

WIRELESS WEEKLY

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VOL. 5. No. 16.

FRIDAY, FEBRUARY 13, 1925.

3^D

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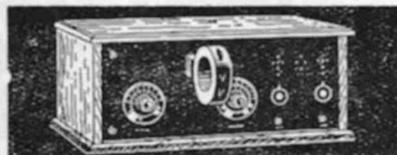
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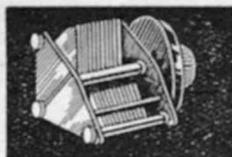
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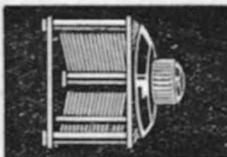
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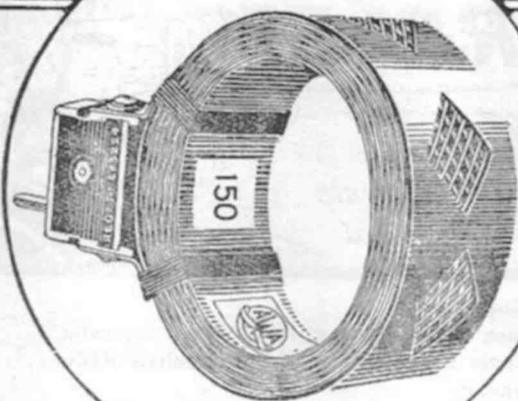
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VOL. 5. No. 16.

FRIDAY, FEB. 13, 1925.

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**EDITOR:
A. W. WATT**

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

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Editorial

2BL.

THE rebroadcasting of KDKA by 2BL (Broadcasters, Sydney, Ltd.) was not what may be termed an unqualified success, but as the first organised attempt to perform the feat, it deserves more than a mere passing mention and undoubtedly reflects credit on the management for their initiative in at least making an effort to render an additional service to those listeners-in not equipped with receivers suitable for reception on short waves. It need hardly be emphasized that Broadcasters, Ltd., although under certain handicaps have since the inception of station 2BL over twelve months ago, pursued a consistently progressive policy and it cannot be denied that at the present time, their service while including a certain amount of wasted energy, represents an honest attempt to give value for money received. A scrutiny of the programme published in the daily papers shows a remarkable variety of entertainment and the most severe critic must admit that, from the point of view of quantity, the management caters for all classes of Society and gives them full measure. The fact that Broadcasters have recently acquired the services of a radio engineer whose training embraces practical experience in Europe and America, and who may with confidence be regarded as an expert, shows that the quality of the transmissions is not being neglected.

There is much criticism of the class of stuff put out by 2BL, and for that matter, 2FC, but the evidence of the printed programme is conclusive, and it is doubtful whether a more comprehensive schedule is being carried out at any other station in the world.

The arrangement of the programmes day after day and night after night must represent a colossal task, and if repetitions occur occasionally, it is difficult to see how they could be avoided without interfering with the rest of the programme.

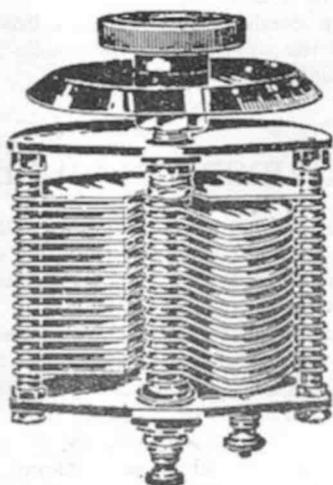
A readiness to fall into line with popular ideas and a very fair understanding of what the ordinary public wants, has attracted a large crowd of followers to 2BL, and co-operation with enthusiasts generally has resulted in a great deal of good for the industry and for Australian Wireless generally. Not the least of the many good works, the credit for which may be given to 2BL, was the

presentation of the wireless receiver to the Royal Alexandra Hospital, a kindly action which has brought joy to dozens of kiddies.

A station conducted along such lines cannot fail to merit the approval of the public and this, after all, is what really counts.

Experimenters Again.

ON Sunday last we listened to an impassioned address over the radiophone, to the operators of re-radiating receivers. The speaker was an experimental transmitter and his remarks, which certainly came straight from his heart, were addressed to listeners who were permitting their receivers to interfere with his reception from another station. These two stations were carrying out tests which had a definite object, and they were being conducted when broadcasting was not in progress. Listening carefully on the wavelengths of the stations referred to, we were reminded of the parasites which dig in and live on the backs of various types of fish, and it seemed that every howling valve in Sydney was sweeping across the track of the experiments. Now, reiteration becomes wearisome but we want to again appeal to those who thoughtlessly and quite needlessly interfere with the pleasures, or, as in the instance mentioned above, the serious work of others. For the man who doesn't care a hat about the other fellow, of course there is no cure, but we believe that the majority DO care, and it is to them we are aiming these remarks. It is just as easy to get good results with a receiver when it is not causing re-radiation, than when it is, and no one would be more pleased to explain why this is than the experimenter himself. It should always be remembered that the experimental transmitter has quite voluntarily sacrificed a lot in order to avoid any possible interference with the broadcast programmes, and it is therefore only a fair proposition that when testing at times apart from broadcasting hours, he should be afforded that consideration that he himself has shown by his own example, is more than willing to show others. This consideration for the experimenter can be shown in one or two ways; first, by keeping one's receiver off the lower waves, or second, by so controlling one's receiver that it does not re-radiate, or in other words, act as a small transmitter. A little careful attention to tuning and the avoidance of over reaction will ensure non-interference. We have only to reflect that, as an instance of the value of the experimenter to the community, the rebroadcasting of KDKA was made possible by an experimenter. He is at least entitled to fair play.



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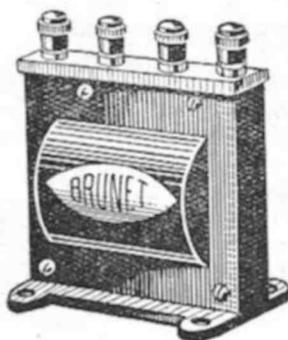
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Experimental Transmissions.

Recently it was decided by the Wireless Institute that all transmitters be requested to close down between the hours of 8 to 10 p.m., with the exception of pure C.W., when the majority of transmitters gladly indicated their intention to co-operate, and observe the silent period every night from 8 to 10 p.m., in order that broadcast listeners may be exempt from any interference from experimental transmission. It is very pleasing to note, at this juncture, that it is impossible to hear any of these stations, who fell into line, working during this silent period, which speaks volumes for the manner in which they carried out their obligations. The authorities left this matter in the hands of the Wireless Institute, which was one of the best moves ever taken, as the Australian values an appeal to his better nature to such an extent that he cannot refuse to co-operate when it is for the good of the majority.

In the event of restrictions being placed upon anything in the nature of wireless, past experience has shown that the restrictions are observed in the breaking rather than otherwise. It would be a foolish move to press at this time for any restrictions upon experimental transmission. One has to visualise the recent "sealed set" regulations, and their observance by the mass to comprehend what may even occur again, and it is only by benefiting from past experiences that future legislation can be successful.

The value of experimental transmission to a community such as ours, cannot be assessed in words any more than hide bound regulations can control such transmission. The multiplicity of the avenues of radio research is beyond our present perspective. We have no knowledge of the use an experimental transmitter may be put to within the next few days, or weeks. Are we, therefore, competent to say that we can frame iron clad rules to control such a science? The past accomplishments in wireless have so strongly impressed their importance upon the Controller of Wireless, Mr. J. Malone, in the administration of regulations at present existing, that he has, on numerous occasions, found it essential to use his

discretionary powers to the utmost, and his foresight in taking such an attitude has been of the utmost value to the development of radio in Australia.

When one considers that we are placed so far away from centres of much populace, and that we are only a handful of people, it will be understood immediately how necessary it has been for experimental work in this country to develop along the lines of reception from great distances before attempting transmission over great distances as it is necessary to be able to receive a station properly before you can possibly attempt to communicate with that station is a regular thing. The period of reception of distant stations, even as far as Great Britain, passed some time ago, and later experiments have been devoted purely to developing transmission from this end and installing into experimenters of distant countries the importance of listening to what we have to say in connection with the development of wireless from a scientific point of view.

It may not generally be known that the New South Wales Division of the Wireless Institute, when it was inaugurated in 1910, was the first radio scientific society in the world, then known as the Wireless Institute of New South Wales, and from such small beginnings one has seen the enormous developments of scientific societies in radio throughout the world. For instance the Radio Society of Great Britain, with its enormous following, the American Radio Relay League, the Institution of Radio Engineers in America, and the Institution of Radio Engineers in Australia, which shows that the professional side is being catered for by suitable societies as well as technical.

Furthermore trade developments has followed on the initial research to such an extent that the organisation of the trade has resulted in very many societies being formed purely to watch their own interests, and do the best that is possible to be done in the interests of the users of radio in regard to broadcasting.

One does not realise that when one is discussing the merits or demerits of a broadcasting programme how many intricacies are involved, how many elements of risk there are in operating for

successful transmission, how hard it is to prevent personal jealousy causing obstruction, and how necessary it is for both the listener and the broadcasting service to be appreciative and co-operative.

In conclusion it must be pointed out that unless good fellowship is going to permeate, all those interested in, or using radio, set backs will occur, and the public must be prepared to forego many things if they are really considerate and desire that radio should come into its own.

QRM.

The Institute has lost its "Insulator." Anyone knowing his whereabouts, kindly advise him to call at headquarters where he will hear something to his advantage.

2KC has been blowing bubbles. They will soon burst. Look out!

2LO has gone to Bananaland. Yes, we have no bananas.

Who is 2YB?

2CX is setting the standard.

2WW will be on the air shortly. Can you guess from the initials who he is?

2ED has left the city, leaving his 202's behind him.

2JM's success can be attributed to the fact that the American signals would have much difficulty in getting around him.

Special QRM.

The first cure from the radio bug bite on record is 2XA. His medicine bottles are for sale. 2HH has started a museum, and is a likely purchaser.

Extra Special QRM.

2CM has purchased corks for his aerial because Basil Cooke, F.R.A.S., has gone pigeon shooting, and there are not any pigeons left.

Mr. Perrett takes no responsibility for the handling of the above this week. Blame 2GM if you have a grievance.

Of course Mr. Perrett has made out that he has gone away on holidays, but he has proved himself an able Publicity Officer with his motor car (Ford) considered it was quite time that it had a new driver, as a man cannot do two jobs successfully. Consequently it kicked his arm rather badly and we really believe the holiday is to get over the effects.

Exhibition.

Details will shortly be published regarding the Wireless Exhibition of the New South Wales Division of the Wireless Institute, to be held early in the coming winter, for which negotiations are now being conducted. Let every radio man, woman, and child in Sydney, take note that the best radio show in the world will be put forward. Our last exhibition was second to none.

PUBLICITY OFFICE.



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

THE LEICHHARDT AND DISTRICT RADIO SOCIETY *

Members of the Leichhardt and District Radio Society held their 116th general meeting at the club-room, 176 Johnston St., Annandale, on Tuesday, January 27th.

The attendance was good, and the main business of the evening was the delivery of the first lecture of Syllabus No. 3. The work was entrusted to the good hands of Mr. R. C. Caldwell, who dealt with the Morse Code, and the procedure adopted in its use. Members were treated to a very interesting and instructive talk on the various abbreviations and symbols used during ship to shore communication, and vice versa, also an explanation on many other points which become evident during the use of the code in question. The lecturer was called upon to reply to a number of questions relative to his subject, after which a vote of thanks was carried unanimously.

Next Tuesday, the Society will hold its 118th general meeting, when Mr. E. J. Fox will deliver the second lecture of the new syllabus. The subject on this occasion will be "Aerials and their Erection," and is one which should prove very interesting to all. The following meeting—to be held on Tuesday, February 17th, will take the form of a club debate, and the subject to be discussed will appear in these columns next week.

(Continued on Page 32.)

Telephone B 5925

CHARLES D. MACLURCAN

Consulting Radio Engineer

Pratten Building,
26 Jamieson Street,
SYDNEY



WITH OUR READERS

(To the Editor)

Sir,—I would like to ask your interstate and New Zealand readers who were listening in on Saturday, January 31, Tuesday, February 3, and Friday, February 6, to forward me a report on the quality of the transmission (of the individual items and nights if possible) from station 5CL Adelaide. The artists were relatives and friends of mine, and will be interested to know how their stuff came in in the other states.—Yours faithfully,
IVAN J. ANDERSON.
 17 Hardy's Road, Torrensville, South.
 Australia, 1/2/25.

(To the Editor)

Sir,—I noted with satisfaction your Editorial article of 23/1/25, but I would like to voice the opinion of probably thousands besides myself that the quarterly payment suggested could in no true sense relieve the position for the average man. Few people are so blind as not to realise that 35/- paid by quarterly instalments still remains 35/- per annum, and they are much more likely to reason that's practically £2 and year and every year!

Now, Sir, there is only one way to tackle this question, and that is the reduction of this license fee to a straight out 10/- per annum, at any rate to the owner of a crystal set. Incidentally the ratio of cost of license to crystal set as given by you, is more than fair in favor of the license. Some months ago during convalescence after an accident, I proved that one of the "Super Crystal" sets, designed by Mr. Hamilton (W.W., September, 1922) and loaned to me by a friend, gave absolutely efficient reception from both broadcasting companies at Ryde, and generally good though fainter from Farmers, as far away as Camden (33 miles). The only "aerial" was an article in every home and the "earth" absurdly poor. That set, or the equally efficient double slider, can be made for about 10/-; average good phones can now be bought for 25/-; so the whole outfit complete will give absolutely efficient reception from both broadcasting companies within say 20 miles of Sydney can be had for 35/—which figure is straight away doubled by an addition of the license fee. Is the average man going to tamely submit to an overhead charge such as this—and not once, but approximately the same figure every year? No! Especially when he knows that an outside aerial in nine cases out of ten is unnecessary.

