for aerial, phones, batteries, etc., which have to be carried separately. The receiver described, however, as will be seen from the above reproduction, is wholly portable, every necessary item for broadcast reception being contained in a case no larger than a medium-sized suit case—in fact the dials may be set, the case closed up, and music enjoyed while travelling to and from the place where you intend spending your vacation (during broadcasting hours of course).

While designed primarily with an eye to portability none of the advantages of an ordinary receiver have been sacrificed in building the set so it is equally as suitable for home use as it is for weekend trips or holidays. The tuned anode circuit employed may not give quite such volume as does the plain circuit but it is very selective and most effective in bringing in the stations. Using an outdoor twin wire aerial of the inverted L type, total length about 110ft. (including 15ft. each lead), stations 4QG, 2FC, 2BL, 2UG, 2KY, 3LO, 3AR and 5CL have all been tuned in. Before 4QG went on full power any of these stations could be tuned in or out at will, but under present conditions it would be necessary to add a wave trap to overcome the local interference. Of course the local station gives plenty of volume for the loudspeaker, while good speaker results have been obtained from 3LO and fair speaker results from 2BL and 2KY (the latter during initial tests). The Adelaide station, 5CL, comes in at very good phone strength. Using the frame aerial within the lid, 4QG works the loudspeaker and 3LO can be tuned in after 10 p.m. on the phones. To test the receiver under real portable conditions a hurried visit was paid to Manly late one afternoon and 4QG was received at good strength on two pairs of phones with the frame aerial. A site was chosen on a vacant allotment and a make shift

aerial consisting of three lengths of three-strand copper wire joined together (one joint unsoldered) was erected between two trees, with one insulator at each end. The aerial was about 70 feet long being 20 feet high at the free end and about seven feet high at the lead-in. A 14in. length of 3-8in. copper tubing served as a ground. With the set lying flat on the ground 4QG was tuned in immediately on the loudspeaker. Although not expecting too much with such an aerial southern stations were sought, and both 3LO and 2BL were received O.K., the former at good phone strength, while 2BL was rather faint, using two pairs of phones in each case. So much for the proven capabilities of the receiver.



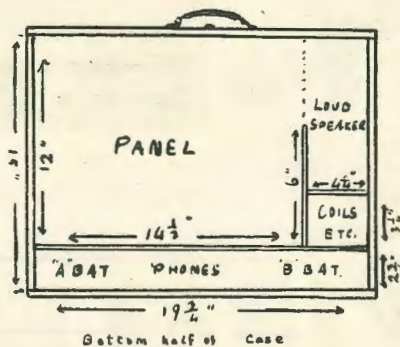
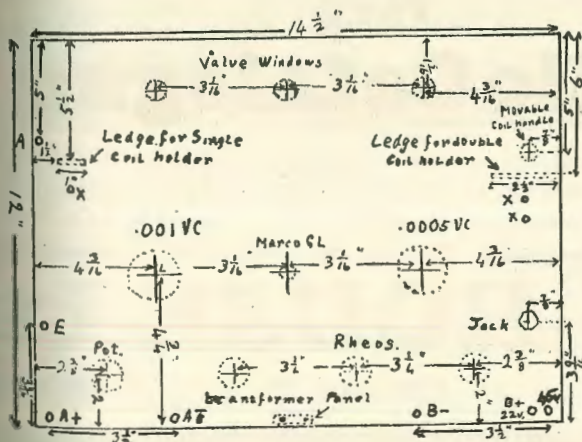
Little detail is necessary as regards the construction of the receiver which should not present any difficulties to anyone able to read circuit diagrams. The following is a list of articles used by the author but this may, of course, be altered to suit individual tastes when the set was constructed, one had not such a choice of radio components (particularly in Brisbane) as is on the market at present:—

- 1 bakelite panel, 12 x 14½ x 3-16in.
- 3 Frost sponge rubber sockets (standard American base).
- 1 Ormond .001 variable condenser.
- 1 Fibrac .0005 variable condenser, vernier.
- 1 Marco variable grid leak.
- 1 Polar cam-vernier double coil holder.
- 1 Single coil mount.
- 1 Jefferson star audio transformer.
- 3 H. and H 30 ohm rheostats.
- 1 Frost 400 ohm potentiometer.
- 3 One inch. valve windows (optional).
- 4 Dials for rheostats and potentiometer (optional)
- 1 Pair Branded 4000 ohm (matched tone) phones.
- ↑ Terminals.
- 1 Single circuit jack and two phone plugs (one for loudspeaker).
- 3 Pieces scrap ebonite or bakelite, approximate sizes, 1in. x 1in. x ½in., 2½ x 3½ x ¼in., 3½ x 2½ x ½in.
- Quantity tinned wire, solder, A and B batteries, coils, etc.

W.D.12 valves were used and they have proved very efficient. The only objection to these valves that may be raised is that three of them together are rather a heavy drain on dry cells when used continuously, as each valve takes .25 ampere. For that reason the author found it advisable to purchase a small two volt accumulator (Exide DTG) for use at home, while two 1½ volt dry cells connected in PARALLEL, were utilised under portable conditions. It will be noticed that odd tuning condensers were used. The appearance of the panel would be enhanced of course by using two condensers of the same make with even dials. Do not use a .001 VERNIER aerial tuning condenser. A vernier condenser

is desirable but it will be found much better to add a vernier attachment to the panel. This means a saving of at least 1½ inches in the depth of the case. A vernier panel attachment used also with the .0005 condenser would balance the appearance of the panel. Standard base American sockets give one a greater choice of valves. Though not on the list a battery switch is a handy little device and could well be included. It will be found that a Hellesen's 45-volt "B" battery fits in the case nicely while the small Amplion Dragonfly loudspeaker fits snugly in the top compartment. Wetless coils were used.

Details of panel layout is given in sketch, all the component including tuning coils, being mounted behind the panel. The coil mount for A.T.I. and double coil holder were each first mounted on the small piece of bakelite (1in. x 1in. and 3½ x 2½ins. respectively), which were then affixed to the panel by means of small brackets. The audio frequency transformer was also mounted on a small piece of quarter inch bakelite (2½ x 3½ins.), which was then screwed to the panel. This latter acts also as a small baseboard to keep the panel erect when testing the receiver before placing in the case. The holes marked "x" on panel sketch are for the brackets holding the small ledges on which are mounted single coil mount and the double coil holder. These small iron or steel (not brass) brackets can be purchased at any ironmongers and as there are dozens of different shapes and sizes the exact position of each ledge is shown by dotted lines above the holes for the brackets. From that it should be an easy matter to mark the holes for the supporting brackets. Care should be taken, however, that the coils when plugged home will not show above the top of the panel. This also applies when mounting the valve sockets when it should be seen that the valve tips are slightly below the top of the panel. The valve sockets are mounted directly below the valve windows and between the single coil mount and the double coil holder. Place the valves in the sockets, lay the sockets side by side in position on the back of the panel so that the valve tips are slightly below the top of the panel, and then centre punch the panel for drilling through the screw holes in each of the sockets.



The construction of the case is made clear from the sketch showing the position of the partitions. The case itself was made of 3-8in. pine, the following pieces being required:—

(Continued on Page 26.)

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20 Turns, mounted ..	3/-	35 Turns, mounted ..	3/-	75 Turns, mounted	3/6
25 Turns, mounted ..	3/-	50 Turns, mounted	3/3	100 Turns, mounted	4/6
		150 Turns, mounted	5/-		

NOTE.—EACH COIL IS SUPPLIED WITH A WAVE LENGTH CHART.

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De Luxe Pattern.

These splendid Coil Plugs are now available at *Wireless House*, and are bound to find a ready sale. They are made of best English ebonite, and should not be confused with the inferior composition types, which retail at approximately the same price. PRICE

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This Model employs two stages of audio frequency amplification, and is capable of operating any type of loud speaker with full volume. By careful attention to detail, the tendency to distort which is manifest in many of the sets in use to-day, has been eliminated. Especially suitable for the country where the use of dry cells is essential. In polished Rosewood Cabinet:—

Price, without Accessories £14
Price, with all Accessories, including A.R. 11 Junior Amplifier Loud Speaker £27

FOUR VALVE DULCEPHONE

For listeners who are located at long distances from the Broadcasting Stations, in order to increase the receiving range, one stage of high frequency amplification has been introduced. This arrangement allows of reception over great distances, without the tendency to distort or howl. In Polished Rosewood Cabinet:—

Price without Accessories £25
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FIVE VALVE DULCEPHONE

This set employs two stages of high frequency amplification, detector, and two stages of audio frequency amplification. This receiver will cover very great distances. An indoor aerial may be used with advantage on reception from local broadcasting stations. Space is provided in the Cabinet for "B" batteries, phones, etc. The two outstanding points of this receiver are selectivity and quality. In Polished Rosewood Cabinet:—

Price, with all accessories, including Amplifier A.R. 15 Loud Speaker and 6 Volt Exide Accumulator £55



Three Valve Dulcephone



Four Valve Dulcephone



Five Valve Dulcephone

- 2 Pieces $19\frac{3}{4}$ x $15\frac{3}{4}$ inches.
- 2 Pieces $19\frac{3}{4}$ x 4 inches
- 2 Pieces 15 x 4 inches.
- 2 Pieces $19\frac{3}{4}$ x $2\frac{3}{8}$ inches.
- 2 Pieces 15 x $2\frac{3}{8}$ inches.

For the inside partitions quarter inch. pine was used as follows:—

- 1 Piece 19 x 4 inches.
- 1 Piece 6 x 4 inches.
- 1 Piece $4\frac{1}{2}$ x 4 inches.

The panel is screwed to narrow $\frac{1}{4}$ in. ledges glued or screwed to the inside of and 3-16 in. below the supporting partitions, a gap being allowed in the middle of the bottom partition for the small transformer panel. The supporting partition on the right side, it will be noticed, does not continue up to the top of the panel. This is to allow for the working of the reaction coil. The top of the bottom half of the case (to which the handle is fixed) is hinged to allow for the changing of coils and valves being kept in place when closed by two clips similar to those used on ordinary small suit cases. Two other clips, one on top near the handle, and one on the right side of the case, are used to keep the lid closed. A small lock could be substituted for the clip on top if it is desired to lock the case. The handle and the clips can be purchased at any store where suit cases are made. The lid proper opens from the side of the case, LOOSE SPINDLE hinges being used. The use of these hinges allows the lid to be removed at will. The frame aerial consists of about 80 feet of No. 22 silk covered wire wound round the inside of the lid, the supports being small carpet tacks on which is threaded $\frac{3}{16}$ in. lengths of bicycle valve rubber (or rubber tubing from insulated wire), spaced about 5-16 ins. apart. The ends of the wire are connected respectively to two terminals in the centre of the lid, and from each of those two terminals a flex lead goes to the aerial and earth terminals respectively of the set. When it is desired to utilise an outside aerial simply disconnect the flex leads from the set and connect up in the ordinary way.