It appears to me to be evident that those responsible for the 35/- license fee had not the "vision" to see that wireless is the one big modern achievement, recreative and educational that should be, could be, and, if properly handled, will be universal; that, for the expenditure of £2 or £3 there is no home that need be without it. And, on the other hand, that half a million potential subscribers in and near Sydney can be brought in by broadcasting companies for exactly the same expenditure on plant that it costs them to get one tenth that number. But of that potential half million subscribers, by far the greater number will be the "average man," just able to provide himself and his family with this perpetual enjoyment, but decidedly adverse, if not quite unable, to stand in addition, an extortionate overhead charge for its upkeep yearly.

I agree with your remark that "perhaps it is quite fair that all should pay an equal fee"—it does not seem fair that the owner of a three valve

(Continued on Page 28.)

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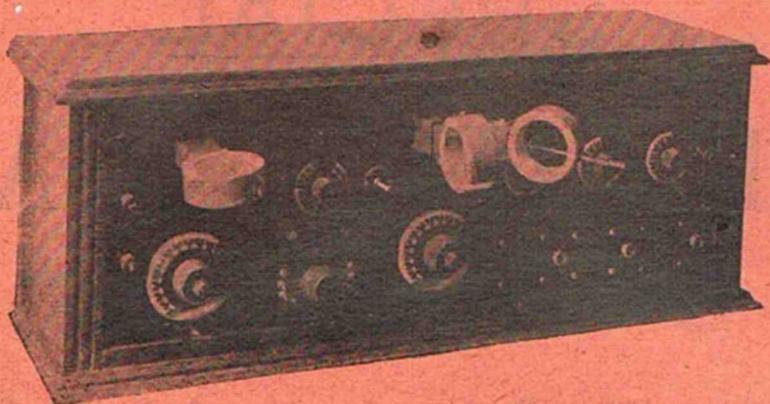


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MY FIRST VALVE

By "BRASSO."

ONE night quite recently I happened to visit the home of one to whom I might without injustice tack the appellation "Radio Bug"; that is, one into whom the virus of the radio bug has been so often injected that he assumes all save the outward characteristics of that insect. So deeply has he become immersed in the process of hounding down distant stations with his "super het" that his wife told me indignantly that she only saw him at meal times, during which his conversation reeked of oscillations and ethereal observations. More out of kindness, I spent a couple of hours in his den, sitting uncomfortably amid empty valve cartons and broken dials while he frenziedly whirled the knobs and tabulated the stations he was hearing. From out of the mouth of the loud speaker suddenly would blare the cry of a rhinoceros in its death throes. "That's KGO," my friend muttered. Suddenly came the blare of 427 massed bands executing the grand finale, and this I learnt was 3AR. Next a dreadful strangled, moaning sound, which set me thinking of "The Face at the Window." "3LO," was the triumphant chortle of the figure in the chair, passing onwards to execute the slaughter of good music from some other broadcasting station. Restlessly his hands pawed the dials until with a grunt he snatched open the lid and began messing about with the valves. With a carelessness born of a long experience and bankroll, he grabbed them one by one, yanked them out of their sockets and plunked them down on the table like bits of wood. His handling of these delicate instruments induced me to protest, but with a sardonic grin he went on with the business, muttering something about "that one's too soft, I'll put in a 601B" and so on. Engrossed in his hobby, he did not notice my departure and I left him crouched on his chair glaring malevolently at his superhet, probably because KGO was only audible 350 yards away from the speaker. His contempt for the filaments of those valves filled me with anguish.

Years and years ago—in fact so long ago that it need not be mentioned—I bought a valve, despite the embargo placed upon the sale of valves by the Government. It was during the war and I, in company with one, John Darley, a junior op., was attached to H.M.A.T. "Barunga," then un-

dergoing overhaul over at Cockatoo Dock. The set we controlled was a 2½ k.w. Telefunken transmitter and a German loose coupled tuner, to which was hitched a bunch of home made crystal detectors, one of which could be selected by a seven point switch. In those days, the only wireless literature available was the "Electrical Experimenter," which has since blossomed into "Radio News" (U.S.A.). Descending upon the book shops in Sydney we bought up all the back copies of this journal we could lay hands on, and gloated over the circuits of valve receivers for hours. Sitting outside the cabin on the boat deck one fine morning, we drew hard on our pipes and pondered long and seriously upon the ways and means of getting a valve. During the war all things wireless were verboten, except, of course, on ships and shore stations and valves were as scarce as flappers at a Methodist convention—so much so that they were not issued to ships.

Darley and I however were aware that a few Sydney experimenters were known to occasionally become possessed of audions, so on this particular day we donned our go-ashores and crossing over on the ferry, departed on the trail of an experimenter with a valve for sale.

How we did it doesn't matter, but late in the evening we tracked one to his lair, and advancing with friendly signs and waving a couple of pound notes, we succeeded in establishing friendly contact. This bird had a spare audion,—one of those beautiful double filament valves, which we don't see now—and was asking £3 for it. Amongst other things he told us that on this valve he could hear all the door bells ring down the street and that the passage of a tram could be traced for miles—also that he could distinguish quite a few electric elevators by their inductive noises — and being young and innocent, we believed him. Finally, after much haggling, the price came down to £2/10/-, so bearing the precious bundle under my arm, and with Darley maintaining a leaside in case someone bumped me, a course was set for Cockatoo.

After tea that evening we unearthed the "Electrical Experimenters," raided the carpenters shop for a few tools and started in to make a valve set. The functions of a valve were at that time not

too clear to us and such a thing as regeneration was a foreign lingo; therefore the circuit we wired up on the lid of a kerosene case was a simple detector unit—that is, it was meant to be. When the batteries were switched on and the phones hooked in, we waited expectantly for signals from ships on the other side of New York, but all that greeted us was a series of crashing, roaring noises which Darley suggested was the noise of the trams in the city. It seemed to me by the sound of things that we were listening to all the trams in the world, and as we waited for half an hour or so for some of them to stop, the noise increased until I had the feeling that someone had crossed us with the stadium telephone line and that the last round of a twenty round bout was in progress. After a while a weird shrieking occurred and it seemed that we had been switched through to an Irish wake; during the next half hour we heard every noise save Morse signals and around about nine o'clock I had a dawning suspicion that perhaps something was wrong.

And something WAS wrong; but what it was must ever be shrouded in mystery. Probably the B battery was joined up to the grid, or a few connections were crossed.

The day after that we sailed for Melbourne, but even when many miles away from doorbells, trams, and the bird who sold us the audion, we got no results and were seriously considering a unanimous vote of no confidence in the Editor of "Electrical Experimenter." In Melbourne we got hold of another copy of the journal and found in it an article stating that if a magnet were suspended in front of the valve in a detector circuit, regeneration would be obtained, or words to that effect, so accordingly a nice little horse-shoe magnet was obtained and we set sail for Panama and New York full of high hopes. And believe me, that magnet did the trick and when we copied VIM at 600 miles daylight we thought we had discovered Mecca. Next we found that the skipper had a number of those long German magnets used in the ship's compass, so we tried these out one by one and proved they were the goods.

So for some months we scorned all other circuits and after reading Melbourne and Adelaide at over 4000 miles, stuck to our one valve—magnet receiver. Words cannot express how tenderly and lovingly we treated that valve and how carefully guarded it was. And it served us well too until it was finally hastily removed from its socket when the ship was torpedoed.

FOR SALE: Loose Coupler, W.E. phones, aerial, lead-in wires—results guaranteed—£3. Apply 50 Park Road, Marrickville.

STATION 2GQ.

THE owner of this station, Mr. Barlow, Armidale, N.S.W. who has been carrying out a good deal of experimental work lately, uses an ordinary Hartley transmitter with, as he says, one or two fancies of his own. The actual power he transmits on, and on which he carried out all his long distance tests, was only an input of 12.8 watts on a 5 watt tube, measured by Weston meters and checked. The radiation shows 98 millimeters on a wavelength of 85 metres on which wavelength his tests with U.S.A. were carried out. The aerial is a 5 wire cage 28 feet high at one end and 26 feet high at the other, counterpoise only being used.

On 17th December, 1924, from 2320 to 0011 SMT this station worked 6CW (Mr. Hart, of Great Highway, San Francisco). He reported that the signals were quite good and strong although he was worked through rather bad QRM due to local interference.

On 17th January, 1925, from 2310 to 0005 SMT, 2GQ worked 5CN (Mr. Rush, Bemis, Tennessee, U.S.A.). Mr. Rush reports that the signals were QSA and to use his own words, "best hrd fm Nz or Aust. vy easy to copi o.m." When he heard that 2GQ's power was 12.8 watts total (on a 5 watter) input he came back and said "gess sum pwr sure o.m.", and after more conversation, closed down with 73's, etc.

On 18th January, 1925, 6AWT was worked (Mr. Molinari, Union St., San Francisco), who also reported the signals quite good and strong. This station was worked from 2230 to 2312.

Mr. Barlow has had some rather good results with other amateurs in this country and New Zealand on this comparatively small power, and also it has been a common thing for 2CR (Todd, Tamworth) to work 2GQ (and vice versa) without an aerial or earth or counterpoise connection to the transmitters, quite good and strong signals being obtainable. The distance between these two stations is approximately 75 miles' air line.

The following calls which were logged lately from overseas were all done with one tube (a V24) but when QRN was not bad an audio was used. All N.Zers. and Aussies on wavelengths from 25 metres to 995 metres are read without aerial or earth connections. In fact 2GQ carries out most of his local DX without aerial or earth connection, as in this manner QRN is considerably reduced and, of course, signal strength as well, but as most short wave transmitters have "sum" punch their signals are quite QSA. All broadcasting stations

except W.A. are received without aerial or earth also.

Three Yanks, viz., 6FC, 6AWT, and 6AWS, have also been logged without aerial or earth connections to receiver — others are noticeable but not readable. The list of loggings is as follows. U.S.A.: 2AE, 6LJ, 9CJC, 6CZ, 6EK, 6CGW, 6AWT, 6AK, 4OA, 3CHG, 6CQX, 7GQ, 2JK, 2AX (these last two were heard on fone lightly in daylight at 0450 one morning, and signed themselves 2JK and 2AX), 2XG, 7ABB, 3BG, 6VC, 6AWS, 6ARY, 6AHP, 6AR, 8BAU, 6AKW, 6KW, 9XT, 6CW, 6CTO, 9AX, 6AF, 2KX, 6CCT, 6ASE, 9ZT, 6EW, 3ADP, 5BA, 1GH, 6LJ, 9BJI, 5CN, 5ZAI, 6CNL, 1BC, 6CM, 6XD, 6BPS, 6CFI, 5AGQ, 1ZT, 4GZ, 6CHL, 6AC.

Canadians: 1AR, 1AP, 5GO.

Mexican: 1B, 1K.

English: 2NM, 2OD, 2SZ, 2OF, 2KF.

K.D.K.A. was also logged on 28th January, 1925, quite good and strong enough to hear most of the items through bad static, on detector and audio.

A CORRECTION.

In our article last week on "The Maintenance of Batteries," the last few lines were omitted by the printer. Please read on as follows:

2. Voltage: 2.5 to 2.7 volts.
3. Plates gassing freely.
4. Specific gravity about 1230 according to maker.

BROADCASTING FOR JAMAICA.

JAMAICA is the latest of the British possessions to proceed with broadcasting.

There was an idea at first that America might more readily and easily take the matter up, but this has proved abortive.

Once established at Jamaica, a relay station to Cuba, now under the aegis of the United States, is easy to contemplate, and is, indeed, an integral part of the programme. Cuba is 90 miles to the north of Jamaica.

That this latest discovery of science will "catch on" is absolutely certain, nor will the cheaper sets be so greatly in demand as the more expensive ones.

Anyone who knows the terrible monotony of the planters' life will realise how eager will be the response to get hold of something to vary it, and, as the promoters are anxious to include as much dance music as possible, it is obvious that here, at any rate, is a wonderful vista of promise for broadcasting and loud speakers.

K. D. K. A.

REPORTS from various quarters have reached us concerning reception of the test transmissions from Pittsburgh.

Mr. A. E. Wright, Scarborough, South Coast, states that on Friday, January 30, signals came in splendidly without any sign of fading, and on the following night almost the whole programme was received.

Signals were also received on every night of the test by Mr. C. Hawtrey, 76 Ewart St., Dulwich Hill. The best results were obtained on a low loss set. Mr. D. W. White, of Kerr's Road, Lidcombe, reports that KDKA was brought in with remarkable strength on January 30 and 31 between 8 and 9 p.m. On Saturday night, two orchestral items and a tenor and soprano duet were heard, followed by the address by Mr. Elder which was, however, marred by static and, in Mr. White's opinion, through Mr. Elder being too close to the microphone. Mr. White has received West Australian 6WF on phone.

Mr. T. R. Anthony, 12 Chestnut Street, Auburn, states that KDKA was received successfully on a loop aerial; the set used was a single tube low loss and a complete log of the transmissions from KDKA has been compiled and is being forwarded to that station for confirmation. The loop aerial used in the test was two feet square and contained 9 turns of 20 S.W.G. wire. No earth connection was used. Mr. Anthony concludes his letter by saying that any low loss set which could not get KDKA ought to be scrapped.

A number of others have written giving reports of KDKA reception and in a letter from Mr. J. O. Denton, Farrell's Flat, S.A., he mentions that he picked up WGN—the Chicago Broadcasting Station, on a four valve set, the music at times being remarkably strong.

In these days of "globe-trotting" there are few persons, indeed, who have not heard something of Jamaica, "The Isle of Springs," and small wonder, for Jamaica is without question one of the most beautiful islands in the world. Lapped by the waters of the Caribbean Sea, its coast line dotted with palm-fringed bays and coves, its blue-hazed mountains draped with verdure to their summits, its path strewn hills, fern-clad dells, peaceful valleys, cultivated plains, its glorious tangle of forests and jungle, and its flowering shrubs and trees, with all these and many other gifts of bounteous Nature it would be strange, indeed, were not this island a tropical paradise.

A WAVEMETER FOR TRANSMITTERS

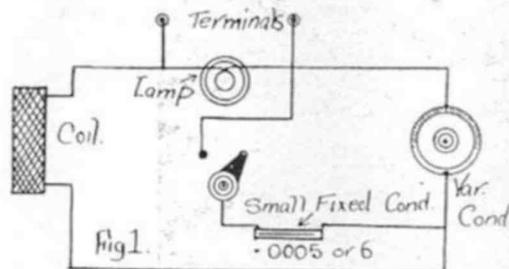
30 TO 250 METRES.

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

[Editor's Note.—Although the heading to this article is "A Wavemeter for Transmitters," the instrument so well described by Mr. Stowe may be used quite easily by those who have receivers only. It is an extremely simple instrument, is quite easily made, and will enable the long distance short wave enthusiasts to calibrate their receivers, so that an adjustment to any wavelength covered by this meter may be made instantly. In these days of KDKA tests and low loss tuners, such an instrument is almost a necessity.]

IN a previous article a type of wavemeter was described having a small lamp as a resonance indicator. It is proposed now to give the constructional details of a similar instrument which has lately been completed by the writer and which is proving extremely useful. The assembled instrument is shown in the photo, also the back view of it.

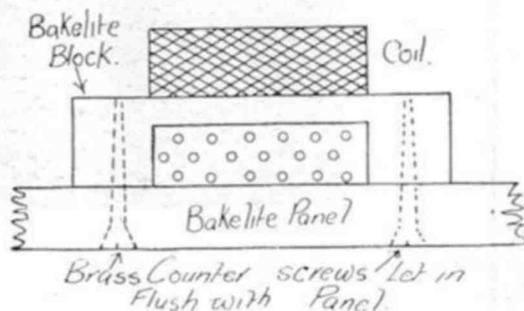
The wavemeter covers a range of from approximately 30 metres to 250. The condenser in this meter is a $\$5$ plate home assembled one having 18 fixed plates and 17 movable ones. Any good make of condenser of about .00075 mfd capacity will suit just as well. The coil is of the low loss variety and consists of 12 turns of 19 or 18 gauge d.c.c. wire wound on 14 pegs on a 3in. diameter circle, winding round every third pin. The fixed condenser in this particular meter is a Freshman .0006 mfd. The value of the condenser will depend on the capacity of the variable condenser selected. The means of determining this will be explained. The diagram of connections is shown in Fig. 1. The two terminals in parallel with the small lamp are to allow of a thermo galvano-



meter being used if greater accuracy in reading is desired or so that the lamp may be shorted if it is desired to use the wavemeter as an absorption type of instrument. The size of the $\frac{3}{4}$ in. bakelite panel is 6in. x 3-5/8in. but this may have to be increased if a condenser of larger dimensions is selected. The method of mounting coils on the under side of the panel shown in Fig. 2. A piece of bakelite or hard rubber is cut out to fit over the coil, sufficient room being allowed

on the ends to take 2-1/8in. screws for holding down. The groove should be just a little shallower than the thickness or depth of the coil, so that when screwed down it will hold the coil firmly. The photo of the back of the panel shows the method of laying up the wires. There is no need to go to the trouble of making the dial visible only through a small window, the ordinary condenser dial will do the job just as well, although the man with plenty of time can fit a celluloid dial as per example, the difficulty being that a dial to suit the job under these conditions must be specially engraved. The method of calibrating is as follows:

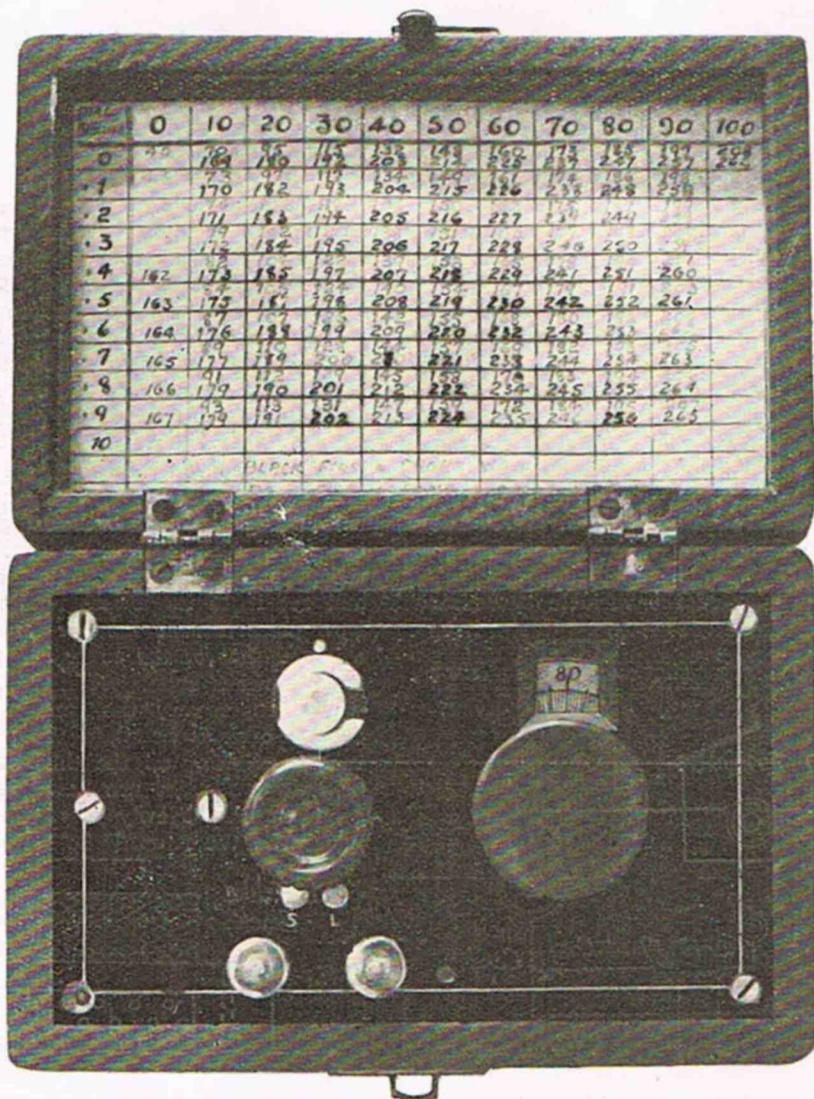
Having once again borrowed the nearest wavemeter of suitable range, the next thing to arrange is an oscillator. Those who possess a low loss tuner will find in that, an excellent oscillator for the purpose. First take the standard wavemeter and set it to its lowest reading say 50 meters. Now place it near the low loss tuner so that its coil and that of the tuner are parallel and about 2 or 3 inches apart. With the phones in circuit in the tuner vary the tuning condenser until a decided click is heard in the phones keeping the tuner oscillating all the time of course. It may be that two clicks are heard about 10 or 15 degrees apart. Slowly move the wavemeter away from the tuner until both clicks coincide; the



tuner will now be oscillating at 50 meters. Now remove the standard wave meter without touching the tuner and place our new wavemeter in the same position that the standard occupied.

Then vary the wavemeter condenser until a click is again heard in the phones. Our wavemeter is now set to 50 meters. To follow this procedure right through would be tedious, so that it will be found better to first calibrate the tuner right through plotting wavelengths against the dial readings on a curve explained in previous ar-

corresponding to the wavelengths decided on and having set the tuner dial to these readings, one at a time of course and with the wavemeter near the tuner, vary its condenser until a click is heard in the phones, making note of the dial setting for each reading. When the complete range for one position of the switch is complete, put the



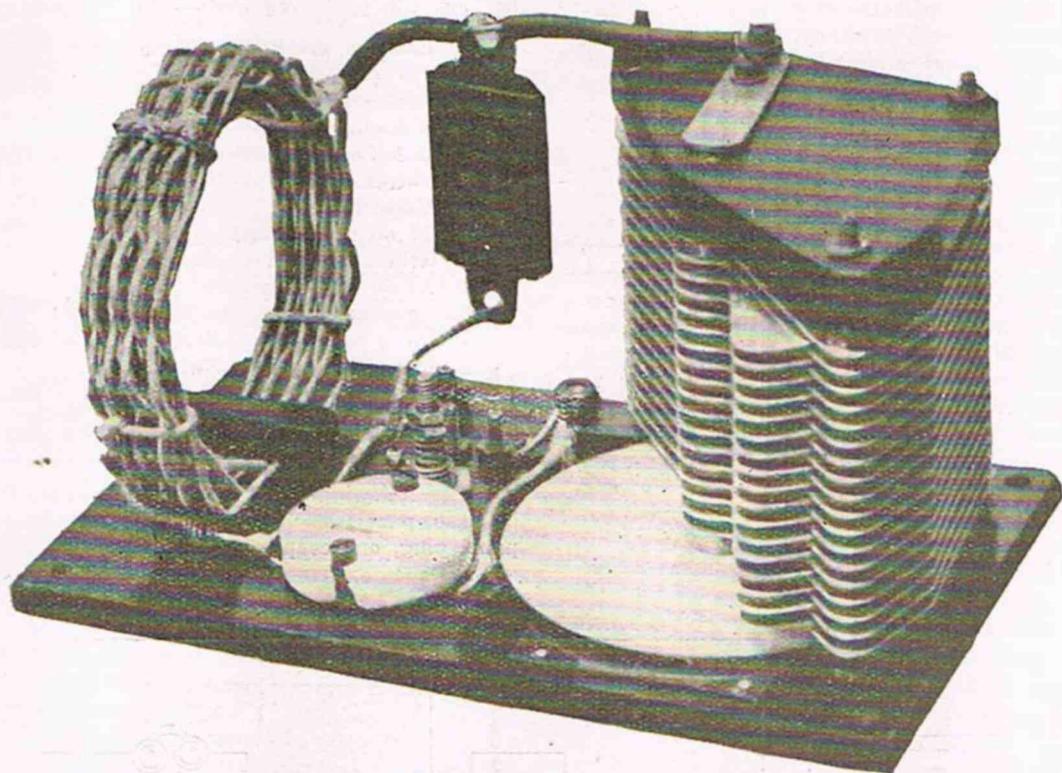
ticles, (Wireless Weekly Dec. 12th, Dec. 19th, and Dec. 26th, 1924).

Having done this it will be found more convenient to calibrate our wavemeter on the round numbers, such as 50, 60, 70, 80 and so on, or even in twenties. To do this, pick out from the curve of the tuner calibration the dial readings

switch to long wave position and commence again, noting the readings as before. Curves should now be drawn up showing the relation of dial setting to wave length, using a curve for each position of the switch. These curves when complete, can be fixed into the lid of the wavemeter box and protect the piece of clear celluloid. In

carrying out these calibrations, it is better to remove the small lamp which by the way can be of any suitable flash lamp type of about 3 or 4 volts, and short circuit the two terminals. This removes the resistance of the lamp and thereby sharpens the tuning of the wavemeter. It may be found after calibration, that the range does not come down low enough. This can be effected by taking one or two turns off the coil, until the desired minimum is obtained. This of course will reduce

it too close as the lamp may easily be burnt out. A useful method of using it, is to place it on a small shelf near the transmitter and to place under the shelf about two turns connected in series with the aerial or earth lead of the set. The lamp will, when in tune, glow every time the key is pressed and so provide a means of watching the signalling when using C.W. and serves to indicate whether the wavelength is remaining constant. To tune the transmitter, all that is necessary is to



Back View of Wavemeter.

its maximum range, so that, if the original maximum is to be retained, we must increase the size of the small fixed condenser. This will reduce the overlap of the two ranges, but as the overlap will, with the values given, be large, it will not affect the utility of the meter.

To use the meter, all that is necessary is to place it near the tuning coil of the transmitter and vary its condenser until the lamp shows maximum brightness. Care must be taken not to bring

set the wavemeter to the desired wavelength and vary the transmitter until the lamp indicates resonance. It might be mentioned that the purpose of the switch and small condenser is to increase the size of the variable condenser for the longer range, by placing the small condenser in parallel with it. It will be noticed that the switch either cuts in or out, this small condenser. By using a three point switch and another larger fixed condenser the range of the wavemeter could be taken much higher.

A Three Valve Receiver Employing the Famous P One Circuit.