In the set described the whole case, inside and out, was painted with black enamel as it was thought that with all the wear and tear of a portable set a polished cabinet would soon begin to show signs of wear. An ordinary suitcase could of course be used in place of a wooden case, the dimensions of which when closed, being $19\frac{3}{4}$ x $15\frac{3}{4}$ x 6 $\frac{3}{8}$ ins. Four rubber studs were fixed to the bottom side of case and two to bottom side of the lid and to the back of the case to minimise vibration when travelling by train or tram. In the lower compartment of the case fits two dry cells, phones, and batteries, beneath which can be placed the aerial wire and 14 in. copper tubing for outside aerial; the small compartment below the loudspeaker shelf can be used for a pair of coils, insulators, etc. To listen in when set is closed it is necessary to cut a small nick in the right hand side of the case, near the clip, to allow for the loudspeaker or phone cord. With the set tuned the case can then be closed and the receiver carried about with music pouring forth. Do not forget that the frame aerial is directional—this can be particularly noted by picking up the closed case with a station tuned in and then turning the receiver around in different positions.

The following were the coils used by the author:—
2UG (or 2UE), 2KY, 2BL, 3LO, 4QG, 5CL—35, 50, 75 (or 100).
3AR—50, 75, 100.
2FC—100, 150, 75.

“Wireless and the Settler”

A Simple Treatise on Wireless; issued by
The New Settlers' League of Australia.

That wireless is going to play a tremendous part in the development of Australia's sparsely populated country areas is fully recognised by the New Settlers' League of Australia—an organisation that is accomplishing yeoman service in the building up of Australia's primary industries.

The Queensland Division of the League accordingly commissioned Mr. W. Robinson (Director 4QG) to compile a simple treatise on wireless and the benefits to be denied from its installation. This has now been published in an attractive book of about 70 pages, which the League is distributing FREE to men on the land throughout the length and breadth of Queensland.

The book is very well printed and is well worth securing. The general secretary (Capt. L. T. Mapleston, M.C.) advises us that any country reader may secure a copy FREE OF CHARGE on application to the New Settlers' League of Australia (Queensland Division), Kangaroo Point, Brisbane. Enclose two-pence in stamps for postage.

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A Radio Dictionary

(We feel the necessity for an authoritative reference to the terms used in radio to which our readers can at any time refer when they come across some technical expression, whose exact definition is, perhaps, beyond their ken. We herewith present to our readers the fourth instalment of this Dictionary which will be continued monthly until its completion.)

INDUCTION—The transfer of electricity from one circuit to another without metallic contact.

INSULATOR—A body which will not allow a current to pass through it. A non-conductor.

JOULE—The unit of electrical work. The amount of work which is done when a force of one volt has caused one coulomb of electricity to flow.

KATHODE—Negative element in a cell terminating in the positive pole.

KILOWATT—One thousand watts.

LAMINATED—Composed of a number of pieces of iron instead of one solid piece.

LEAD-IN—Wire connecting aerial to instruments.

LEYDEN JAR—A form of condenser.

MAGNET—A piece of iron and steel magnetised and possessing the power to attract magnetic substances.

MEGOHM—One million ohms.

MICROPHONE—The "mouthpiece" of a telephone.

MILLIVOLT—One millionth of a volt.

MILLIAMPS—One thousandth of an ampere.

MICROHM—One millionth part of one ohm.

MICROFARAD—One millionth of a farad.

OHM—The unit of resistance. That resistance which will allow a current of one ampere to flow at a pressure of one volt.

OHMS LAW—The strength of a current in a circuit varies directly as the E.M.F., and inversely as the resistance.

OSCILLATING CURRENT—An alternating current with a very high frequency.

PLATE—One of the elements in a vacuum tube.

POLES (of battery)—Terminals of a battery.

POLES—The ends of a magnet.

POLES (Magnetic)—The ends of a magnet.

POTENTIOMETER—Instrument for varying the potential difference across any path of current.

POWER—Voltage multiplied by amperage. The unit is the watt.

RADIO FREQUENCY—At a radio time period—a time period too high to be audible to the human ear—over 10,000 per second.

RADIOPHARE—A direction finding signal.

REGENERATION—The principle by which the oscillations produced in a receiver are fed back into the grid circuit and used to boost up the strength of the signal.

RESISTANCE—Opposition to current flow by a conductor. Unit is the ohm.

RESONANCE—Resonance exists when the time periods of two circuits coincide.

RHEOSTAT—A variable resistance.

SPARK GAP—Break in circuit of transmitter which allows condenser to be charged. Condenser then discharges across spark gap.

STATICS—See "X's."

SWITCH—A device for making or breaking a circuit at will.

TELEPHONES—The headgear which enables the signals to be read.

TRANSFORMER—An instrument for "stepping up" or "stepping down" alternating or fluctuating current.

TUNING—Adjusting the apparatus to receive signals.

TUNING COIL—A coil used for tuning. A coil, the inductance of which can be varied.

VACUUM TUBE—A form of detector or amplifier.

VARIOMETER—A variable inductance of a particular description.

VOLT—The unit of pressure. That pressure which will force one ampere of current through a resistance of one ohm.

VOLT METER—An instrument for measuring electrical pressure. Always joined in shunt.

WAVE LENGTH—The distance from the crest of one wave to the crest of another. Always measured in metres.

WATT—The unit of electrical power.
"X"—See "Atmospherics."

With the Hams

(By "X.Q.")

We are more than pleased to reopen this department of DX Doings. A lull in the activities of many of our hams necessitated a closure some few months back, and it seems "just like old times" to read "X.Q.'s" breezy reports of doings in the ether.—Editor.

4RB has been holding the laurels of district four for some weeks, after working a whole bunch of Yanks, connecting twice with G-2DX, London, England, on a long "fiver," and working Japanese JOC off a 201A tube. Very fine biz OM! A 50 watt bottle is to go in very shortly and a big improvement in strength is expected.

4AN is putting out some fine signals and can be generally relied on to raise everything worth while. He has a good collection of cards from the DX portions of the globe, including O.K. checks from GB hams who heard him after his signals had pushed the longer way round to England—via U.S.A. He is not very strong locally, but his short waves are such tricky things. Maybe his signals go round the world once or twice before we hear him!

4CM has also been kicking things round in the ether. A big "Z3" does the trick. I believe he is looking for a different QSB now, for fear he will be mistaken for one of those much cuss'd commercial stations that spoil all our DX! He has shifted his QRA to 4EZ's old "dump" at the Observatory, and anticipates some fine nights of reg'lar "he" DX, especially during the stilly hours as QSD restrictions will be taboo up there.

4WI is now punching out some good sigs. on 36 metres, and raises everything the op. hears—No, he isn't "daft," but the blanky receiver is! Anyhow, most of the Aussie and New Zealand districts have been worked. The transmitter employs the Hartley hookup, using a couple of 5 watt trons, with an input of approximately 40 watts. Methinks we shall see some DX when things get moving.

4DO has been making the street lamps blink at Rockhampton, and our phones rattle like Hades down here. He is about the loudest Queenslander, other than locals, heard, but strength is not too consistent; some nights "QSA, vy" but other nights not too strong at all. 4DO is putting in a rectifier soon to improve the note which is at present of a raw A.C. character, though fairly liquid tone. Have heard him working a lot of interstate hams on 80 metres, but look out for him on 35 now.

4HR is back at his QRA again. Heard him some nights ago, and signals were somewhat louder than usual R6. Pure D.C. note too. He has a four-coil "Micer" perking on 35 metres now, has been QSO all States and New Zealand; don't think he's hired a Yank into answering yet.

4AZ was down on 35 some months back, raising good DX. Last I heard of him was that his tube

aerial came down in a storm. He hasn't been on the air since. Hm cum OM?

4HW gives the B.C.L.S. a treat every night after 10 p.m., with some fine music, but 'way up on 250 metres. Why not put in a little key punching on 35, OM?

There are quite a few very enthusiastic "near" hams who hope to be on the air shortly. We extend a welcome to them all. Plenty more "fours" are needed, and why, at present, we can get only such a low percentage of active ones from those holding tickets beats me. Some of them should really, not have been granted a licence for all the use they make of it.

Get a move on OM's, let's show the other Aussie districts what we "fours" are worth. Remember, if it's dope on S.W. transmitters or receivers you want, ASK US! This is a ham publication besides a B.C.L. one, but owing to the apparent lack of enthusiasm we cannot fill our pages with such information unless we are positively assured that it would be appreciated.

A fair number of hams are using "Ford" spark coils for supplying H.T. to their transmitters, and li'l "Henry" certainly proves his worth on the air as well as the road. It gives a very nice 300-500 cycle note similar to that of VIB's new I.C.W. transmitter. Some who are having great success with them are: 2LM, 2HR, 2NS, and Z-2BN in all cases a 201A tube is used in the transmitter. 2HR is about the strongest "second" on the air, 2LM is also received here at strength R6 to 7 and he says, gets a radiation of nearly 500 milliamps on 80 metres, when the coil is properly adjusted. 2BN, Napier, New Zealand, is received at strength R5 to 6. So there you are OM's! Why not build up one and try it out on 80 metres? Nearly every ham has an old "sparker" in the junk box, and a 201A in the family broadcast receiver. A torch bulb would serve as a radiation indicator, the other sundries can generally be picked up for a few shillings. There is still quite a lot of activity on 80 metres after 10 p.m., including a good bevy of "seconds" who put in an appearance now and then.

2WH, a new ham at Forbes, New South Wales, has a good D.C. note, and a fair punch in his sigs. Have heard him on fone too. Rather weak though.

2RD has also just started up, his note is like raw A.C. at present, but strength very fair. 2HM is a great sticker for the 80 metre band, have heard him on 35, but he evidently does not like the look of the low aerial current reading, so continues with the good work higher up. His fone is very loud, but a little husky.

Practically all the Victorians have QSY'd to the 35 band, and are raising plenty of good DX.

6PM, at Broome, W.A., is received very QSA here. He puts about 30 watts into a Z2 "bottle." There are also a few moderate powered South Aussies on the 80 band who come in with fine punch, but their QRA's are questionable.

7DX, 7OM, 7WT and 7LJ are a few very consistent "Tassies," and are doing plenty of DX on the higher waves.

1AE, 1AF, and 2BN are the only New Zealand representatives working on 80 metres. All are fairly strong, and easily copied.

Nearly all the good DX work is being done on the 35 metre band, 20 metres is practically dead, except for an occasional Yank calling CQ.

2YI pounds in with a splendid wallop on 36 metres, and with a good piercing DC note, and is still the loudest "second" to date. 2CG, 2BK, 2MH, 2LO, 2TM, and 2BC are raising everything, using medium powered transmitters. 3BD, 3BL, and 3EF are the loudest Victorians, though not quite as strong here as one would expect. The other "threes" are very QRZ. The Tasmanians and a few high powered New Zealanders around Gisbourne and the east coast of the South Island are also weak. Aussie "fives" and "sixes" are, however, remarkably strong. Among the latter are 6AG, 6RW, 6AM, 6OJ, 6LS, and 6KX.