By "Wireless Weekly"

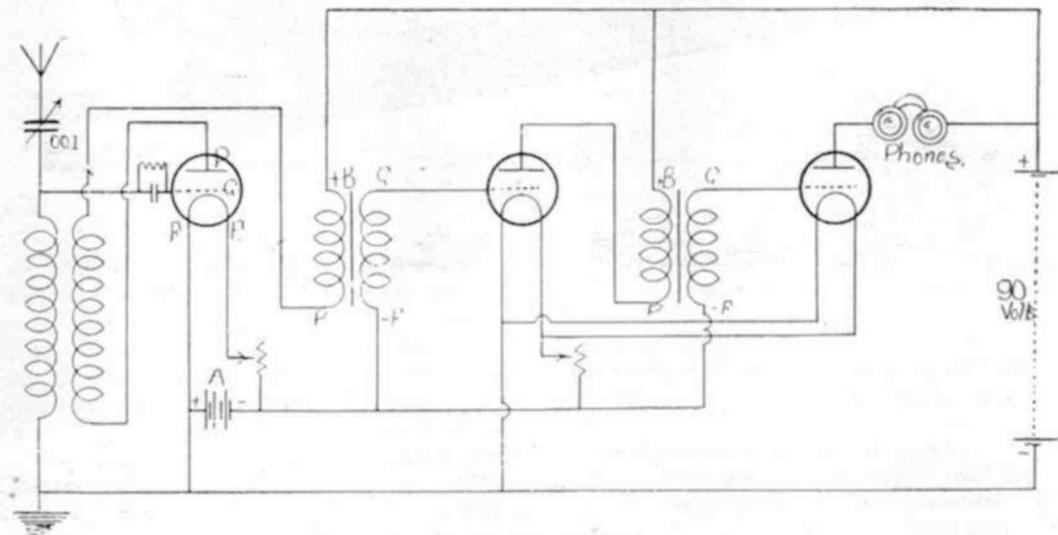
THERE are undoubtedly great numbers of people who, although anxious to build their own receivers, have not the time to study up circuit diagrams; indeed, to many, a circuit diagram is nothing but a collection of mystic signs. This article therefore is written for them, and also for those who are anxious to keep pace with the times and to have a receiver with which to entertain their friends. In presenting this pictorial view of the wiring and layout of a three valve receiver we want to point out that if you copy wire for wire and connection for connection, the set will operate as soon as you pull the switch. Please don't write and say that the set won't work because we know it will, providing you copy explicitly the plan of the wiring. Regeneration will also be obtained without reversing connections to the tickler coil, providing you mount all your H.C. coils the same way. The set about to be described will give good loud speaker strength on 2FC's transmission 350 miles from Sydney and 200 miles from 2BL. The set is easily tuned and for that reason in the hands of the novice will probably prove more satisfactory than a larger

set where radio frequency amplification is employed, necessitating its extra controls. Following are the parts required:—

- 1 Bakelite or Radion Panel 18in. x 6in. x 3/16in.
- 1 Panel Plug
- 1 Coupling Plug or two coil holder.
- 1 .001 Condenser with Vernier and Dial
- 3 Valves (Hard)
- 3 Valve Sockets
- 2 30 ohm Rheostats
- 1 Grid Leak and Condenser
- 2 Audio Transformers
- 10 Terminals
- 1 Piece of Bakelite 5in. x 1-1/4in. x 3/16in.
- 1 Push Pull battery Switch
- 1 Wood Baseboard 18in. x 6in x 5/8in.
- 6 Honeycomb Coils

Screws, Busbar wire, etc.

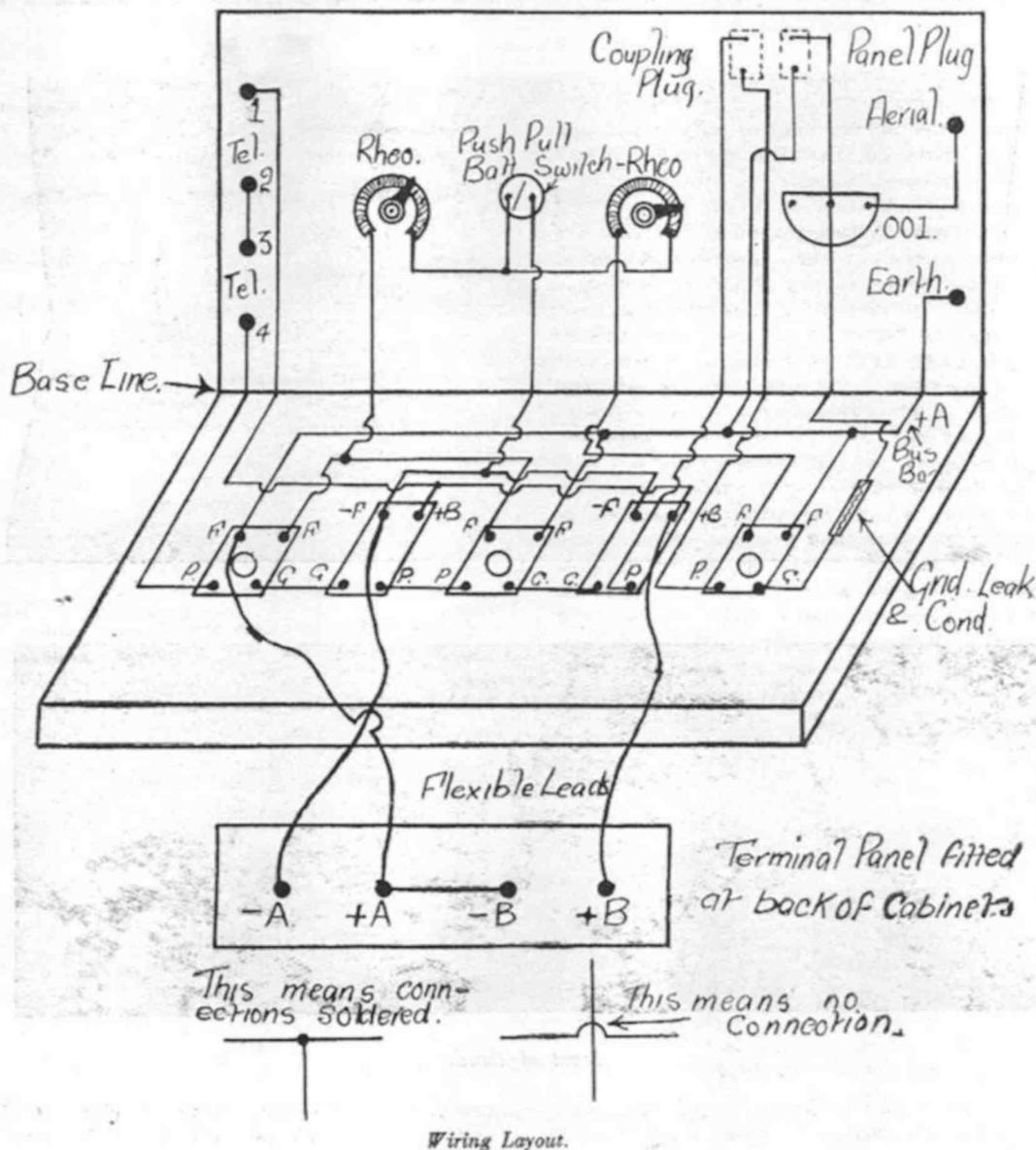
The following parts should be mounted on the bakelite panel: one .001 variable condenser, one panel plug, one coupling (or two coil holder), one battery switch, two rheostats, 6 terminals—two for



The Circuit.

aerial and earth and four for telephones. If only one pair of phones or loud speaker is to be used connect between top and bottom terminals, No. 1 and 4 respectively. If two pairs of phones are to be used connect one pair between 1 and 2 and

of valve holders and transformers the same as the diagram shows. You will notice that the valve holders are marked F, F, G, and P; and the transformers P, +B, G and -F. A glance at the sketch will show you that G of the transformer

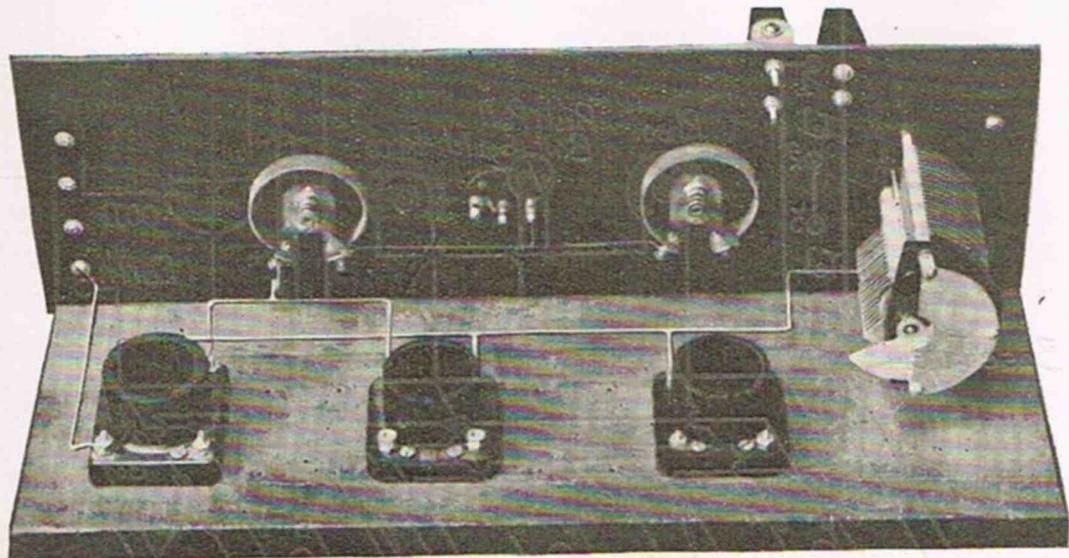


the other pair between 3 and 4. After mounting the parts on the bakelite panel, lay out the remaining parts on the baseboard according to diagram, being careful to place the relative positions

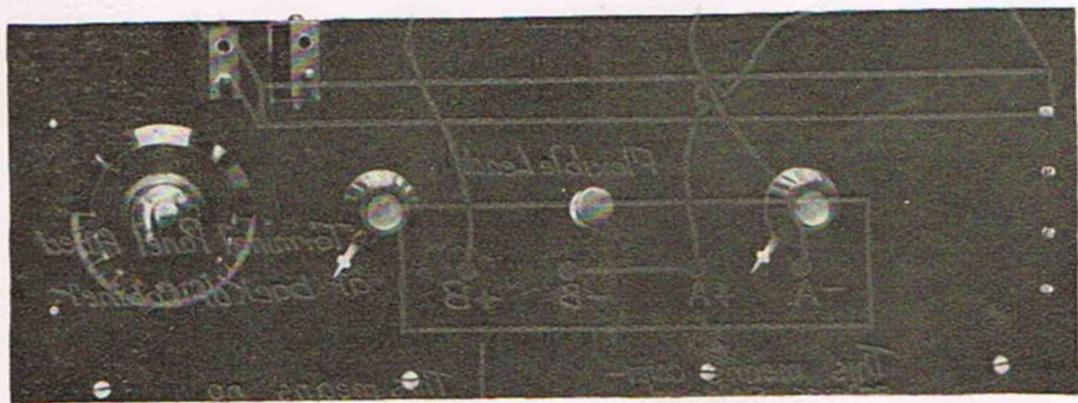
goes to G of the valve holder in each case, and that P of valve holder goes to P of transformer, but from P of the first valve holder, the connection must go through reaction coil before going on to

P of first transformer. From P of second valve holder, however, connection is made direct to P of transformer. You will notice that the +A bus-bar wire goes from the extreme left hand F connection, right up to the earth terminals. This should be your first wire to shape, then you have three others to solder to it, one from each of the

rheostats together and take a connection from this to the battery switch. The other side of the battery switch now goes on to the -F terminals of transformers which you will notice are also linked. Next shape a wire from +B terminal of the right hand transformer to top telephone terminal, after which link +B of second transformer to it. Wire



Back of Panel.



Front of Panel.

other two valve holders marked F and the other from the lower connection of panel plug. Next connect the other two F terminals of the two left hand valve holders together, as here you have only one rheostat controlling the two amplifying valves. A further connection should now be taken from this up to the left hand rheostat. Now connect the right hand rheostat with the first or detecting valve, after which you should link the two

condenser panel plug, coupling plug, grid leak, and condenser, as per sketch. The only other connections to make are to the batteries; a small bakelite terminal board should be secured to the back of the cabinet, holes being drilled in the cabinet 5in. x 1-1/4in. x 3/16in. to take the flexible connections which go from the following:

+A to the extreme left hand F terminal of valve holder.

—A to —F of transformer.

+B to +B of transformer.

—B is permanently connected to +A on the terminal panel.

If you have carried out these instructions to the letter all you need to do is to place in the correct size coils and pull your switch. The batteries need not be disconnected when the set is not in use. The following coils are required for the various broadcast stations:

Station	Primary	Reaction Coil or Tickler.
Sydney—2BL	50	75
Sydney—2FC	200	150
Melbourne—3LO	250	200

A word of warning regarding the coils. If you buy your coils all ready mounted get them all of the same make; don't get different makes of coils mixed together as they may be mounted differently and cause reverse reaction. If you mount all your own coils mount them the same way. Viz. outside layer end to pin and inside layer end to hole or vice versa. Don't get the two ends which go to the pin or hole crossing over one another but take them direct to pin or hole connection in each case. The writer has a golden rule of taking the outside end or top layer end to the pin, then no trouble is ever experienced with reversed reaction. Please remember that the pictorial view of wiring of receiver is correct for regeneration so that if you don't get regeneration one of your coils is mounted wrongly.

Below the Broadcast Bands

Result of Country Tests.

Many interesting experiments and quite a good deal of research were carried out by Mr. H. K. James, while at Goulburn. As was stated in a previous issue, Mr. James went there with a view to carrying out tests on fading and absorption, and in conjunction with Mr. R. Turner, of that town, much interesting work was carried out, the result of which is tabulated below.

Broadcast Reception.