A number of Phillipine Islands hams have been heard recently. These include 1HR, 1AU, 1AT, and CD8; all stationed at Manila, and 3AA at Bagino.

JOC, Otchishi Radio, Japan, has been working a few of our locals. It is a commercial station owned by the Japanese Ministry for communications, and is making a few preliminary tests on 40 metres before starting up for general traffic.

JJC, at Funabashi, whom some of us still remember from the good old days of "high loss" on 3000 metres, is now handling a good deal of traffic on 34 metres. Strength is nearly as good as our 2YI—which is "Sum."

The only Jap. ham heard, is 1KK, whose QRA is K. Kusama, Mikagecho, near Kobe. He has a nice D.C. note, good strength, and Morses perfect English.

Indo-China has several live hams who have been laying down their sigs. in all parts of the globe. 8LB is by far the loudest. 8QQ and HVA about the same. Strength, R5.

Indian 2BG and HBK have been heard a lot. Good quality notes and hefty sigs.

The Yanks literally pour in, faster than you can count 'em on a good night, but seem to love crowding down on to the edge of our 35 metre band, resulting in a conglomeration of QRM that takes more than a selective tuner and a contortionist to unscramble. There are a good many very strong ones that can be copied quite comfortably from a loud speaker.

Very few Canadians, Cubans, and Mexicans are making their presence over-conspicuous these days. JTC, at Los Andes, Chile, is often heard on 34 metres, with a nice D.C. note, but is usually lost under Aussie QRM.

45 metres is ringing with activity during the "wee sma' hours" of Monday mornings, plenty of "G's" and "F's" to listen to, also a fair proportion of "B's," "E's," "S's," "N's," "I's," "K's," etc. G-5MA is easily the loudest Briton—all of strength R7 on a two-toob low loss. Italian, 1FL, and Swedish, SMTN, who has heard the other morning discussing the price of ham and eggs with 4RB, are the loudest of the foreigners.

The South Africans are very QSA here, but their transmitters seem a good deal more efficient than their receivers, judging by the unheeded QSL's that fly back at every call. 1SR, A4Z, and A6A are as loud as the majority of New Zealanders.

British—"2 N Emma's" fone is often heard at about 5 to 5.30 a.m. Fairly strong and very clear, especially the pianola selections which Gerry generally puts on when he gets tired of talking.

Some new and revised international intermediate breaks are as follows:—

S.—Scandinavia (Finland, Denmark, Sweden, Iceland and Norway), releasing the D, FN, and NW intermediates as allotted to Denmark, Finland, and Norway respectively.

E.—Spain.

FI.—Indo-China.

G1.—North Ireland.

K.—Germany.

H.—Switzerland.

and unofficial W.—Algeria.

United States army and naval stations use "V" as their break. As they use rather dizzy calls, this may be of aid to anyone who has heard them.

Guaranteed for Twelve Months

"AENOLA" RADIO RECEIVERS

The Cheapest in Brisbane by far

Well built and remarkably cheap. Designed to give long range with clarity. Call and ask for a demonstration before purchasing high-price sets elsewhere.

NOTE THE PRICES:

Crystal	£3-0-0	3 Valve	£20-0-0
1 Valve	£9-0-0	4 Valve	£25-0-0
2 Valve	£14-0-0	5 Valve	£32-0-0

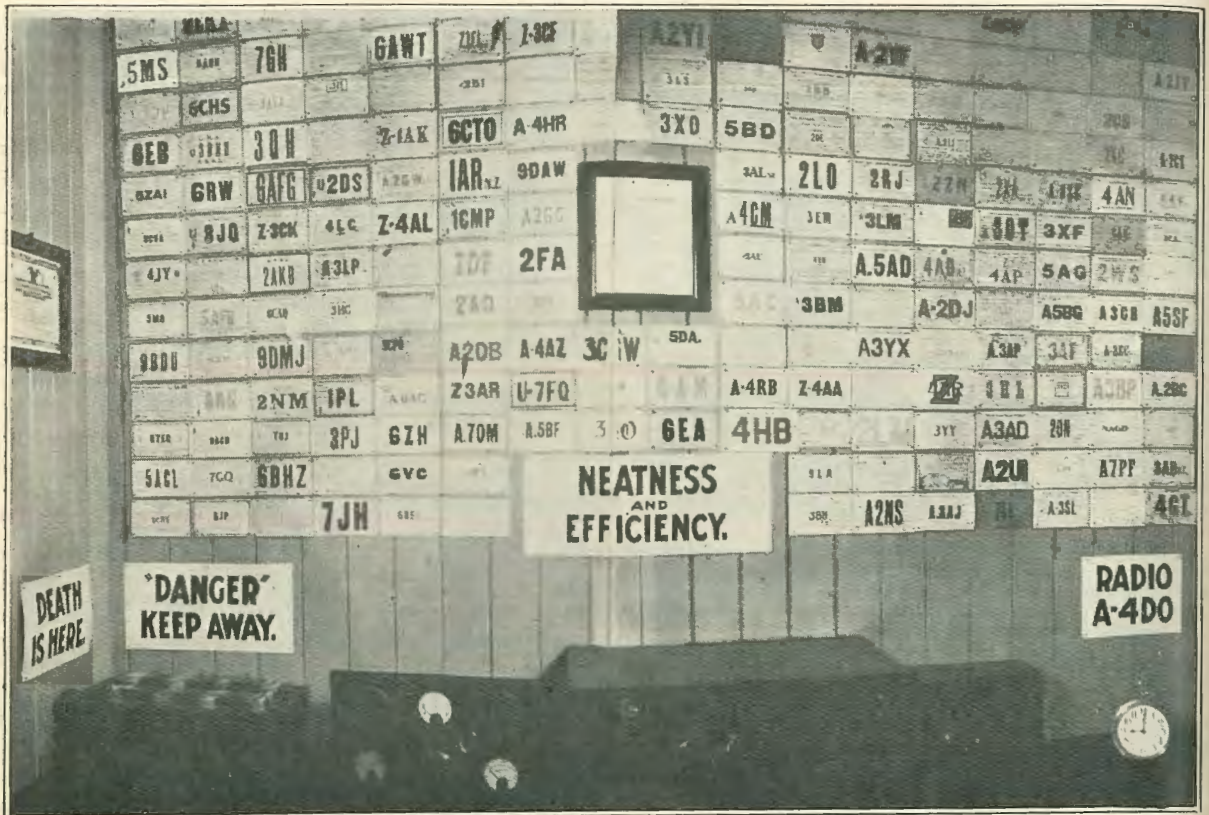
These prices include Dull Emitter Valves, Batteries, Headphones, Cabinet, Aerial Equipment and Coils.

Loud Speakers from £2 upwards extra.

Your Choice will be an "Aenola"

A. E. NEWNHAM
LOGAN RD. WOOLLOONGABBA

Phone J 4379



Mr. Hobler hates to see bare boards in his Radio Shack. That is why he has adorned his walls with a very choice collection of QSL Cards.

Radio A-4DO

Mr. Harold L. Hobler is one of Queensland's best and most arduous amateurs. He has kindly forwarded us a description and photograph of his station, which we feel sure our readers will find interesting. His efforts make a shining example for some of our local "fours."

Station 4DO is located at 8 Lennox Street, Rockhampton, Queensland, and the whole station, so far as is practicable, was built by the owner. The aerial used at present is a single wire, 65 feet long, 25 feet high at the free end, and eight feet high at the lead-in end. This antenna is only temporary, and will shortly be replaced by a 65 feet vertical wire. A 3-wire fan counterpoise under the aerial is seldom used. The whole antenna system is rather badly shut in by neighbouring houses, the roofs of which are all galvanised iron, and which have a somewhat large conducting effect when damp.

THE TRANSMITTER.

The transmitter employs the Coupled Hartlay circuit, which was found to be the most suitable after trying several other hook-ups. A .0003 variable condenser in series in the aerial circuit with a 6-turn coil of 12 gauge bare copper wire tunes the circuit to re-

sonance with the primary, which consists of 15 turns of 16 gauge tinned copper, 4½ ins. in diameter. The aerial or secondary coil is wound through holes in a strip of bakelite to keep the turns apart, and the windings of the primary or grid-plate coil are spaced with glass beads to a distance of about a quarter of an inch. The coils are mounted on a glass rod, coupling being obtained by sliding one coil to or from the other. A .0005 variable condenser is shunted across the grid and plate clips for operating on a wave-length of 76 metres. Straight A.C. has been used satisfactorily on both plate and filament of the lone UV 202 tube, and an input up to 40 watts can be obtained when the 240 volt 50 cycle A.C. supply from the mains is stepped up to 550 volts for the anode, and when the filament voltage is in the vicinity of nine volts. An electrolytic rectifier will be in use very shortly and the power, which is now about 30 watts with A.C. throughout, should then

drop to about 20 watts. At present, tests are being made to try and work the transmitter satisfactorily on a 35 and 80 metre wave. Owing to the absence of a town supply it was impossible to transmit using anything other than dry batteries until fairly late in 1925. However, since the power has been installed and the transmitter got under way all Australian districts except West Australia have been worked on 76 metres, also Tasmania, while good reports have come from all over Australia, Tasmania and New Zealand on A.C.C.W. signals. Previous to the town electric mains being installed transmissions were carried out with a 2-coil Meissner circuit, and with 84 volts on the plate of a 201A valve, fone was reported from Mackay two-hundred miles distant while on two-hundred odd metres. In 1923, the first transmissions of telephony were effected when fone was reported from local listeners when using 40 volts on a Mullard Ora receiving valve. This station works under considerable difficulties when testing on low power, as, being the only transmitting station within a radius of 800 miles, it is very hard to get reports worth while.

THE RECEIVER.

The receiver is a semi low loss affair, using the standard 3-coil regenerative circuit. By the use of interchangeable coils all wave lengths from 25 to 312 metres can be received, and by a slight alteration to the tuner any wave from 300 metres upwards can be received. A detector and one audio stage are used. Valves are Philips DIV as a detector and a Radiotron 201A for audio amplifier. This receiver brings in American amateurs easily without any aerial or earth, and generally when communicating with other stations no aerial or earth is used, thus allowing Duplex working if required. With a small aerial and water pipe earth the leading American amateurs can be heard up to 50 feet from the loud speaker. KDKA has been heard faintly in broad daylight while on 62 metres. On the 6th April, 1925, amateur messages were received from England—practically the antipodes—and since then reception has been world wide. All the cards shown in the photo (and nearly as many again) have been received from stations heard by 4DO, and come from several countries, including America, Great Britain, Canada, Netherlands, Japan, Mexico, Italy, Chili, New Zealand, Hawaii, Phillipine Islands, Porto Rico, etc.