Goulburn has for some time past had a reputation of being a dead spot, but this has been satisfactorily disproved by the fact that while using a set similar to the "Volmax" Super Five Valve Receiver, no difficulty was experienced in bringing in any of the Australian broadcast stations on the loud speaker. Except for static, and interference from high tension mains, the conditions were

rather good, no trouble being experienced in tuning in the various stations. Short wave stations had a tendency to swing a little, but the longer wave stations were quite steady.

Amateur Wavelengths.

For reception on these waves, a Reinartz Low Loss Receiver was used, and employed one valve. Many stations were heard and many worked. A peculiarity was noticed in the fact that eastern stations were not as loud as stations from the North and South, while N.Z. stations which are usually "QSA" were hardly readable. As on the broadcast waves the QRM from power lines was terrific, and at times it was thought that new diaphragms would be needed for the phones. Fading was particularly bad, many stations fading right out, and forgetting to fade back again. However, here's a list of the stations and their comparative strengths, by the audibility meter.

Station 2JM, strength 4, phone; 2ZN, 6, phone; 2JT, 2, phone; 2JS, 4, C.W.

The following stations were worked, the transmitter being a four coil Meisner circuit which was constructed on the spot. The power used (300 volts, at 30 milliamps) was supplied by a 300 volt storage battery, and the radiation on 170 metres was 600 T.C.A. The aerial system, a 6 wire type cage, 60 feet long and 40 feet high, with a 20 feet lead in. A 5-wire counterpoise was used, but it was twenty feet out of line with the aerial.

The stations worked were:

Station 4CU, phone, strength 6; 5AG, C.W., strength 4; 3XF, phone, strength 4, ad QSS; 5DN, phone, QSA vy.

It is hoped that these tests have been of use to experimenters, as Mr. James went to no end of trouble to make his end of the business a success.

Key Clicks.

2YG still continues to boom in on the short waves, his modulation being good.

2HS has been logging Yanks on his new "Two toob low loss" quite QSA so it is said; he'll be working them next, we suppose.

2FP has been putting out some poor modulation, or was it a combination of gramophone plus modulation?

2HM still comes in as loud as ever, his fone being quite good, when the howling valves are not so bad.

2YI is still with us, but on the lower waves, quite QSA and sharply tuned. The Yanks still manage to get this far, and prominent among them are 2CGW, 7AU, 9ZT and 9BRB.

TUNING THE VALVE SET

WITH SPECIAL REFERENCE TO BASKET COILS.

By W. R. Hardy.

TUNING a highly sensitive radio set is undoubtedly a very subtle art and to obtain the best results it is imperative that the operator possess a certain amount of natural aptitude. Some persons reach a very high degree of proficiency with but very little experience, whilst others in spite of long experience and expert knowledge, never manage to rise above the normal level. Granted a well designed and properly adjusted set, one can, however, learn in quite a short period to handle it efficiently, providing one plays around with it sufficiently and takes pains to learn to connect cause and effect in the various stages of tuning. It is intended in this article to limit the discussion to the standard two and three coil circuits (Figs. 1 and 2) and to the standard method of employing tuned anode high frequency amplification (Fig. 3). The tables, figures and definite results quoted will refer only to the basket coils described in Wireless Weekly, January 23rd, but the remainder of the discussion will be applicable to any other form of "plug in" coil. The process of tuning may be divided into three more or less distinct stages:

(1) Selecting the proper combination of coils for the station required;

(2) Searching for signals from the required transmitting station;

(3) Bringing the signals in at the best strength consistent with a minimum of distortion, and the least possible interference from other stations.

Selection of Coils.

The first stage, that of selecting the proper coils, is perhaps the easiest, as tables of combinations of coils to cover various wavelength ranges can be drawn up for our guidance. After exhaustive tests the following tables have been prepared; once more let it be emphasised that they refer only to the recently described basket coils:—

TWO COIL CIRCUIT. (.0005 mf. aerial condenser in parallel.)			TUNED ANODE.	
Station.	Aerial Coil.	Reaction Coil.	Station.	Anode Coil.
Amateurs	18	15	Amateurs	25
2BE	25	18	2BE	35
2BL	35	18	2BL	75
3AR	50	25	3AR	75
Ships	75	50	Ships	100
2FC	100	50	2FC	150
6WF	100	75	6WF	150

	(.0005 mf. aerial condenser in series.)	
Amateurs	18	15
"	25	18
"	35	18
2BE	50	18
2BL	75	25

THREE COIL CIRCUIT.

Station.	Aerial Coil.	Secondary Coil.	Reaction Coil.
Amateurs	18	25	15
"	25	35	18
2BE	25	50	18
2BL	35	75	18
Ships	75	100	50
2FC	100	150	50
6WF	100	150	75

These, or any other such tables, should not be regarded as being absolutely rigid. They should only be accepted as guides to help us tune in any station, for much superior results are often to be obtained by departing from the combinations quoted. This will be found to be especially so in the case of the aerial coil, the size of which is influenced by the dimensions and nature of the aerial used. If reception were being carried out at some considerable distance from our two main broadcasting stations, it would probably be necessary for us to use larger reaction coils than those suggested for these two stations. The reaction coils specified have, in their case, been chosen as those that give the purest reception at good strong volume, but by substituting larger coils stronger but rather distorted results can be obtained. The aerial coils quoted are those suitable for use with a single wire aerial of a total length (aerial, lead-in, and earth lead) of approximately 100 feet. Tests have also been carried out on smaller aeriels, and on a large twin wire aerial 115 ft. in length. A few actual examples of variations observed may prove more instructive to the beginner than a considerable amount of generalisation.

Station.	Length of Aerial.	Aerial Coil.	Aerial Condenser. (.0005 mf.)	Signal Strength.
2BL	115 ft. twin	18 turns	180 d. (max.)	Just audible
"	"	25 "	15 d.	Very strong
"	"	35 "	0 d. (min.)	Very weak
"	100 ft.	18 "	180 d. (max.)	No signals
"	"	25 "	140 d.	Strong
"	"	35 "	15 d.	Very strong
"	50 ft.	25 "	180 d. (max.)	Just audible
"	"	35 "	170 d.	Strong
"	"	50 "	10 d.	Very strong

2FC...	115 ft. twin	100 ..	10 d.	Very strong
	100 ft.	100 ..	70 d.	Very strong
	50 ft.	100 ..	160 d.	Strong
Station.	Secondary Coil.	Secondary Condenser. (.0005 mf.)		Signal Strength.
2BL.....	35 turns	140 d.		Strong
" ..	50 ..	50 d.		Very strong
" ..	75 ..	10 d.		Very strong
2FC.....	100 ..	160 d.		Strong
" ..	250 ..	15 d.		Very strong

Station.	Reaction Coil.	Characteristics of Best Results Obtained.
2BL	18 turns	Very strong and pure
"	25 ..	Stronger, but slightly distorted
"	35 ..	Greater volume, but very distorted
2FC	50 ..	Very good
"	75 ..	Greater volume and fair quality, if only loosely coupled

In choosing a combination of coils it should be remembered that the ratio of the inductance to the capacity in a circuit has an important bearing on the potential across the inductance or on the signal strength. When using low resistance coils it is always advisable to use a large coil and only sufficient of the capacity of the condenser in parallel with it to give effective control of tuning. This means that it is desirable when possible, to work only on the first 60 degree or so of the range of the condenser, especially if it is of the .001 mf size. Tuning over the first 20 degrees or so will be found to be very critical, as over that range a small change in capacity causes a big change in the wavelength, the latter being proportional to the square root of the capacity in parallel with the inductance. A vernier condenser, vernier pencil or a vernier gearing is therefore to be highly recommended. In the "square-law" condensers which have recently become so popular in England, the moving vanes are shaped so that the capacity increases very steadily over this portion of the range, or so that the increase in wavelength is approximately proportional to the rotation of the dial.

Searching.

Searching for signals from a distant station makes a greater call on the skill and patience of the beginner than any other procedure entailed in the operation of a receiving set. Unfortunately if wrongly or carelessly performed it can also make a great demand on the patience and forbearance of the neighbours. Searching should be carried out by two distinct methods of procedure, according to whether it is desired to receive telephony, spark, and interrupted constant wave, or to receive constant wave. In tuning the two coil set there is only the coupling between the reaction and

aerial coils, the aerial condenser and the filament rheostat to be controlled. The adjustment of the reaction coil is the most critical of these operations. In the hands of the skilled it can be induced to work wonders, but in the clutches of the heedless it can become an affliction upon neighbouring enthusiasts. If a valve of the "hard" type is used, the filament current will not need very critical adjustment, but if a soft valve such as the UV200 or the soft Dutch variety is employed, a vernier rheostat may be necessary to obtain the best results. It must not be imagined that for long distance reception the filaments of the valves must be burning at their brightest, for the best position of the rheostat is seldom, if ever, that of minimum resistance. Some valves such as the Myers' valve, give best detection of distant stations when their filaments have been dulled to a considerable degree.

When in quest of telephony, spark, or I.C.W., the aerial condenser should be set at zero and the reaction coil loosely coupled or turned almost at right angles to the aerial coil. The condenser is then very slowly rotated whilst the operator listens intently for weak signals or signs of oscillation. Oscillation can be detected by a characteristic click and then a gentle hissing in the telephones, or by the characteristic click or "fluck" heard when a wet finger is placed on, or removed from the aerial terminal. If no signals are heard over the entire range of the condenser, it is again set at the zero position and the coupling of the reaction coil is tightened by bringing it slightly nearer to the aerial coil. The condenser is then again slowly rotated and the process is continued thus until the required signals are heard. The tighter the coupling of the reaction coil the greater will be the tendency to oscillation. The degree of coupling which gives the greatest tendency varies with the size of the reaction coil, but with properly chosen coils it should occur just before the position of tightest coupling is reached. When oscillation commences it should be at once stopped by loosening the coupling of the reaction coil or by retarding the filament rheostat; for interference is caused to neighbours even before the whistling or howling stage is reached.

When searching for constant wave signals it is necessary to adjust the reaction coil and the filament rheostat, so that the valve is oscillating steadily in order to heterodyne the received sig-

nals. That is, the valve is induced to oscillate freely but steadily and searching is then carried out with the aerial condenser as before. Readers who live in the country, where they cannot cause interference to others, may find it convenient when searching for the broadcasting stations to heterodyne their carrier waves in this way. But where it is possible to cause interference, this method should only be used outside the broadcasting periods, and with discretion even then.

In the more efficient three coil tuner the procedure is complicated by the addition of an extra coil and an extra condenser, the potentials across the aerial coil being transmitted to the valves not by direct connection as before, but by inductive coupling between the aerial and secondary coils. It is therefore necessary to adjust the coupling between these two coils, and to attend to the secondary condenser as well as to the other controls. The greatest signal strength is obtained when the two coils are placed at, or about, the tightest position of coupling, so for searching purposes they can be left at that position. The aerial condenser will now be found to be much less critical of adjustment than in the two coil tuner, whilst the secondary condenser will be appreciably more so. The aerial condenser is therefore set at zero and the secondary condenser is slowly rotated over its range. The aerial condenser is then advanced a few degrees and the secondary again rotated, the process being continued thus until the entire range of the aerial condenser is passed over. The reaction coil is then brought nearer to the secondary and the searching is continued until the station is located. After considerable experience one becomes capable of searching carefully over the range of the condensers in a remarkably short time.

If a stage of radio frequency amplification is employed the process is further complicated by the introduction of an additional condenser to tune the anode coil, and a stabilising potentiometer to check unwanted oscillation in the H.F. circuit. In order to simplify tuning and reduce the tendency to oscillation, the aerial coil is usually connected directly to the H.F. valve, but in the hands of a skilled operator the three coil tuner gives much superior results. Tuning can, however, be greatly simplified by using exactly similar coils and condensers in the secondary and tuned anode circuits. When any station is correctly tuned in, the readings of the two condensers will then be found to differ only to a small extent. The aerial condenser can then be set as before, and the tuned anode condenser advanced step by step whilst the secondary condenser is varied over the range of the difference that previous experience would lead

one to expect between the two readings. If two stages of H.F. amplification are employed, tuning can be simplified by using a duo-anode or double condenser consisting of two banks of moving plates mounted on the one spindle and controlled by the same knob. Of course two exactly similar anode coils must then always be used at the same time. The potentiometer is not critical of adjustment, and in a properly designed set using "anti-capacity" valves it can be altogether dispensed with. With the popular "all purpose" valves it is, however, at times a great convenience, but should be always set with the slider arm as near the negative end of the resistance as possible. Unwanted oscillation can be checked by turning the slider arm over towards the positive end, but it must be remembered that such damping detracts from the selectivity of the set and decreases the amplification. If possible, oscillation should be controlled by adjusting the reaction coil and the filament current.

Final Tuning.

As soon as weak signals are detected the condenser should be adjusted to give the greatest strength, and then the reaction coil should be gradually advanced towards the aerial or secondary coil whilst the increase in signal strength and signs of oscillation are carefully noted. The reaction coil must not however be set so near to the point of oscillation that the receiver is continually threatening to burst into oscillation each time a high note is struck, or whenever the volume rises. Now the coupling of the aerial coil (if a three coil tuner is used) and the aerial condenser can be simultaneously varied over a small range until the apparently tightest coupling, or the greatest signal strength is obtained. The other condensers should now be finally adjusted and the final settings of the filament rheostats and the reaction coil should then be attended to.