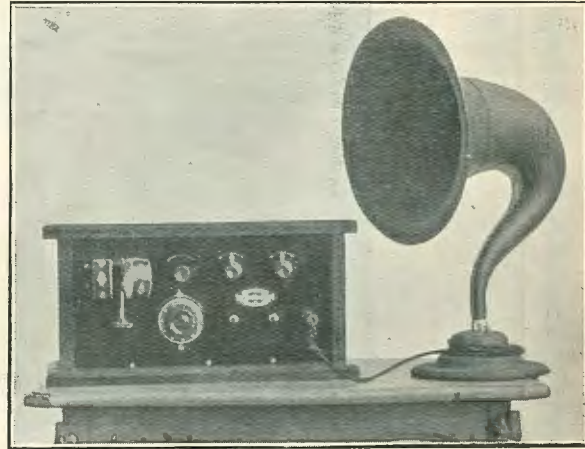
The photograph shows the following gear reading from left to right: Electrolytic rectifier, transmitter, low loss receiver, and single valve receiver for commercial traffic.

This station would welcome all reports and criticisms on its transmissions and QSLs all cards, letters and stations received and worked.

16 PER CENT OF AMERICAN HOMES HAVE RADIO.

One of the latest estimates of the extent of radio is that there are approximately sixteen receiving sets to every one hundred American homes, compared with fifty-two automobiles and thirty-six talking machines.

Figuring on that basis the conclusion is reached that seven years more will be required for the number of radio sets to pass the number of phonographs.



Announcing
The "SIMPLEX"

A Receiver of Unusual Ability and Construction

The "Simplex" is a pleasant surprise to all who hear it. Its round, full and mellow tone—its handsome finish—its ease of operation have earned for it a very fine reputation.

We are proud to put our name on these receivers. We build them—and thus we KNOW that only the best and most expensive components are assembled by highly skilled mechanics. Notwithstanding these advantages The "Simplex" are no dearer than other sets.

Write or Ring Ipswich 491 now.

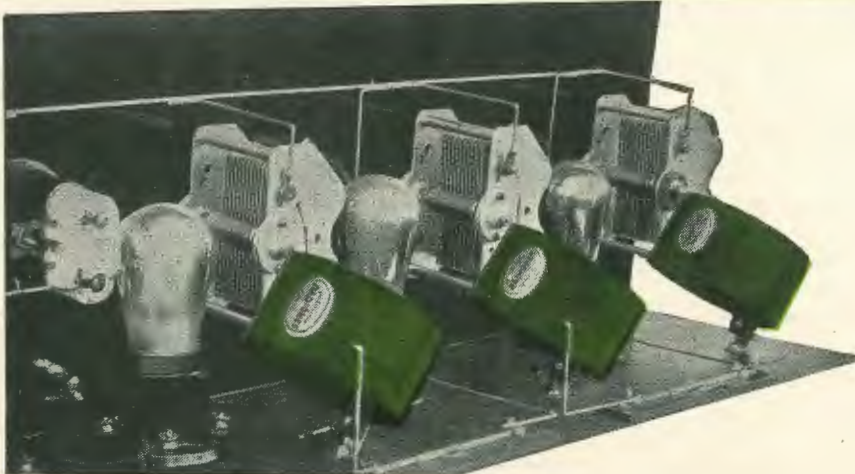
One Demonstration Will Convince You

Let us prove this set to you by actual demonstration. If you live within the precincts of Brisbane or Ipswich we will be happy to give you a free demonstration.

EVANS
ELECTRICAL COMPANY

Radio Dealers and Electricians

Brisbane Street, IPSWICH



A set incorporating 'Radiokes' Neuroformers

THE EFFICIENCY OF ANY RECEIVER
depends primarily upon the parts used in its construction.

WITH THE NEUTRODYNE

perfect operation rests largely with the design and construction of the Neuroformers which of course must be mounted at the correct angle to ensure non-interference from magnetic coupling between the transformers.

RADIOKES Neuroformers

which are supplied ready for mounting at the proper angle, ensure maximum efficiency with the Neurodyne. Circuit diagrams and instructions are included.

**Rugged Construction,
Low Loss Air Spaced Winding,
Attractive Appearance.**

These are some of the features which have made RADIOKES so popular.
GET THE BEST. ASK YOUR DEALER FOR RADIOKES—HE CAN SUPPLY.

A specially selective Receiving Set is now needed to receive the Southern Stations while 4QG is broadcasting. You can build that Set with Radiokes Neuroformers.

Manufactured by
Keith Stokes Pty. Ltd.
27-29 King Street, SYDNEY

Queensland Distributors:
EDGAR V HUDSON
55 CHARLOTTE ST., BRISBANE

CLUB ACTIVITIES

Wireless Institute of Australia (Queensland Division)

The general meeting of members for March attracted a good attendance, and much interest was shown in the business. Suggestions for the work in the new year and apparatus for the use of experimenters was discussed, and a good lead was given to the committee as to the class of meeting generally appreciated by members. The next general meeting will be the annual meeting and election of officers. Due notice of this meeting will be given, but nominations for the various positions should be forwarded at once to the hon. secretary.

The New South Wales Division is now publishing a monthly gazette, which contains a lot of interesting matter to experimenters, especially short wave fans and transmitters. Copies are held by the operator to the official station, 4WI, Mr. R. B. Brown, who will make them available to those who would like to see them.

On account of the casual way in which many of the books and butts in the art union, being conducted by the Division, were returned it has been necessary to

extend the date of closing to the 21st April. The wisdom of this step was shown by the number of butts which were received by the organiser in the days following the original date of closing. The drawing will take place definitely on the 28th April, and there will not be a further postponement.

The short wave set is working well, although reception on the big aerial even on 30 metres is sometimes accompanied by 4QG. A motor generator for charging batteries is now fitted in the station and is making the work of the operator considerably lighter as he is always sure of filament juice. A separate battery for the receiving set, however, is the next step in the completion of the gear, and we are looking for a good one, cheap.

A big increase in the number of applicants for the reforming of the Morse Class is looked for during this month. Any member wishing to practice Morse should leave his name with the Hon. Secretary, C/the Courier.

Woolloowin Radio Club

The building operations detailed in last issue of this magazine have been continued, and now the club is assuming quite a homely look. A bench for the transmitter has been installed and five substantial seats have been fixed round the room.

Early in the month the transmitter was definitely on the air, and has been heard most nights since. Wavelength has not been finally fixed by the technical committee, and experiments are still being conducted. Q.S.L.'s from all hearers will be appreciated.

The Secretary of the club, in a rash moment of generosity, has promised the club a five-watt tube when the present makeshift gives up the ghost. This latter event cannot, it would seem, be long postponed, especially if the technical committee persists in its regrettable habit of applying 12 volts to the filament and 1,000 volts to the plate of an ordinary 201A receiving tube.

Reports to hand put on record the fact that 4WN's note is similar unto that of an asthmatic chaffcutter. The technical committee, we hasten to say, has taken

this constructive criticism to heart and promises an improvement in the note, in the early future.

For the information of intending members, let be said that this club meets every Thursday at 8 o'clock (formal business nights, second and fourth Thursdays) at the clubroom, in Wilmington Street, Woolloowin, and correspondence, which is invited, should be addressed to the Secretary, Mr. H. A. Jear, at Lisson Grove, Woolloowin.



Wireless Aerials

Supplied, Delivered and Erected.
Good Timber, Solid Foundations.
Enquiries Invited.

G. H. BUSBY

Lily Street, Stones Corner,
South Brisbane

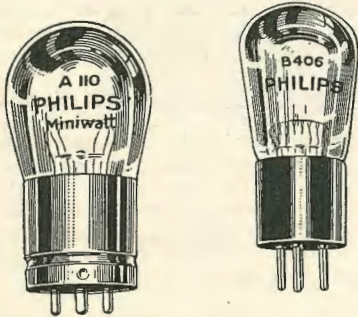
PHILLIPS VALVES

TYPES, A.110 AND B.406.

We recently received from Messrs. Lawrence and Hansen, of Brisbane, two Phillips valves, one being of the A.110 type and the other of the B.406 type.

Both are of very fine workmanship and appearance.

The A.110 type of valve is of the dull emitter type and may be used either as a detector or an amplifier. Its outstanding feature is its low filament consumption, this being only .06 amperes at 1.0 to 1.3 volts pressure. This feature is very useful and enables



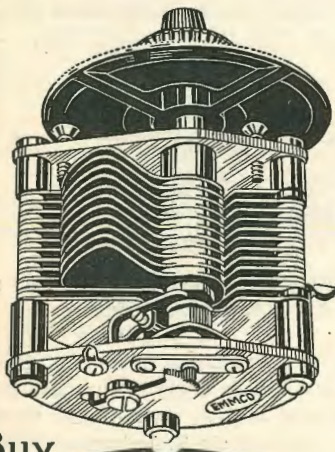
the valve to be operated from a single dry cell thus making it an attractive proposition for use with a portable receiver. The filament is not coated with thorium like an ordinary type of dull emitter, but is made by a specially patented process which, in conjunction with the high vacuum ensures uniform operating characteristics throughout its life.

The B.406 is a valve which is quite in a class by itself, it being the first low frequency amplifier manufactured which attains a saturation current of 30 milliamps with a filament current of only one-tenth of an ampere. It is exceptionally suitable for use as a last stage amplifier, and as such, will give considerable volume of pure sound on a loud speaker. Although useful in this respect it may also be employed as a detector or as a high frequency amplifier. It is designed for use with a four volt accumulator.

One of the most pleasing features of both types of valves is that they are supplied with either standard American or the standard English four pin sockets. This point should recommend them to most enthusiasts who may change, therefore they try them out without having to reconstruct their sets and put in new valve sockets.

We submitted both valves to Station 4QG, and have received the following note regarding them from the Director of the station:—

"I have tried out both the Phillips valves, which you sent along and find that they are very efficient."



Buy

Emmco

RADIO PRODUCTS

EMMCO PRODUCTS

"Australian Made" Is not an Appeal to the Heart

There is a sound commercial reason why you should favour Australian made Radio parts.

"EMMCO" products, manufactured by the firm that produces the famous "Beta" Electricity Meters, have proved that what other countries can do, Australia can do better.

The "EMMCO" Condenser displayed here is an example of how careful workmanship and modern production methods can produce the equal of any highly priced overseas article at a cost well under the price usually asked for radio parts of its high quality.

Our other radio products are distinguished by the same moderate price and delicate finish that should be the two very sound reasons why you should favour Australian made.

A list of "EMMCO" products and prices will be forwarded on application to the manufacturers.

GUARANTEED LOW LOSS CONDENSER. All capacities with direct vernier. Built like a watch. Most minute adjustment. Absolute insulation. Grounded rotor metal end plates. Straight line wave length. Square Law.

ELECTRICITY METER MFG. COY.
16-22 Australasian St., Camperdown, Sydney

The Problem of Selectivity

Complaints of one station swamping out others are not confined to Australia. The same trouble is apparent in all countries. In England, at the present time much discontent is expressed by listeners in the West of London, now that the London Station has been moved into their quarter of the city. It is said that it is now impossible to eliminate 2LO when trying to tune in distant stations.

In cities, such as New York, where a number of stations separated by only a few metres in wave length are confined in a small area this problem arose some years ago, but has now been overcome.

The important point to be considered in selectivity in a receiver is that the latest advances in wireless telephony should be adapted to the receiver as well as to the transmitter.

The question of selectivity will become more and more acute in Australia as the number of stations increases. However, the increase in the number of high power stations will give a better and not a worse service to broadcast listeners-in, provided the essentials of selective reception are attended to.

In any modern broadcast transmitter, the wave length is very accurately adjusted, and the power is confined with a very narrow compass. In the case of a station radiating on wave lengths between 300 and 500 metres, this band does not extend more than 4 or 5 metres above or below the allotted wave length.

The transmitter having been brought up to such a high state of efficiency, obviously the receiver must be designed to meet the new condition. i.e., to respond to a narrow band only. The solution seems to lie in the use of neutrodyne and super-heterodyne receiver or the addition of wave traps.

But although it may be possible to receive distant stations without interference from local ones, it is doubtful whether it will ever be possible to enjoy a programme from one of these stations owing to atmospheric disturbances, interference from radiating receivers, and fading.

In some parts of America there has been an agitation for the observance of "silent nights" by broadcasting stations so that listeners using simple sets, might "reach out" without being troubled by local stations.

It is noteworthy, however, that this idea has received little support from the more congested areas where one would naturally expect it. The reason is that in those parts the problem of selectivity has been overcome.

If broadcasting is a means of entertainment and instruction, then obviously the programme is the thing that matters most. If this be so, the source is of much less importance than the material broadcast.

Progress for the multitude must not be sacrificed to the "DX-hunting" of the few. It is much more satisfactory to hear a programme comfortably from one's local station than a much interrupted one over a distance of several hundreds of miles.



The Greatest Bargain I Ever Made
and I Only Paid

£5 Deposit

**HARRINGTONS
POPULAR RADIO RECEIVERS**

3 Valve £27/10/-
4 Valve £32/-/-
5 Valve £40/-/-

The above New Models have unusual range, selectivity and wonderful tone quality. Only the very best of parts are used. The cabinets are polished in Oak or Maple. Supplied with all accessories, either dry batteries or accumulator, and loud speaker.

And all carry our 12 months' Guarantee.
No Extras to Buy

Harringtons Ltd

Photographic and Radio Warehouse

93 Queen Street
BRISBANE

Branches in All States
and N.Z.

Representatives
Everywhere

**CUT OUT
AND POST**

Please send me Post Free,
Illustrated Folder of Radio Sets.

Name

Address

The Bullocky's Prayer

The following verses were recently transmitted from 4QG, and since, the officials at this station have been in receipt of numerous enquiries for copies of the poem. We herewith present the verses to our readers.

'Twas in a Queensland drought, o'er hill and dale and dell
 No grass, the water far apart and all is dry and hot as Hell;
 Three wearied bullock teams pulled up beside a water-hole,
 They'd struggled on for days to reach this goal,
 And though the water rendered forth a rank unwholesome stench
 The bullocks and the bullockies drank deep their thirst to quench.

The drivers pitched their ragged tents, for here they must remain
 Until the heavens opened with the long expected rain.
 But still no change was noticed in the drought be-dezined sky,
 And soon for want of water did the cattle droop and die.

Two drivers swore as drivers only can,
 But the other, better known as Holy Dan,
 Admonished them and said, 'Twas the Lord's all-wise decree,
 And if they'd only pray instead, a change they'd quickly see.

'Twas strange, not one of Dan's had gone aloft,
 This, he said, was due to prayer and supplication oft,
 At last one died, but the faithful fellow did not despair.
 He knelt beside the fallen beast and offered up this prayer:
 "One Thou hast taken Lord, to be forever blest,
 See my needs, Oh! spare to me the rest."

But still they died till all but one had gone for ever more;
 Then Daniell knelt beside the beast and here's the prayer he prore:
 "Eleven Thou hast taken Lord, and now you'll plainly see
 You'd better take the blanky lot for one's no good to me!"



DIAMOND DRY CELLS



"Diamond Batteries Make Good Sets Better"

Diamond Radio Batteries are powerful, silent, and outlast any other make of Dry Cell. More than a million are manufactured in Australia annually. Every cell is guaranteed, and should a fault be found in any Diamond Dry Cell it will immediately be replaced. Remember a Radio Set is no better than its battery, therefore it is most essential to choose a battery that will give long and honest service. Such are Diamond Dry Cells.

RETAIL PRICE LIST

Battery	"Coil"	
A	1.5Vt. "Coil" ..	2/9
	1.5 " "Buzzer h.amp ..	3/-
	1.5 " "C'wealth-type" ..	5/9
B	1.5 " "AVER" ..	5/0
	60 " Large Type ..	27/6
	45 " Large Type ..	22/6
C	4.5 " "Bison" ..	3/6
	4.5 " Large Special ..	13/6
	6.0 " Ignite ..	16/6

ASK YOUR DEALER FOR THEM



SUPPLIED TO

P.M.G. Dept., Water Board.
 Q'ld Railways. Ordnance
 Public Works. Stores. etc.
 Department.

Wholesale only from:—
JOHN REID & NEPHEWS,
 CHARLOTTE STREET,
 BRISBANE.

Manufactured by WIDDIS DIAMOND DRY CELL PTY. LTD. W. Melb., Vic.

Wireless for the "Listener-In"

(By Hello L.O.)

One of the most important yet often sadly neglected parts of a radio set is the accumulator. If we have a means of charging batteries perhaps the accumulator receives a perfunctory wipe over with a rag. Perhaps we take it to a garage or a charging station in which case it probably gets a little better attention. We think that it just ought to go on supplying power and not be troublesome. It has no moving parts nor does it burn out, so why worry.

Now the modern accumulator is designed to stand up to abuse, for that, to a large extent, is its portion. Wireless enthusiasts naturally are not battery experts, but—what a lot of trouble could be avoided by regular and judicious attention to the battery.

Let us take that wireless bogey, "static." What a wonderful standby and excuse it serves. But how often is static manufactured on the premises. A failing B battery or a dirty accumulator will produce the most realistic atmospheric disturbance . . . be sure the noise is static. Entirely disconnect the aerial and earth from your set and listen. If you still hear static you either want a new B battery or your accumulator wants a cleaning.

Accumulators are not cheap, but they can be made to last a very long time if well cared for.

Perhaps running down a battery to the last gasp is the worst crime committed by the listener-in. This is most injurious. The state of a battery can most easily be ascertained by a hydrometer, which measures the specific gravity of the battery solution. Hydrometers are very cheap and can be obtained having simple markings such as "fully charged," "half charged," "dead." There is no excuse for running a battery "dead."

Second in the calendar is the crime of allowing a battery to become dirty in the electrical sense. During charging, cell tops become wet with the battery solution which sprays out of the vents. This, if allowed to lie causes the terminals to become corroded, and it is this corrosion and consequent bad contact which makes "static" and causes valves to flicker.

All battery terminals should be kept clean and bright. Corrosion may be prevented by smearing vaseline lightly over all metal other than lead. Moisture of any kind on the cell tops will cause a "sizzling" noise. To make cells absolutely clean, a rag dipped in diluted ammonia may be used, but extreme care must be taken not to allow any ammonia to get inside the battery.

Now in the hot weather or for that matter in any weather, a battery loses water by evaporation, and the level of the electrolyte falls. The solution should always cover the plates, and pure distilled water only should be added until the desired level has been reached. Never add acid unless you actually spill

the contents of the cell. It is better to leave this job to the battery man if possible.

A battery should never be left standing in a discharged condition. If your receiver is to be left unused for any length of time have the battery fully charged and have it charged again at the earliest opportunity.

Sometimes a battery used immediately after a charge will be noisy, but it becomes silent soon after. Should the noise persist, the cause may be one of those explained.

Dry cells do not require much attention. They should be kept in a thoroughly dry place and should not be exposed to heat or light. Like the U.S.A. they are not really "dry," and if the moisture in them evaporates entirely they become useless.

A voltmeter should be a sine-quo-non in a good wireless set. A type can be procured which enables readings to be taken of all batteries. Such an instrument is quite cheap and is really invaluable.

To get regular good results it is necessary to look after the batteries. This pays both financially, and from the view point of good reception.

Who Does Not Desire
QUALITY in the
music they hear?



**QUEEN
RADIO SETS**

are famous for their faithful reproduction of speech and music.

Our Three Valve Sets have only one control to bring in the "A" Class Australian Stations. Complete with all accessories, Brandes' phones and speaker or R.E.C. speaker.

Demonstrations daily, when you are invited to call and hear a set.

J. T. Greenlees & Co.

Albert House, Ann Street, Brisbane

USEFUL HINTS

HOW TO SIMPLIFY CONNECTIONS.

A handy and useful accessory has recently been placed on the market by a number of manufacturers; it consists of a battery cable which usually comprises five leads of different colors bound into a single cable.

The colored leads make it easy to tell which should be used for the "A" battery positive and negative wires and the "B" battery positive and negative wires.

The use of such cable will go a long way to eliminate mistakes in connecting up as well as making a much neater job in hooking up to the battery.

The antenna wire should never be connected in the same cable as the battery wires, however, as this would make too high a capacity between the antenna and ground parts of the circuit with a corresponding loss in signal strength.

A MILLIAMMETER AS AN AID IN PRESERVING BATTERIES.

If the experimenter will connect a milliammeter in series with his "B" batteries he will be able to tell just what plate current his set is drawing and by the use of "C" batteries he can reduce the total current necessary to operate the receiver to a low value that will permit of great saving in the life of the "B" battery.

Every experimenter should own a milliammeter for the direct current with a scale reading of zero to 25 milliampères that will take care of nearly all types of receiver.

MAKING THE TUNED-RADIO-FREQUENCY RECEIVER MORE SELECTIVE.

In some locations close to broadcasting stations, the ordinary tuned-radio-frequency set that employs two stages of radio-frequency amplification, vacuum-tube detector and two stages of audio frequency amplification sometimes will not give tuning sharp enough, with the ordinary 100 to 150 foot outdoor antenna, to enable the user to choose between the local stations or to receive distance while the local stations are on the air. To eliminate this trouble it is suggested that the antenna be cut down to about 50ft. in length. This will enable much sharper tuning and although it may be cut down the volume of sig-

nals from the distance stations somewhat, it will enable them to be received without interference from the locals.

THE OLD RELIABLE SINGLE-LAYER SOLENOID COIL.

Recent investigations have proven the single-layer coils to be the best type that has yet been developed.

The consideration of length over diameter should be very carefully gone into.

To get the maximum inductances in a single-layer coil the limits should be kept somewhat about an equal value for the length and diameter.

Coils in other shapes than cylindrical all will need a longer length of wire for a given inductance and therefore the ratio of inductance to resistance will be smaller with a corresponding reduction in the overall efficiency of the coils.

The distributed capacity can be considerably lowered by spacing the turns slightly on the tube upon which the coil is to be wound.