In bringing the detected signals up to a good volume most beginners and quite a number of old hands are prone to make a lamentable mistake. Undistorted reception at times seems to be the exception rather than the rule, and there is no doubt that badly operated sets (often during trade demonstrations) have in the past done considerable harm to the cause of radio. The chief cause of unnaturalness of tone, woodiness, wooliness, harshness, or any other term one cares to use for distortion, is the use of excessive reaction or of excessive filament current. If excessive reaction is being used there is usually a "swishing" or "rustling" noise audible under the main body of the reception, and atmospheric and battery noises, if

present, are rendered with considerable violence. A similar effect is obtained by forcing excessive amplification from the low frequency amplifiers. In the reception of Broadcasting a set should never be forced to give the utmost volume, nor a loud speaker forced to give greater volume than it is designed for; that is, usually, to give comfortably audible results in an averaged sized drawing room. Incorrect values of grid-bias, plate potential and grid leak are other frequent causes of distortion, but these are matters of adjustment rather than of tuning. Excessive damping of the high frequency circuit by means of the potentiometer is also a cause of distortion as well as of flatness in tuning.

Sometimes severe interference is caused by a second station working on almost the same wavelength, or worse still, by a nearby high powered station. With the two coil tuner much can often be done to eliminate it by varying the size of the aerial coil, but with the three coil tuner it can be dealt with much more effectively by loosening the coupling between the aerial and secondary coils. Each variation in the coupling however, entails a resetting of the aerial condenser and a relatively smaller change in the secondary condenser. It will also be noticed that loosening the aerial coupling increases the tendency to oscillation, due to the lessening of the stabilising influence of the heavily loaded aerial circuit on the secondary circuit. Selectivity can also be increased by tightening the coupling of the reaction coil, but of course there is also the extra tendency to oscillation that accompanies it. On the other hand, selectivity can be greatly decreased by excessive damping introduced by means of the potentiometer, in checking oscillation. High resistance coils and stray capacity such as the internal capacity of coils, capacity of the wiring behind the panel, and internal capacity of the valves, also add considerably to the flatness of tuning. In this connection it should be remembered that the resistance of coils and wiring to high frequency current is considerably greater than their resistance to direct current, and that it increases with an increase in frequency or, in other words, with the reduction in wavelength.

Now just a final hint to those who use the basket coils for long distance or amateur reception. Some three coil mounts allow an undue amount of spacing between the coils when placed in parallel to each other — in some cases even more than half an inch. When using the narrower basket coils this prevents one from obtaining really tight coupling when necessary, and causes considerable loss of signal strength. The obvious

remedy is, of course, to take the aerial coil adapter or panel plug out and move it over towards the secondary coil to the full extent of the clearance.

RADIO IN RUSSIA.

AS a result of the permission given by the Soviet authorities for private wireless installations to be set up (thus bringing Russia into line with the Western lands of Europe), influential Radio Associations were formed in Moscow, Leningrad (Petrograd), and Nijni-Novgorod. These and certain smaller societies have now been combined into one "Association of Radio Amateurs," covering the entire Soviet realm, with headquarters in Moscow. A wireless journal, the title of which in English is "The Radio Amateur," is now published in Moscow, appearing twice a month. It is excellently printed and illustrated. It is of interest to note that the editor prints the terms of subscription, etc., in Esperanto as well as Russian, and states that he accepts manuscripts in the international language. (Address: "Radio Amatoro," B. Dmitrovka 1, podjezd No. 2, Moscow.)

RADIO LIGHTHOUSES.

British tests with the radio lighthouse have proved very successful, according to reports received. The tests referred to have been in progress now for six months.

The lighthouse station was erected at Nash Point, between Swansea and Cardiff, and conducted practical tests for guiding ships by means of radio beams.

The experimental station rotates at a fixed speed, sending its bearings over a beam picked up by the receiving sets on ships which have lost their bearings in a fog or a storm, thereby giving the location of the radio post, in direction along the line of greatest intensity of signals and its distance to within fairly close limits.

A feature which has been found to be extremely popular at an American station is that of keeping the microphone circuit closed throughout the evening. In this way radiophans hear all kinds of interesting talk between the items proper, the directions given to artists by the director, chance remarks, and also applause by other people in the studio. Listeners have written to this station, WBAV, Columbus, Ohio, asking that this plan be continued, as it tends to make them feel more "at home" with those in the studio.

THE NAME TO KNOW IN RADIO IS

Wiles' Wonder

and Electrical

56—62 GOULBURN ST., (1 door from Pitt St.)
 384 PITT ST., (Near Goulburn Street.)
 23 PITT STREET, Near CIRCULAR QUAY

CONSTRUCT YOUR OWN BROADCAST RECEIVING SET. WE SUPPLY COMPLETE

AERIAL WIRES

- 1/16 Navy, Non-Corrosive, 100 ft. 2/6
- 3/20 Navy, Non-Corrosive, 100 ft. 2/9
- 7/22 Navy, Non-Corrosive, 100 ft. 6/6
- 3/20 Bare Copper, per 100ft... 2/6
- 1/16 Bare Copper, per 100ft... 2/3
- 7/20 Lead-in, yard 7d.
- 3/20 Lead-in, yard 4d.
- 1/18 Lead-in, yard 2½d.

ACCUMULATORS.

(Charged ready for use.)

- 2v. 40 amp. Exide 21/-
- 4v. 40 amp. Exide 42/-
- 4v. 60 amp. Exide 52/-
- 6v. 40 amp. Exide 63/-
- 6v. 60 amp. Exide 78/-
- 6 Volt, 80 Amp, in Vulcanite Case, for heavy duty 75/-

BAKELITE

Cut to any size.

- 1/8in. per square inch 1d.
- 3/16in. per square inch 1½d.

BATTERY CLIPS.

- “A” Battery Clips . . . each 1/-
- “B” Battery Clips, each 4d. & 5d.

BOOKS.

All the latest publications on Crystal or Valve Construction.

BATTERIES.

- 45v. Hellesten, with plugs . . 12/6
- 42v. Ever-Ready, with plugs, 12/6
- 1½ volt Columbia Cells . . . 3/-
- No. 126 E.R. 4½ volts . . . 2/9

CRYSTAL CUPS.

- N.P. 6d. and 1/- each
- Brass 4d. each

CRYSTALS.

Guaranteed Tested.

- Galena 1/- & 1/6
- Q.S.A. 1/6
- Hertzite (English) 1/6

- Planatite (English) 1/6
- Sacrystal 1/6
- Tallite (English) 2/-

CONTACT STUDS.

- ¼in. N.P. with Unit, doz. . . . 10d.
- Extra Nuts doz. 4d.
- Switch Stops each 1d.

CONDENSERS (Fixed)

- Aerovox, .001, each 7d.; .00025, with Leak, 1/-; .006, each 1/-
- Freshman .001, 2/9; .00025 . . 2/6
- Micadons, 3/-; .00025 3/-

CRYSTAL SET PARTS.

Complete Stocks of all parts for home construction.

CONDENSERS.

(Variable, with Dial)

- Plain Vernier
- Ormonde, .001 mf., 13/6 17/-
- Ormonde, .0005 mf., 10/6 13/6
- Ormonde, .0003 mf., 10/- 12/6
- Ormonde, .0002 mf., 9/- 11/6
- .00025 Twin for 2 Stages Tuned Plate 20/6 each

CONDENSER LEAKS.

- Glass enclosed, all sizes, 1 to 6 megohms, each 2/- and . . . 2/6
- Freshman, Variable, without Condenser, 4/6; with Condenser, 5/6.

DETECTORS.

- Detector Arms, N.P. each . . 2/-
- Complete Parts: Brass 1/9 and 2/9; N.P., 2/6.
- Glass Enclosed (unmounted), 4/-, 4/3, 5/-; (mounted) 7/-; twin mounted, 9/6.

EAR-PIECES

To fit all makes of Headphones 2/6 each.

EBONITE.

Cut to any size, 1/8 and 3/16, square inch 1d.

HOLDERS.

- 4 pin English
- American 3/
- American Rubber Cushion

First 3 gong shock proof

HONEYCOMB COILS (

- 20 turns 5/9; 30 turns 6/11; 50 turns 6/11; 6/3; 100 turns 7/3; 150 turns 8/3; 200 turns 7/3; 300 turns 8/3

Spider Web Coils, Forme

- With Pins
- Without Pins

HONEYCOMB COIL M

- Remler No 40, 3/9; 42, 3/9; 43, 5/9.

Polar 2 Coil Vernier Mo

Advance 3-Coil Vernier Mo

DIALS: 2in., 1/6; 3in.

HEADPHONES.

- Peerless, 4000 ohms
- Picco, 2200 ohms
- Murdoch's, 2000 ohms
- Murdoch's, 3000 ohms
- Kilbourne and Clarke, ohms
- N. & K., 4000 ohms, Contal
- No. 1 Special, 4000 ohms, tinal
- Trimm's Dependable
- Frost, 32/6 and
- Brandes
- Western Electric
- Sterling
- Nutmeg
- Baldwin

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- English, superior glazed: Egg, 4d.; Shell, 5d. Strain, 8d.

We pay carriage on all goods throughout N.S.W. on all parts other than Accumulators, Batteries, Book receiving Sets, Loud Speakers, Valves, Aerial and Winding Wires, and parcels sent by V.P.P.

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WE COMPLETE INSTRUCTIONS AND ADVICE WITH EACH ORDER.

CONDENSERS.

... 1/6
... 3/6 and 4/-
... Cushioned...
each 4/9
Shock proof .. 24/6

COILS (Mounted)

... turns 5/11; 35
... turns 6/1; 75 turns
... 150 turns 6/9;
... turns 8/-.

TRANSFORMERS, Formers—

... each 1/3
... each 6d.

COIL MOUNTS.

3/9; 42, 3/9; 48,

... Mounts 12/6

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1/6; 3in., 2/-.

PHONES.

... 20/-

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... 25/-

... 27/6

Clarke, 4000

... 32/6

... Continen-

... 27/6

... ohms, Con-

... 27/6

... 32/6

... 37/6

... 35/-

... 37/6

... 44/-

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... 60/-

REPRODUCERS.

... glazed: Reel, 4d.;

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JACKS AND PLUGS.

Single Circuit Jacks .. 3/3, 4/6
Double Circuit Jacks .. 4/-, 5/-
Frost Plugs .. 4/6, 5/-, 6/-

LOUD SPEAKERS.

Amplions.. .. £4, £5, & £6/12/6
Manhattan, 75/- and £8
Magnavox, £8 and £10/10/-
Sterling.. .. £2/17/6, £4/15/-, £9
Western Electric, £2/19/6, £7/2/6
and £17/10/-.

LIGHTNING ARRESTERS.

4/6 5/6 7/6

POTENTIOMETERS

5/6, 6/9, 7/-.

METERS'

Pocket Type, 0-50 Volts, each 12/-

RHEOSTATS.

6 ohms 4/-, 5/6
30 ohms, 5/-, 5/6 and 7/6

SWITCHES.

S.P. Aerial 2/-
S.P.C.O. Aerial 3/-
Series Parallel 3/6
Battery Switches, 4/- and .. 4/3
Inductance Switches, 1/6, 2/6,
and 5/3

SOLDER.

Resin Cored, yard 6d.

TRANSFORMERS (Audio)

Nutmeg 20/-
Jefferson, Star 22/6
Jefferson, 41 30/-
A.W.A. 30/-
K. & C., 32/6
All American 30/- and 32/6
Burndept 37/6

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N.P. Medium, with holes, each 4d.
N.P. Large with holes, each .. 5d.
Bakelite Tops, each 5d.
Engraved, set of 8 4/6

VALVE RECEIVING SETS

Complete Stocks of all parts for
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VALVES.

Mullard, Dry Cell Type, De-
tector or Amplifier, English
Socket 30/-
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ket 30/-
Mareoni DE3 do. do., English
Socket.. .. 32/6
Philips D1 Detector, English
Socket 15/-
Philips D2 Amplifier, English
Socket 15/-
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Philips B2 Detector or Ampli-
fier, American Socket 22/6
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lish Socket 22/6
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Cell Type, English Socket 35/-
Radiotron or Cunningham De-
tector or Amplifier, Ameri-
can Socket 30/-
De Forest Detector or Ampli-
fier, American Socket 30/-
W.D. 12 Detector or Amplifier,
Dry Cell Type, American
Socket 30/-
A.W. 99, Dry Cell Type, 199,
Socket 30/-

WINDING WIRES (Enamel)

on 8 oz. reels.
20g., 2/-; 22g., 2/-; 24g., 2/1 per
reel. 4 oz. reels.
26g., 1/3; 28g., 1/5 per reel.

DOUBLE COTTON

on 8oz. reels,
22g., 2/3; 24g., 3/-; 26g., 3/3
28g., 5/-; 30g., 5/6 per reel.

PANEL WIRE.

N.P., per yard 3d.

PRICE LIST, R5.

STATIONS HEARD

R. J. Browne, Church Street, Toowong, Queensland.

Used P1 circuit with 1 radio and 1 audio—
aerial consists of vertical single wire 42 feet over-
all.

United States: 1AF, 1GV, 1KC, 1YZ, 1AJX, 2AG, 2LE, 2PD, 2RE, 2RK, 4FS, 4GW, 4XA, 4XE, 5AF, 5CN, 5CV, 5IN, 5NW, 5SD, 5UK, 5AJH, 5CNH, 5ZAI, 6AJ, 6AO, 6CW, 6DH, 6EW, 6GG, 6LJ, 6NN, 6PL, 6RN, 6TS, 6VC, 6WT, 6ZH, 6ADT, 6AGE, 6AGK, 6AHP, 6AKW, 6AKY, 6ALG, 6ALO, 6ALV, 6AME, 6APK, 6APT, 6ARB, 6AWS, 6AWT, 6BBV, 6BCL, 6BRA, 6CCK, 6CDP, 6CGK, 6CGO, 6CGW, 6CHL, 6CJV, 6CLP, 6CNL, 6CQE, 6CTO, 6DON, 6KCL, 6ZAK, 7FQ, 7GM, 7LR, 7LS, 7PM, 7ACM, 7AFN, 8CY, 8DG, 8PL, 8BAU, 8DOO, 9HK, 9QW, 9XI, 9ZB, 9ZT, 9AGL, 9AUS, 9AXS, 9AZP, 9BCJ, 9BFG, 9BHX, 9BMX, 9BVY, 9CEA, 9CFI, 9CJC, 9CVK, 9CXC, 9CYX, 9DMO, 9DUN, 9EHT, 9OJC.