Sizes of wire should lie between No. 18 and No. 30 inclusive, to hold the resistance at radio-frequencies used in broadcasting and other short-wave work, down to a low value. There is not much difference between any of these sizes.

The coils may be wound with either double silk covered copper wire or with copper wire with one layer of cotton and one layer of silk.

Roberts' Exhibition Wireless Cabinets

A well-built, finely polished Cabinet, will make all the difference to the appearance of your set.

We build Wireless Cabinets of Maple, Silky Oak, or Rosewood, to any size, and polish them in any color. The cost is very reasonable. Call and see us.

To Those in the Country

To facilitate packing we supply "knock-down" Cabinets, cut and polished, ready to screw together. Write us for prices.

HENRY ROBERTS
BRUNSWICK
HOME FURNISHERS

BRUNSWICK ST. - OPP. JACKSON'S BOND STORES - NEAR EXHIBITION - VALLEY - BRISBANE



"The Queensland Radio News"

Popular Item Competition

Cheque for £2-2-0 to be awarded monthly to luckiest reader

Substantial Engagement from Station 4QG promised most popular artist

We are, with this issue, introducing a novel competition for listeners who buy our journal. It is termed "THE POPULAR ITEM COMPETITION." Every issue a coupon such as appears on this page will be published, and readers will be entitled to vote his or her opinion of what constituted 4QG's best item for the period mentioned on the coupon.

At the end of each month, all votes received, will be counted, and the item which receives the greatest number of votes will automatically be declared the most popular for the month. By arrangement with the Director of Station 4QG, the artist or artists who rendered the winning item will be given a substantial engagement at the studio.

The method of awarding the £2/2/- prize is a simple one. The votes of the winning item will be placed in a box, well shuffled, and one vote drawn out. The person whose signature is attached to that vote will be declared the winner, and will receive a cheque of £2/2/-.

THERE IS NO ENTRANCE FEE.

You simply write the name of the item, the name of the artist, and the date of broadcasting, in the spaces allowed on the Special Voting Coupon, and if your opinion agrees with the majority you stand every chance of winning the two guineas.

THERE IS NO LIMIT TO THE NUMBER OF VOTES FORWARDED BY ONE VOTER

Provided, of course, that all authentic voting forms are used. You may send in one or twenty, separately or all together, so long as you use the special form that appears in "The Queensland Radio News."

VOTE EVERY MONTH.

A vote costs you a 1½d. stamp. The odds are long—1½d. to 42/-, and it will be worth your while to vote every month.

CLOSING DATE OF FIRST COMPETITION—FRIDAY, APRIL 26TH.

As it is desirable to publish results of each competition in the issue following the drawing, it will be necessary to make the closing date the 26th of each month. Thus, the first competition will last from April 1st to April 26th. Subsequent competitions will date from the 27th of one month until the 26th of the following month.

Now then you ear-flattened Radio Fans, get to work. If you hear any item that you consider to be of outstanding merit—make a note of it. At the end of the period allotted, review your list, and vote for the number that you enjoyed most.

REMEMBER.—The winning vote gets £2/2/- cash. The artist who rendered the Most Popular Item gets a substantial engagement from 4QG.



"Queensland Radio News" Popular Item Competition.

VOTING FORM

I consider that the number entitled
 rendered by
 on
 was the best item broadcast by 4QG,
 between April 1st and April 26th, 1926.

Name

Address

 **YESLY** 

For every Radio of the Best

YESLY low loss square law British Standard Condensers

The condenser with the beautiful four inch dial, ground and polished ebonite ends, solid connections. Sizes .00025, .0005, .001, Ordinary and Vernier types.

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Put all other Holders in a lower class.

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Home Assembly, Complete Set of Parts for Home Construction of any Style of Sets

With Wiring Diagram and Full instructions for assembling

LIST OF PARTS FOR THE CONSTRUCTION OF A TWO VALVE SET.

	£	s.	d.
1 Panel	0	11	3
2 Valve Sockets	0	7	0
2 30 Ohm Rheostats	0	10	0
1 2-Coil Holder	0	10	0
1 .001 Variable Condenser	1	7	6
1 Grid Condenser	0	3	0
1 2Meg Grid Leak	0	2	6
1 Baseboard	0	1	6
12 Lengths Bus Bar Wire	0	2	0
1 Set Engraved Terminals	0	4	0
1 Soldering Set	0	2	6
1 Transformer	1	1	0

£5 2 3

2 Valves Dull Emitter or Bright Emitter	1	5	0
1 "B" Battery	0	12	6
1 Set Coils (3) Mounted	0	9	9
1 Pair Head Phones	1	2	6
Aerial Equipment	0	7	6
3 Dry Cells	0	8	3

Total £9 7 9

LIST OF PARTS FOR THE CONSTRUCTION OF A THREE VALVE SET.

	£	s.	d.
Panel 21in. x 9in. x 3-16in. Drilled	1	3	6
1 Baseboard	0	1	6
1 2 Way Coil Holder	0	10	6
2 30 Ohm Rheostats	0	10	0
3 Valve Sockets	0	10	6
2 Transformers	2	2	0
1 Grid Condenser and 1 Grid Leak	0	3	6
1 .001 Variable Condenser with Vernier	1	7	6
1 Single Circuit Jack	0	2	3
1 Set Engraved Terminals	0	4	0
1 Soldering Set	0	2	6
15 Lengths Bus Bar Wire	0	2	6
1 Terminal Strip	0	1	0

£7 1 3

3 Valves Dull or Bright Emitters	1	17	6
2 42 Volt "B" Batteries	1	5	0
1 Pair Headphones	1	2	6
3 Dry Cells	0	8	3
Aerial Equipment	0	7	6
Set of Coils (6)	1	1	9

Total £13 3 9

LIST OF PARTS FOR THE CONSTRUCTION OF A FOUR VALVE SET.

	£	s.	d.
1 Panel 21in. x 9in. x 3-16in.	1	3	6
1 Baseboard	0	1	6
2 .0005 Variable Condensers	1	10	0
1 2 Way Coil Holder	0	10	6
4 Valve Socket	0	14	0
3 30 Ohm Rheostats	0	15	0
1 400 Ohm Potentiometer	0	5	6
2 Transformers	2	2	0
1 Single Circuit Jack	0	2	3
1 1 Double Circuit Jack	0	3	0
1 Grid Condenser	0	2	0
1 Grid Leak	0	2	6
1 Pair Leak Clips	0	1	0
1 Phone Plug	0	2	6
1 Soldering Set	0	2	6
1 Battery Switch	0	2	9
1 Panel Plug	0	3	6
1 Set Terminals	0	4	0
21 Lengths Bus Bar Wire	0	3	6
2 Terminal Straps	0	2	0

£8 13 6

4 Valve Dull or Bright Emitters	2	10	0
2 42 Volt "B" Batteries	1	5	0
3 Dry Cells	0	8	3
1 Pair Headphones	1	2	6
1 Set Coils (7)	1	6	3
Aerial Equipment	0	7	6

Total £15 13 0

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A Very Special

"QUEENSLAND RADIO NEWS" CONCERT

Arranged for Wednesday, April 21st. Erich John Again Directing

The concerts arranged by this journal and broadcast by Station 4QG, are still highly popular among listeners. After every "Queensland Radio News" night your editor receives quite a batch of letters testifying to the popularity of these entertainments.

Our next concert will be the first "Radio News" night to be broadcast from the new station, and it eventuates on the third night following the commencement of the Full Service.

Mr. Erich John has gathered around him a group of splendid artists—many of whom are already popular to listeners. Mr. John is exerting every influence, and he has the support of every artist and every member of the Queensland Radio News Orchestra behind him.

A feature of this programme will be the first appearance of St. Lawrence's Christian Brothers' Boy's Choir. Mr. John is the music master at this College, and has trained these boys in a very thorough and excellent manner. The two items by this choir will alone prove a musical treat.

Mr. Harry Borrodale—Queensland's well known elocutionist—is to render two fine numbers. Mr.

Borrodale in addition, will act as announcer for the evening.

The artists Mr. John has selected to assist him in this special programme are: Miss Maye Hughes (soprano), Miss Mildred Bell (contralto), Miss Mabel Malouf (soprano), Miss Clarice Cox (contralto), Messrs John Steele (tenor), Jack Lord (Tenor), Fred Homer (baritone), Albert Falk (baritone), Harry Borrodale (elocutionist), B. R. Brock (flautist), Tom Waldron (flautist), H. C. Marshall (flautist), Leon Custance (Cor Anglais),

The Queensland Radio News Orchestra is also deserving of special mention, for under Mr. John's baton they play selections and accompany soloists with no mean degree of skill.

The orchestra is comprised as follows:—

Violins: Miss Margaret Auld, Mr. A. T. Bartlett, Miss Lucy Brown, Mr. T. Irvin, Misses Phyllis Martin, and Winnie Trackson. Viola: Mr. Sneddon. 'Cello: Mrs. B. Lawson. Bases: Messrs. E. Bishop, and G. Malam. Flutes: Messrs. B. R. Brook, and H. C. Marshall. Oboe: Mr. Leon Custance. Clarionet: Mr. C. R. Nash. French Horn: Mr. A. Walker. Cornet: Mr. Williams. Trombone: Mr. H. Kington.



BEARD RADIO SETS

Cost Less and are 100% Efficient

Only High Grade Trouble-Proof Parts are used throughout

SPECIAL FEATURES:

SIMPLICITY OF CONTROL, combined with hair-splitting final adjustment, thus ensuring volume with clear and pure tonal quality.

DISTINCT PANEL DESIGN enhanced by highly polished Silk Oak Cabinets.

Beard Standard 1 Valve Receiver, with all the improvements of the Beard multi-valve sets, built for headphone reception of local and interstate stations, £10/10/-, with Brandes Phones.

Beard Standard 2 Valve Receiver, includes a 1 Stage Amplifier, giving enough volume to operate a loud speaker on the local station, and consequently gives comfortable volume for the headphones on the interstate stations, £12/12/- without loud speaker, £16/16/- with Amplion AR111 Speaker.

Beard Standard 3 Valve Receiver is built to give ample volume on the loud speaker for the interstate stations under favourable conditions, £22/10/-, with Amplion AR111 Loud Speaker.

Beard Standard 4 Valve Receiver has been specially designed for broadcast listeners who are situated a long distance from the broadcasting stations, and who want to hear stations from a great distance with enough volume to operate a loud speaker comfortably, £30, with Amplion AR19 Loud Speaker.

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Demonstrations arranged. Other Sets made to your order and to suit your pocket.

PROGRAMME

QUEENSLAND RADIO NEWS CONCERT.

WEDNESDAY, APRIL 21, 1926.

Arranged by editor "Queensland Radio News."

Directed by Mr. Erich John.
Mr. Harry Borrodale announcing.