Canada: 3XN.

T. H. Harris, "Westhoek," Mintaro Avenue, Enfield, on detector only:

Victoria: Fone—3BQ, 3BU, 3BD, 3XF, 3LO; C.W.: 3BQ, 3HH, 3JU, 3BH, 3UX, 3EF, 3BU, 3RY, 3DB, 3EP, 3QW, 3JH, 3BM, 3DX, 3BD, 3ZM, 3GB, 3XF, 3UI, 3BX, 3EM, 3OT, 3TM, 3AF, 3XX, 3AP, 3XN, 3LM.

Queensland: Fone—4EG; C.W.: 4CK, 4AN, 4CW.

South Australia: Fone—5LO, 5DM, 5BF, 5DN, 5GQ, 5AV, 5BG, 5AI, 5BE; C.W.: 5BD, 5BN, 5DO, 5LO, 5BG, 5DA.

New Zealand: Fone—2AU, 1YA; C.W.: 2AQ, 3AF, 2AK, 4AD, 3AL, 2AC, 4AG, 4AA, 2BM, 4AK, 2AP, 2AE, 2BA, 1AA, 3AR.

U.S.A.: Fone—KDKA, KGO (20 different evenings)
C.W.: WGH, KET, 6XI, 6BCP, 6CGO, 6AWT, 6AHP, 4TJ, 6CGW, 6CTO, 9BJI, 6ARB, 5ZAI, 6BUR, 6CQE, 6ZH, 6CBB, 6ZI, 6BFS, 6AJI, 6CNL, 4KC, 8PL, 2BGI, 2RJB, 6ASE, 6AKW, 3JPA, 2RK, 6EW, 6CMU, 6CSO.

England: C.W.: 20D, 2NN, 2SZ, GHHL.

Unknown: 247, 3KQ, 5AA (IL or 1AI), (2L or 2AI), (3L or 3AI), 7GQ. The last four stations very distant and strength of English amateurs, heard on morning 14/12/24.

Can anyone supply QRA, please?

High Power Stations: Morse—NPN, PKX, NPO, KIE, JAA, HZA (Cayene, South America), LY (Bordeaux, France), AXL (Warsaw, Poland), AGW, XYZ. (Can anyone supply QRA of last two stations?)

250 Miles and over only: GBE, 2500; PMZ, 2500; VZBS, 2500; Tua, 2500; PMC, 3000; KOBK, 2500; KEKB, 2600; KUQM, 2800; LGJ, 2600; VZDK, 2500; GBKJ, 3000; GBJC, 2500; PKH (Sourabaya Java), PKE (Amboina Celebes), PKB (Weltreveden, Java), VPW (Singapore), VPX, (Penang Straits Settlement), NPM (Pearl Harbour, Honolulu), JOS (Ozesaki, Japan).

Doubtful: KJK (King Cove, Alaska), VPG (Accra, West Coast Africa), VPQ (Mombasa, East Coast Africa), VPS (Cape D'aguilar, Hong Kong).

J. C. Watters, "Yanda," Henry Street, Gordon. Used one valve—P1 circuit, employing basket coils:—

N.S.W.: 2IJ, 2UW, 2GR, 2GM, 2AR, 2YI, 2YG, 2CI, 2BS, 2DE, 2FM, 2JM, 2BF, 2HM, 2DS, 2WN, 2CM, 2LO, 2LI, 2IA, 2SO, 2BK, 2RA, 2ED, 2ZT, 2MA, 2BE, 2BB, 2FA, 2GL, 2ZN, 2CJ, 2XA, 2CX, 2ME, 2JU.

Victoria:—3BD, 3BM, 3LS, 3WS.

Queensland:—4CM.

New Zealand:—4AA, 2AR, 2AC.

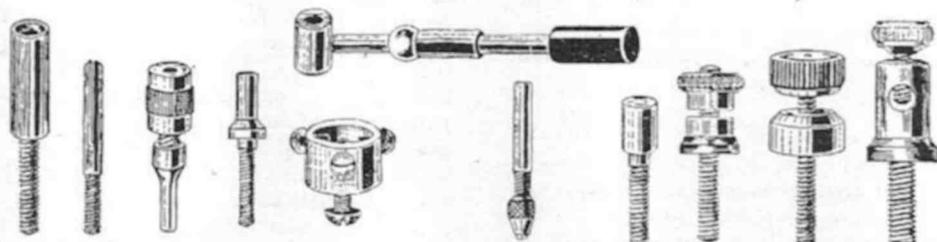
Commercial Stations:—VTR (Rangoon) twice, VWM (Madras) once only, VIA, VIB, VIC, VID, VIE, VIF, VIG, VII, VIJ, VIL, VIM, VIN, VIO, VIP, VIR, VIS, VIT, VIU, VIW, VKQ, VRN, VLA, VLC, VLD, VLW, VJZ, (Rabaul), VMR, VLR, RA (Radio Roviana, Solomon Isles).

Ships:—VKZ, VKO, VKX, VJG, VHQ, VJM, VTG, VKJ, VJW, VXZ, VXQ, MOY (Ormuz), VHD, VME.

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Wireless Concerts and News, daily from 12 till 5.30 p.m.

PRICE LIST FREE.

(Continued from Page 8)

set should pay say 20/- because apparently he could afford it (and away in the country his three valves might be a necessity to him)—but it cuts both ways, and when it is remembered that 75 per cent. of the potential subscribers will be the "average man" that is a sound argument for making the fee within the reach of all.

No, sir, in my opinion it would be a fallacy to look for any benefit (to the broadcasting companies or the user) from a quarterly payment; everyone knows that once down as a user, they could be looked upon as practically perpetual holders of their set; but on the other hand go out on behalf of the "average man" and help him to secure a share in what is essentially his own; let the slogan be "A Radiophone in every Home" — and that can be obtained by a 10/- license for all crystal sets at least, and either the same figure or 20/- for valve sets. Till then I, and thousands of others, go without radio.—Yours etc.,

C. B.

Sydney.

(To the Editor)

Sir,—The contributor who asks for my credentials and who has not the moral courage to sign his name or make it possible to reach him by means of the post (R.C.B., Greenwich, being a prohibited postal address) is a self confessed "dabbler in receiving circuits" with no technical knowledge and to whom a Morse transmitter is (to use his own words) "a nonentity" of the same calibre, is quite out of his element in the pages of our grand little journal "The Wireless Weekly" and its inclusion is another evidence of the wonderful fairness of this publication, which is announced on its index page as "a journal devoted to the interests of Wireless enthusiasts both amateur and professional". The Editor's dignified foot note is actually all that is needed in answer to the effusion which savors of certain well known low down legal tactics. If there is no case, abuse the other side, but the facetious attempt to make fun of one's surname and the holding up to public ridicule of a reputable citizen known to tens of thousands of the musical and electrical circles of Australia encroaches somewhat on the libel law, and R.B.C. may possibly hear something thereto if his whereabouts can be ascertained. There is just one question which I may be permitted to answer. No! I am not the controller general of Australian wireless, but had the Federal Government given me a fair show as asked for in my application for the position now occupied by Mr. Malone I might have been where that gentleman is. In my ap-

plication I undertook to sit in competitive examination with the whole of the applicants and further, would agree (if successful) to occupy the position for a stated period on probation, without pay. However, forces uncontrollable by me came into operation and preference was given to a returned soldier. This statement can be verified at head quarters and is mentioned to inspire a comparative confidence in your reader's minds between a reputable citizen and a mere "dabbler" in wireless circuits.

It should be very refreshing and interesting to our transmitting amateurs to learn their actual usefulness and to what class of people their transmissions appeal — Wireless nonentities and dabblers in circuits and whose estimate of classical music rests on a foundation of such ideas as "Oh Mr. Gallagher," "Why did I kiss that Girl," "It ain't going to rain no more no more" and such like. In conclusion I do believe that there is not a gentleman amateur on the air who is in sympathy with R.B.C.'s personal abuse and ridicule and as a matter of fact always welcome genuine candid criticisms which is the life and soul of progress.—Yours faithfully,

S. A. MACROW.

55a Brown Street, Paddington.

(To the Editor)

Sir,—The letter by your correspondent "Untrammelled Member," is about the silliest thing I have read in years. I am merely a B.C.L. in the ordinary sense, but I have been a member of the W.I.A., Victorian Division for years past. I cannot see why anyone with a grain of sense could object to the system of grading proposed. In my opinion it is the most obvious thing to do, and should have been rigorously carried out years ago. In regard to the remarks re the Executive officers, your correspondent was not man enough to sign his name, but I know that he is not a worker in the W.I.A., or he would not have made these senseless remarks. Let him remove the President, the Vices, the Secretary and Treasurer and the active members of the administrative committees and where is the Victorian Division? Who will do the work? Will "Untrammelled Member" step into our Chairman's shoes? I sincerely hope not. If "Untrammelled Member" objects to being what he calls a B.C.L., let him step out and form a B.C.L. club and elect himself president and work for the good of the B.C.L.'s. His time would then be better employed than writing to display his ignorance in your journal.—Yours etc.,

"STUDENT W.I.A., Vic. Division."

E. Malvern, Victoria.

Mr. Geoffrey E. Duveen, whose gift of £50,000 to an English University College Hospital, was announced recently, is the Chairman of one of the founders of Burndept Limited, of Aldine House, Bedford Street, Strand, W.C. 2.

Mr. Duveen has been one of the keenest wireless enthusiasts for several years, and has done much good for the industry in that country; not a little of the successful growth of the house of Burndept being due to his activities.

His gift to the University College Hospital is the second within a year. The first gift of £25,000 was made in two parts; £10,000 for the foundation of a Chair of Otology (study of the ear) at London University, and £15,000 for the site on which to rebuild the Royal Ear Hospital, close to the University College Hospital, Gower Street.

This second gift of £50,000 is to rebuild the Ear Hospital and to make it the most up-to-date centre for combating deafness in the world.

The entire scheme is in memory of his father, the late Mr. Henry J. Duveen, who was one of the founders of Duveen Bros., the world famous firm of art dealers of London, Paris and New York.

Mr. Geoffrey Duveen, himself a sufferer from deafness, has been actuated in this gift by the neglect of this important branch of study of deafness, which he describes as "the Cinderella of diseases."

RADIO 2HS.

Station 2HS is the experimental station of Messrs. R. Sturman, B. Hooker and E. Fanker, and is situated in Jersey Road, Woollahra. Preliminary tests which proved very satisfactory, were carried out under the call sign of 2XY, and reports are still being received from all parts, which are quite gratifying. The aerial at present in use is a 2 wire cage, 50 feet high and 80 feet long. A six wire fan type counterpoise is used, and runs directly under the aerial. There are two five watt radiotron bottles, one oscillator and one modulator, the circuit being a three coil Meisner. Rectified A.C. is used on the plates, rectification being effected by means of electrolytic rectifiers, together with an effective filter circuit. The receiver is the usual low loss and one step, but a tuned plate radio frequency amplifier is occasionally resorted to.

Everything is laid out neatly and efficiently, and it should not be long before this station is one of the loudest and most consistent stations on the air.

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BURGIN ELECTRIC LOW LOSS TUNER

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QRA?

Here are the names and addresses of overseas amateurs as published in last issue and elsewhere in this issue. Those not shown have already been published.

AMERICAN.