PART I

1. Choral—"Gloria" (from 12th Mass) Mozart
"RADIO NEWS" VOCALISTS and ORCHESTRA.
2. Instrumental—"Marguerita" Valse (from "Faust") Gounod
"RADIO NEWS" ORCHESTRA.
3. Aria—"Dulce sua pace" (from "Don Juan") .. Mozart
Mr. JOHN STEELE (Tenor).
4. Choral—"Ave Maria" Erich John
Selected Voices from St. Lawrence's College (Christian
Bros.' Choir.)
5. Flute Duet—"Souvenir de Prague" Doppler
Messrs. B. R. BROCK and TOM WALDRON.
6. Aria—"Mimi" (from "La Boheme") Puccini
Miss MAY HUGHES (Soprano).
7. Elocutionary—"A Leather Courtship" Sullivan
Mr. HARRY BORRODALE.
8. Piano Solo—"Hungarian Rhapsodie No. 11" Liszt
ERICH JOHN.
9. Vocal—"Serenade" Schubert
Mr. JACK LORD (Tenor) and RADIO NEWS ORCHESTRA.
10. Choral—"The Minstrel Boy" Moore
ST. LAWRENCE'S COLLEGE CHOIR.
11. Vocal—"The Lost Chord" Sullivan
Mr. FRED HOMER (Baritone) with RADIO NEWS
VOCALISTS and ORCHESTRA.

PART II

12. Vocal—"By the Waters of Minnentonka" .. Lieurance
Miss MILDRED BELL (Contralto) with RADIO NEWS
VOCALISTS and ORCHESTRA.
13. Instrumental—"Marche Militaire No. 1" Schubert
"RADIO NEWS" ORCHESTRA.
14. Vocal—"Se Saren Rose" Arditi
Miss MABEL MALOUF (Soprano).
15. Cor Anglais Solo—"Berceuse" (from "Jocelyn") .. Godard
Mr. LEON CUSTANCE and RADIO NEWS ORCHESTRA.
16. Vocal—"Blow, Blou Thou Winter Wind" Sargeant
Mr. ALBERT FALK (Baritone).
17. Flute Trio—"Tergett" in G Minor Kicklau
Messrs. TOM WALDRON, B. R. BROCK, and
H. C. MARSHALL.
18. Vocal—"Pale Moon" Knight-Logan
Miss CLARICE COX (Contralto).
19. Elocutionary—Denver's Dream (from "The Silver King")
Mr. HARRY BORRODALE.
20. Mixed Quartette—"Cornfield Medley" .. Plantation Song
"RADIO NEWS" VOCALISTS.
21. Finale—"Anvil Chorus" (from "Il Trovatore") .. Verdi
"RADIO NEWS" VOCALISTS and ORCHESTRA.



Mr. ERICH JOHN,
Director and Solo Pianist.



Miss MILDRED BELL,
Contralto.



Mr. JACK LORD.
Tenor.



Miss MABEL MALOUF
Soprano.



Mr. FRED HOMER,
Baritone.



Mr. ALBERT FALK
Baritone.

Artists You Hear at 4QG



MISS FEO TODD,
Elocutionist at 4QG.

This bright young lady is often heard from 4QG broadcasting elocutionary numbers. She has a good sense of interpretation, and whether her item be one of dramatic intensity or one of lighter vein, listeners are always given a correct and pleasing rendering.



MISS MAYE HUGHES,
Soprano.

Miss Hughes is one of the specially selected artists to appear on the "Queensland Radio News" programme, at 4QG, on Wednesday, April 21st. Miss Hughes has gained many musical honours, amongst which was the winning of the Gympie Eisteddfod against 40 competitors. She has studied under Mr. Cecil Houghton, and has appeared at numerous recitals and concerts in the city.



MR. A. R. FEATHERSTONE,
Leader, Savoy Orchestra, 4QG.
Mr. Alf. Featherstone is one of Brisbane's least known orchestral pianists, and those who have danced to his music at the Trocadero and in other ballrooms, will welcome his appearance on 4QG's programme, in his capacity as leader of the Queensland Radio Service Orchestra.

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You are living in the South Brisbane area and adjacent Suburbs, we will call for and deliver same promptly. We charge and repair any battery.

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Queensland Distributors—

Bizzy Cycle-Motor Works Ltd.

Roma Street, Brisbane

"The House of Westinghouse"

BROADCAST BREVITIES

SUN SPOTS MAY BOTHER RADIO.

The sun is growing spotted again. During the past fall as many as fifteen spots were sometimes visible at one time, and some of these spots were more than twenty thousand miles in diameter. Such spots are believed to be evidences of great storms on the sun. They are invariably accompanied by vast magnetic disturbances, which disturbances frequently reach the earth and manifest themselves by alterations in the direction of the magnetic compass, by strong stray currents in telegraph lines and the like.

The spottedness of the sun is known to vary according to a more or less regular cycle with a period of approximately eleven years. The minimum of this sun-spot cycle was passed in 1923 and the number and activity of the spots are now increasing. A recent newspaper interview with Dr. J. A. Fleming, of the Department of Terrestrial Magnetism of the Carnegie Institute of Washington, warns the public to expect magnetic disturbances whenever the number of sun spots is great. It is probable that the effects of the sun spots on the earth include, also, a share in the creation of static, so we may perhaps expect more static this year than last. Possibly there will be a maximum of static, coinciding with the maximum of sunspot activity which is due in 1929.

SUPER-POWER AND FADING.

Last year's tests of super-power broadcasting, culminating in the alternative transmissions from WGY on fifty kilowatts and on ordinary power, have definitely established two conclusions says "Popular Radio". First, super-power does not cure fading; many observers reporting that the fading was quite as noticeable on the high power as on the low. Second, the degree of interference on the high power was not noticeably greater than on the low, except, of course, in the immediate vicinity of the station.

These conclusions seemed to have surprised many of the listeners, although there is no reason for such surprise. Both results are quite in accord with the best present-day theories of radio wave propagation. Fading is believed to be due to atmospheric phenomena, mainly the existence and movement of areas of different ionization in the upper air. Such effects ought to apply equally to a wave of any power, so long as its wavelength is unaltered. Similarly with interference, the intensity of any wave falls off so rapidly with increasing distance from the transmitter that a "blanketing" effect from a super-power station would not be expected to extend more than a very few miles from the antenna. On the other hand, the distance range at which a station is audible above the static level ought to be approximately proportional to the power used, and this seems to have been the case with last summer's tests. The continued tests made since then and which are still in progress will lead, doubtless, to still more exact information.

HEAT, LIGHT AND POWER via THE ETHER.

There comes word from London that science is scheduled so to improve things that the very foundation of this particular organization is threatened. That is, if we are to take seriously the prediction of Professor A. M. Low, who is quoted in the daily press as saying: "The demand for speed and yet more speed will shorten business conversations to a matter of seconds or fractions of seconds. A few rapid facial expressions and some thought waves will serve the purpose of the present day thirty-minute conversation."

Professor Low predicts a lot of other things, including the transmission of power by radio, because radio waves and light waves are the same; it is only a question of the length of the wave. It is confidently to be expected therefore that some day scientists will shorten the radio wave to the length of light waves, and then we will have radio light. And since heat is also a type of wavelength, he sees nothing improbable, in science converting the heat at the Equator into radio waves and broadcasting them to the poles, where, of course, the process will be reversed will reconversion into heat waves. He concludes that this power will be free like water." (Let's hope his predictions materialise.)

THE EFFECTS OF RADIO ON HOME LIFE.

In a conference on modern parenthood held under the auspices of the Child Study Association of America at New York, radio was held to be an unneeded blessing to family life, though the automobile and the motion picture were thought to be distrubers of hearthside unity. This viewpoint was presented by Dr. John M. Cooper, associate professor of sociology, at the Catholic University, Washington, D. C., whose subject was the effect of machine made recreation on the family life. The topic followed a lengthy discussion of whether religious tended to unite or separate family groups into factions because of the serious problem presented to many conscientious parents, who, themselves subscribing to no given faith, yet felt that their children should receive religious training.

96 HOURS OF CONTINUOUS LISTENING IN

Enthusiastic fans have made all manner of boastful claims as to the number of continuous listening hours they have put in at a radio receiver, but the most ardent dial manipulator will certainly have to sing low in the face of the claim of Mike Newman, veteran showman, who recently drove from Los Angeles in the interests of a movie film and announced on his arrival that there was no such thing as "silent hour" on the trip across country with a radio receiver mounted back of the driver's head going practically all the ninety-six hours and fifteen minutes running time required to travel 3,370 miles of the journey.

A Super Receiving Set

(By ROBERT WARE.)

It was the writer's privilege the other day to view the first of the wonderful Stromberg Carlson wireless receivers to reach Queensland.

Encased in a substantial mahogany cabinet and fitted with solid bronze dials and a voltmeter, the outside appearance prepared one for something "out of the box" in receivers.

Not, however, until the lid is lifted does one get any true idea of the craftsmanship and design—which only a master mind could have conceived.

Not that there are so many wires, bars, valves, and "gadgets" scattered about inside the cabinet—rather that the massing of the various components under four shields indicates the most marked step in efficient shielding yet attempted.

This shielding is the result of long experimenting, and consists of the complete isolation in heavy gauge sheet copper cells of the integral groups of tuning coils, variable condensers, and valves.

The great advantages claimed for this innovation are—signals from much greater distances are brought in—increased selectivity and ability to cut out powerful local interference, improved quality of received signals, simplification of volume control and adequate protection against dust and breakage.

The circuit is of the non-radiating neutrodyne balance type, and consists of three stages of tuned and neutralised radio frequency amplification, a vacuum tube detector, and two stages of audio frequency amplification of new design, and takes an "A" battery pressure of 5 volts, with 135 volts from the "B" battery, and 9 volts on the grid drain from "C" battery.

Two selection controls make extremely fine tuning an easy job. The left-hand knob controls the aerial system, whilst on the right hand tunes all three radio frequency circuits. The selector knobs are geared 1 to 10, and on seeing the slow positive progress of the dial pointer one immediately realises the accuracy of tuning which is possible. In fact 40G can be absolutely eliminated under any conditions of working.

One very fine feature which instantly appeals is the voltmeter which has a red line at the maximum voltage allowable for the radiotron valves which are used.

This, together with a single knob voltage control, should entirely eliminate all fear of damaged filaments through too much voltage.

In this set we also find a new type of audio transformer which will effectively amplify over an extraordinary range from lower than a 60 cycle deep bass note to the topmost notes of the highest pitched orchestral instrument.

A special switch controls the volume by regulating the strength of the signal admitted to the first shielded radio tuning coil, and this prevents overloading of the tubes, and a consequent absence of distortion.

Enthusiasts will glimpse something of the capabilities of this receiver when they are told that with an indoor aerial 15 to 20 feet long, a broadcasted programme has been received from a distance of 1500 miles at loud speaker volume.

Whilst listening to a Melbourne programme recently, Mr. Christensen, the Managing Director of Home Radio Service Ltd., distinctly heard the breathing of both the announcer and a lecturer.

As the cabinet is built on a steel frame work, and the apparatus fixed to three steel bars across the base, the strength of this instrument is immense.

Moreover, every part which is subjected to mechanical wear is designed and tested to withstand over 50 years of continuous service if used two hours per day.

Any radio "fan" requiring something extra special in wireless reception should investigate the new Stromberg-Carlson "6." He will glory in it.

A Splendid Catalogue

SENT FREE TO AMATEURS.

Messrs. Wireless House Ltd., Adelaide Street, Brisbane, have just issued a splendid catalogue that is well worth having. It features a list of the complete stocks of Wireless House, Ltd., together with prices, and in addition, contains many pages of interesting and instructive technical matter. The book comprises 64 pages and cover, and is a credit to both the compilers and printers. Messrs. Wireless House Ltd. state that this book will be sent FREE to any amateur in Australia on request. As supplies are limited early application is advisable.



THE OBSERVATORY TOWER, BRISBANE—4CM'S NEW HOME.

The Greater Brisbane Council has offered Dr. Val McDonald (4CM) the use of the old Observatory Tower as an Experimental Radio Station. It offers splendid facilities for this work.

**For Better Service
and Longer Life
Instal an—**

**"Exide"
WIRELESS BATTERY**

If you would have the best results from your wireless set you must use the best battery for the purpose. You should use an "Exide." "Exide" Batteries are made by the oldest battery makers in the world, and experience counts for much in the production of batteries.

Obtainable from all leading Radio Dealers

**EXIDE BATTERY SERVICE
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S.A.S.

FOR SALE OR **EXCHANGE**

If you have anything to sell or exchange here is the place for it. A small charge of 1/6 per insertion (prepaid) for 3 lines (about 24 words) is made. Stamps in this case will be accepted. Address: "For Sale Column," "Queensland Radio News," Box 1095, Brisbane.

Gernsback's wonderful regenerative interflex valve and crystal. Amazing distance results, no howling. Essential parts for sale, with completely illustrated detail instructions—only wants rheostat, socket and panel to complete. The parts include special flexo-coupler, low loss tuning condenser and dial, balancing condenser, carborundum crystal detector, all new, and terminal strip. First cheque for £3/17/6 takes the lot, packed and posted. Only one set available. N. Kayess, G.P.O., Box 1055, Brisbane

BANGKOK TAKES TO THE AIR.

Bangkok is now broadcasting. The first important program in Siam, it is reported, was arranged by the Signal Corps of the army, with the assistance of the cavalry band, the musical selections and some news items provided by the local newspaper being received at five installations located at Hua Hin, Ayudhuz, Korat and at two of the official palaces. Satisfactory reception continued throughout the three hours schedule for the programme.

Prepare for

4QG



UNASSEMBLED SETS

(All Types)

Unassembled Sets (all types), comprised of all necessary high-grade parts, panel, valves "A" and "B" Batteries, Aerial equipment and full instructions for assembling and wiring.

- 1 Valve £5-0-0
- 2 Valve £7-0-0
- 3 Valve £9-0-0

One High-grade English Condenser is supplied free with each £5 worth or more of goods ordered.

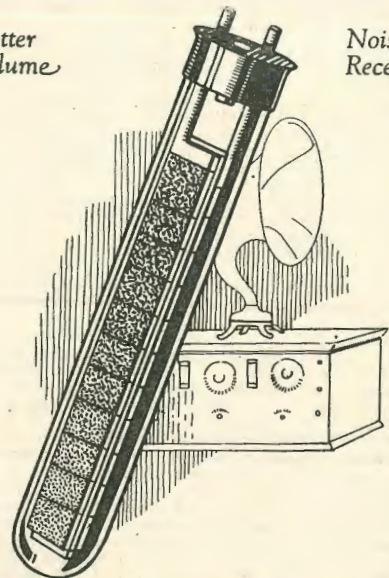
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Better
Volume

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"EUSCO"
"B" Accumulators

It is folly to pay fabulous prices for imported tariff-laden accumulators, when the EUSCO—Australian made and guaranteed—may be bought at **LESS THAN HALF** the price!

Each of the Eusco's 6-inch cells have a 2,000 milliampere capacity and spacious acid circulation. The heavy plates ensure a slow consistent discharge and every cell is **FULLY GUARANTEED.**

PRICE per 2-Volt Cell **2/-**
(fully charged) is only

Thus a 40-Volt Accumulator may be bought for £2 (unassembled).

An extra charge of 25/- is made for assembling cells in acid-proof carrying case (with lid), burning on connecting lugs and connecting up. Ask your dealer for EUSCO A and B Accumulators, or come direct to—

Electric Utility Supplies Ltd.

Duncan Street, Brisbane
Next to New Valley Theatre.

Questions Answered

V.B., Newmarket.—The variocoupler described in our February issue, while suitable for cutting out temporary 4QG, would not cut out the new high power station. The method described was a very selective one, but it could not, unaided, cope with 4QG's tremendous volume. We would suggest that you read Mr. Reed's article on the subject in this issue, Mr. Reed claims this method to be entirely successful. The number of turns you ask for are as follows:—(For 4QG, 2BL, or 3LO, P.35, S.50, anode 75. If you are using a two coil circuit you should use grid 50, anode 75.

R.S., Munduburra, Q.—The article you request would interest so few of our readers that we do not consider it deserving of publication. We suggest that you write to the agents for Delco or other home lighting plant agents for literature on the subject. Charging accumulators in the country is indeed a problem, unless you have a modern home lighting plant at your disposal. McLeod's bookstore (Brisbane) can supply you with two excellent books on the care and maintenance of batteries, viz.: "Storage Batteries," by Niblett, 4/- posted; and "Storage Batteries," by Crocker and Arendt, 7/10- posted.

Station 2ME is Amalgamated Wireless Co.'s testing station.

G.F.J. (Maryborough).—(a) Secondary coil—50 turns, honey comb type. (b) You will find that 50 turns of 28 D.C.C. wire will give excellent results. (c) Primary 35 turns, secondary 50 turns (shunted with .0005 variable condenser), tickler 75 turns.



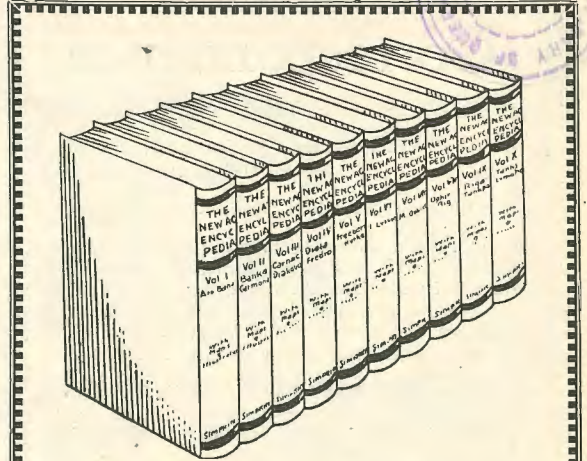
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A. McLEOD

"Brisbane's Best Bookstore"

107 ELIZABETH STREET, BRISBANE

Correspondence

Experimental Station, 4KY,
Oxford Street, Hamilton.

(The Editor, "Queensland Radio News," Brisbane.)

Dear Sir,—Some misleading statements have appeared in the columns of the daily press during the week concerning excessive interference from the new 4QG; some of the writers held the unshakable opinion that the new station blotted everything out and prevented the reception of southern programmes from either 2BL Sydney or 3LO Melbourne.

Statements such as those indicated will if allowed to go unchallenged, cause an immeasurable setback to the industry in Queensland, and the radio art in general.

For the benefit of the Queensland radio public in general, I desire to point out that 4QG can be completely eliminated, and southern programmes received with the greatest ease and precision. This result is obtained by a very simple method, simply "a trick of the trade," so to speak. Mr. Moore, of the Brisbane radio staff, and the writer, have succeeded in eliminating 4QG at will, absolutely.

The tuning methods employed in both sets are entirely different, yet, we are pleased to say, results are extremely satisfactory; in fact, leave nothing to be desired.

It has been rumoured in the city, I understand, that 4QG was interfering on the commercial wave length of 600 metres. On the contrary, 4QG is not heard on this wave throughout the programme on the standard commercial circuit. I am confident that readers will readily understand that we would not tolerate any such "hit and miss business" in commercial radio practice.

Herewith a few concrete proofs of our interception while 4QG was on the air.

Steamer Makambo, worked at New Hebrides.

Steamer Hellenic worked at a distance of 1660 miles east.

Coast stations received during the programme:—Awanui, N.Z.; Perth, W.A.; Esperance, W.A.; Melbourne, Victoria; Amboina, Dutch East Indies; Vila, New Hebrides; Noumea, New Caledonia; Adelaide, S.A.; Time Signals, etc., etc.

Further proof as follows.—Melbourne and Sydney programmes have been relayed by me over the telephone lines to the engineers of the (AWA) Limited, at the main transmitting room, 4QG. Furthermore, I have relayed 2BL Sydney over the telephone lines to the radio inspector, while 4QG was delivering 5KW antenna energy!

Verification of these statements can be obtained from the above gentlemen. This rejecting process has not been accidentally struck, it is the outcome of experience gained over a period of years on five systems of radio.

With best wishes for the success of 4QG, and the expansion of the radio industry in the State of Queensland.

WIRELESS POLES

Hardwood and Oregon Pine Wireless Masts delivered and erected. Three coats white paint, well-finished, and fitted with special hardwood base. These poles will stand for a lifetime. Ring J1976 for particulars.

E. ROWDEN
EARL ST., THOMPSON ESTATE
SOUTH BRISBANE



Phone J1976.

Wishing our own wireless journal continued prosperity—
Yours faithfully,

H. F. COFFEY,

Officer in Charge, Radiotelegraph Station, Pinkenba, Q'ld.
(We have had verification on the absolute success of Mr. Coffey's idea.—Editor.)

Rose Street, Highgate Hill, 22/3/26.

(The Editor, "Queensland Radio News.")

Sir,—It may be of interest to you to know that I receive the high power 4QG Station quite comfortably on a crystal set with loud speaker volume. I am about 1½ miles from the station. Last night the church service was easily heard sitting at 10 to 12 feet distant, but a closer space was necessary for the quieter passages of the band selection. I anticipate satisfactory reception when the permanent station is opened. The aerial is of 7/22 enamelled wire, and the earth of greater area. A single tuning coil of 18-g. insulated wire wound with air space between the coils is used. Footes galena crystal and a radio equipment speaker are the other main items. A fixed condenser is placed in series on the lead in connection, a .0005 variable Vernier condenser is in parallel on the secondary circuit, and a .001 fixed phone condenser across the speaker terminals. The machinery noise or sound emitted which carries wave alone is being transmitted occasionally interferes with the voices or music being carried, but for the greater portion of the programmes, it is not loud enough to be heard. The music is transmitted through this set with quite natural tone. The modulation could on occasions be improved, but generally it is good. I can also hear 3L.O. on this set when 4QG has ceased to operate, i.e., using a pair of Mello phones, the announcements and music being very clear at times.

Yours faithfully,

J. H. BURGESS.

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