- 1SF—S. Frizzel, 7 Durham St., Boston, Mass.
 1ER—P. F. Nadlock, Stearn Rd., Wellesley, Mass.
 2RK—Unassigned, no record.
 2VX—E. W. McCarthy, 1012 Sutter Avenue, Brooklyn, N.Y.
 2AG—C. R. Runyon Jr., 544 N. Broadway, Yonkers, N.Y.
 2BG—M. J. Cranner, Union Avenue, Lakehurst, N.J.
 2AE—W. H. Happi, 365 Quincy Street, Brooklyn, N.Y.
 2JY—O. J. Goohs, 298 Palmetto Street, Brooklyn, N.Y.
 2AX—H. Blower, 66 Clarkson Avenue, Brooklyn, N.Y.
 2XG—De Forest Radio Co., New York City, N.Y.
 2ZM—L. Spangenburg, Clifton, N.Y.
 2RJB—No record.
 3BG—P. C. Peterson, Hock Road, and Ashland, Felcroft, Pa.
 3JPA—No record.
 3CHI—S. H. Moffett, 5326 Angora Ter., Philadelphia, Pa.
 3BDA—C. F. Wicker, 225 E. Allen, Philadelphia, Pa.
 4AG—W. B. Pope, 197 Deering Street, Athens, Ga.
 4TA—No record.
 4KC—T. Freck, 47 Baird Street, Asheville N.C.
 4DA—H. P. Woodward, 616 Davie Avenue, Statesville, N.C.
 4ZKL—No record.
 5ZA—Louis Falconi, Box 421, Roswell, N.M.
 5BA—H. A. Crossland, 1912 Mason St., Houston, Texas.
 5AKW—J. C. Buchanan, 2110 Coker, Knoxville, Tenn.
 5AM—C. E. Ammon, 4913 S. Robertson Street, New Or., La.
 5ASK—No record.
 5EJ—D. Stroud, Jr., 548 Santa Monica, San Antonio, Tex.
 5ZAI—Unassigned, no record.
 6CZ—J. Hewitt, 796 Delmas Avenue, San Jose, Cal.
 3EK—F. Norwood Yale, 1419 West 39th Street, Los Angeles, Cal.
 6CQS—No record.
 6ARY—L. C. Searcy, 1525 1st Eureka, Cal.
 6AR—P. F. Byrne, 152 Oxford St., Berkley, Cal.
 6KW—J. H. Hadley, 2939 Pine St., San Francisco, Cal.
 6AF—F. Schubert, 209 Nevada St., San Francisco, Cal.
 6BAW—M. Albertson, 852 Westchester Pl, Los Angeles, Cal.
 6BUZ—R. W. Richardson, 2750 Prince Street, Berkley, Cal.
 6CM—D. M. Campbell, Box 56 Glendale, Cal.
 6XD—Western Radio Electric Co., Los Angeles, Cal.
 6BFS—W. E. Granger, RR3, Box, 214, Long Beach, Cal.
 6ZH—No record.
 6CBV—T. Perry, 2128 East 15th Street, Oakland, Cal.
 6ZI—No record.
 6AJI—H. E. Nahmens, 819 W. Olive, Redlands, Cal.
 6CSO—No record.
 6NX—F. J. Quenment, 51 Pleasant Street, San Jose, Cal.
 6AOI—C. Park, Box 237, Riverside, Cal.
 6LJ—M. E. McCreery, 628 West 49th Street, Los Angeles, Cal.
 6CQ—A. A. Greene, 313 Lighthouse Avenue, Monterey, Cal.
 6BCP—E. A. Atmore, R.F.O., Box 38, Santa Paula, Cal.
 6ALY—E. C. Koeper, 9401 East, 14th Street, Oakland, Cal.
 6BTW—M. L. Short, 216 East, 7th Street, Hauforce, Cal.
 6BIP—G. A. Becker, 2231 W. Shepherd, Winnemucca, Nev.
 6CJW—K. L. Reidman, 243 Euclid Avenue, Long Beach, Cal.
 6CBB—T. J. Cheesman, 1347 La Brea, Hollywood, Cal.
 6AJI—H. E. Nahmeno, 819 W. Olive, Redlands, Cal.
 6OF—E. L. Lamoureaux, 3419 S. Hope Street, Los Angeles, Cal.
 6EW—No record.
 6CTO—No record.
 7GQ—M. D. Koupal, 610 W. 5th Street, Eugene, Oregon.
 7ABB—C. E. Kick, 3802 Hoyt Avenue, Everett, Wash.
 7SE—E. Kick, 3820 Hoyt Avenue, Everett, Wash.
 7AC—H. J. Briscoe, Cascade, Mont.
 8BCE—R. Gebhardt, 38 No. Pleasant Street, Norwalk, O.
 9XT—St. John's University, Collegeville, Minn.
 9AX—C. W. Leininger, 953 N. Lawler Avenue, Chicago, Ill.

(Continued on page 32)

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Manhattan Loud Speakers, small	3	15	0
Manhattan Phonograph attachment	1	15	0
Manhattan Headphones, 27/6 and	1	10	0
Manhattan Red Seal	2	5	0
Manhattan 2in. Dials for Rheostat	0	3	9
Manhattan 2in. Dials	0	3	9
Manhattan 3in. Dials	0	4	6
Manhattan 4in. Dials	0	6	6
Argus Lightning Arresters	0	9	0
Freshman Grid Condenser and Leak	0	6	0
Freshman Fixed Combination Leak and Con- denser	0	4	6
Freshman .001 Fixed Condenser	0	2	9
Freshman .0005 Fixed Condenser	0	2	6
Freshman .00025 Fixed Condenser	0	2	6
Freshman .002 Fixed Condenser	0	2	9
Freshman Mercury Condensers, .001 and .0005	1	15	0

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THE WORLD'S GREATEST SPORTS STORE

(Continued from Page 30.)

- 9BGO—R. C. Lindsay, 5012 Washburn, Minneapolis, Minn.
 9BD—D. A. Myer, 2614 E. 74th Place, Chicago, Ill.
 9ABY—J. S. Foasberg, 616 Dakota Avenue, Huron, S.D.
 9BJI—F. L. Hicks, 3935 W. 30th Avenue, Denver, Col.
 9BIG—R. Dunville, 3144 S. Groud Avenue, St. Louis, Mo.
 9BMJ—T. Graffunder, Marshall, Minn.

CANADIAN

- 1AP—P. F. Mcully, Woodburne, Picton, Cons.
 5GO—W. R. J. Oliver, 525 Clarke Avenue, Westmount.

ENGLISH.

- 2SZ—The Wireless Society, Mill Hill School, N.W.
 2OF—H. C. Trent, Secondary School, Lowestoft.

(Continued from Page 7.)

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

(Editor's Note.—This report was inadvertently omitted from our last issue.)

THE LEICHHARDT AND DISTRICT RADIO SOCIETY *

There was a good attendance of members of the Leichhardt and District Radio Society at the 28th monthly business meeting, held at the club-room, 176 Johnston St., Annandale, on Tuesday, February 3rd.

The chair was occupied by the President, Mr. H. Kirkpatrick, and several important business matters were dealt with, including the enrolment of two new members. Minutes of the Delegates' Council Meetings, held on November 13 and January 16 were adopted, and Mr. H. F. Whitworth was elected to act as the Society's delegate in place of Mr. Zech, who has been compelled to resign on account of pressure of business.

The publication of Syllabus No. 3 in these columns recently, appears to have aroused considerably interest amongst local enthusiasts, as the Society has already received a number of inquiries regarding its activities. In accordance with the syllabus in question, a debate will be conducted at the next meeting, to be held on Tuesday next, and particulars of the subject to be discussed will appear in the Society's report to be published in these columns next week.

Persons interested in wireless matters even though it may be only from a broadcast listener's point of view, are bound to benefit by joining up with the Society, and inquiries addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Booth St., Annandale, will receive prompt attention.

CROYDON RADIO CLUB *

On Saturday, January 31st, the Croydon Radio Club held its usual weekly meeting at 7.30 p.m., Mr. C. W. Slade occupied the chair, and there was a good attendance of members. Several new members have lately been admitted.

The club now admits associate members who are not required to pass the admittance examination which all applicants for full membership have to pass.

Mr. W. A. Stewart was present, and gave a most interesting lecture on Low Loss and Short Wave Receivers. His lecture gave use to a very absorbing discussion and was much learnt. Mr. Stewart was thanked for his remarks which showed that the lecturer was a keen and enthusiastic experimenter.

The Wireless Institute Lectures' Committee were responsible for the lecture on this occasion.

On Monday, January 26th, members assisted their Secretary, 2GM, to erect a 66ft. mast, and were entertained to afternoon tea.

2YB was on the air last Saturday evening during the latter portion of the meetng.

Intending members should get in touch with the Hon. Secretary, Mr. G. Maxwell Cutts, 25 Malvern Avenue.

The club has received the renewal of their experimenter's license, 2YB.

WOOLOOWIN RADIO CLUB (BRISBANE).

The bi-monthly meeting of the Woolloowin Radio Club was held at Headquarters on Monday, 26th January. The usual business having been disposed of, Mr. V. F. Kenna delivered a very interesting lecture on "Transformers". The able manner in which he treated it and the lucid way in which he explained a very technical subject was greatly appreciated by all present.

These lecturettes and debates are becoming very popular with the members and are both interesting and instructive.

The Club wishes to remind all interested in wireless that Mr. A. Jackson Jnr. will deliver a lecture, illustrated by lantern slides, entitled "Electricity and Magnetism for the Beginners in Wireless" at the Guild Hall, Wellington Street, Woolloowin, on Monday, 16th February.

There will be no charge for admission and all interested are cordially invited to attend.

CONCORD AMATEUR RADIO CLUB.

The usual weekly meeting of the above club was held on Thursday, 29th January, 1925, at 8 p.m., at the Clubrooms, "Euripides," Wallace Street, Concord.

Owing to the absence of the President and Vice President, Mr. Gray was elected to the chair. The attendance was very fair.

After minutes and correspondence had been dealt with, several members were thanked for presents of articles to the club. Following this, Mr. Cutts delivered a lecture on low wave receivers. This was very successful and two members wound some of the coils on which K.D.K.A. was brought in on Friday and Saturday nights. At the finish of the lecture, transmitting was carried out. Anyone hearing these transmissions is asked to communicate with the Hon. Sec., W. H. Barker, 12 Wallace Street, Concord. Meeting adjourned at 11 p.m.

BRIGHTON SECTION OF THE WIRELESS INSTITUTE OF AUSTRALIA.

At a meeting of the above club held on January 29th, Mr. J. Muir, 3QW, Hon. Assistant Secretary of the Club, gave a very interesting lecture on the operation and construction of a low loss receiver, in conjunction with the interest recently aroused by the reception of American broadcasting, the lecture was received with great acclamation.

Mr. Fry, a member of the Technical Committee, has this week taken a trip to Sydney to visit Sydney Radio Clubs, and it is hoped that some novel ideas will shortly be incorporated in the club as a result of his efforts over there. The Town Clerk, Mr. J. H. Taylor, has informed the committee on behalf of the Brighton City Council, that they will be able to place at the disposal of the club a large lecture room at the Brighton Public Library Buildings. These new club rooms will be occupied by the club within three weeks, and as soon as arrangements can be made the committee in conjunction with the Brighton City Council, propose to have a grand opening night. The immediate effect of these new club rooms should be a very large increase in the membership of the club.

Radio enthusiasts who are interested should get in communication with the Hon. Secretary, Mr. W. Kerr, immediately at the club office, 241 Bay St., North, Brighton, Phone, X4861.

R. SURRIDGE,
Publicity Officer.

America certainly possesses some freak loud speakers. Some time ago at Hartford, Conn., one of these instruments was built to the enormous height of 90 feet, the width being 29 feet, and the depth of the mouth 38 feet. This particular instrument was used for controlling crowds upon racecourses, a man's voice when issuing from it being heard for a distance of a mile.

In contrast to this instrument, we have another which was shown at the Radio World's Fair in New York recently. The latter instrument is about 1 inch in height, the base being scarcely an inch square! Despite its size, this "loud speaker" can, or so it is claimed, be heard distinctly in an average-sized room.

But one can't help thinking of those two loud speakers standing side by side!

Radio is a "boon to the busted bard," according to Will R. Hill, "old home poet," because the publishers who would not consider his stuff before he began to broadcast are now anxious to publish his verses. "I have written many publishers in my life," said Mr. Hill in a letter, "trying to interest them in my stuff, but it was without avail until I began broadcasting from KGO. When I was able to show them hundreds of letters from radiofans, asking for copies of the verses I had read over the air, they began to see that my books might sell." Old friends, many of whom he had not heard from for years, wrote in to Mr. Hill from all over the country. These requests, with others, have run the sale of his latest book into the thousands. "Surely radio has proved itself a boon to the busted bard," continued Mr. Hill. "Had it not been for radio, my stuff would still be lying around in typewritten form, instead of being published and read."

A new use has been found for radio in Austria. So rampant is speeding by motorists in that country that the police are taking measures to check it. Cars fitted with radio transmitting and receiving sets patrol the road and signal to each other information about passing motors exceeding the limit, thus making a kind of radio police trap.

The special programmes broadcasted from KGO for Australasians have also afforded great pleasure to listeners-in situated up in Alaska. A recent letter from the acting-sheriff of Yukon Territory stated that, although there was continuous daylight, the programmes came through remarkably well.

A WARNING.

The following copy of a letter received from the Radio Corporation of America by the Australian General Electric Co. Ltd., conveys a message that will prove of interest to readers. It sounds a definite warning against the misuse of UV 201 A valves as substitutes for rectifying tubes.

Radio Corporation of America,
233 Broadway, N.Y.
December 29, 1924.

To Australian General Electric Co. Ltd., Sydney.
Gentlemen:

There are being put on the market to-day certain alternating current rectifying devices used as "B" battery substitutes. Most of these devices are equipped with rectifying tubes. It has been brought to our attention that the Radiotron UV-201-A is being used as a substitute for rectifying tubes in these current supply devices, which put such a heavy overload on this type of Radiotron that in a very short time it loses its emission.

The UV-201-A was not designed for this type of service and we do not guarantee any such tube used in a current supply device. Individuals using 201-A tubes in such devices must do so, if at all, at their own risk, and distributors must decline to take the responsibility of making any adjustments on our behalf on Radiotrons which have been used in this manner.

Yours very truly,
(Sgd.) E. E. BUCHER,
Manager—Sales Department.

C.A.V. GOODS.

MESSRS. C. A. VANDERVELL & CO., inform our London agents that with regard to Colonial trade in wireless goods, they have just had placed with them by Messrs. Bennett and Wood, the well-known Sydney Import Merchants, a large order for immediate shipment for their Loud Speakers, Transformers, and batteries. Mr. Marks, one of the Directors of Bennett and Wood recently in London on a business trip gives it as his opinion that there will be a very large business to be done in wireless goods both in Australia and New Zealand and that it would be as well if British houses bestirred themselves, as before he left in September, German representatives were already arriving and trade being opened.

C.A.V. are also carrying out exhaustive experiments on ships at sea with their loud speaker. There are many big passenger carrying vessels that have no ship's band and C.A.V. have set themselves to work to see if this cannot be remedied

by adapting their loud speaker to sea conditions, so far quite apart from the interesting results from the scientific side, it has been proved that those at sea can enjoy programmes, especially music broadcasted from the land, the piano and violin are extraordinarily clear.

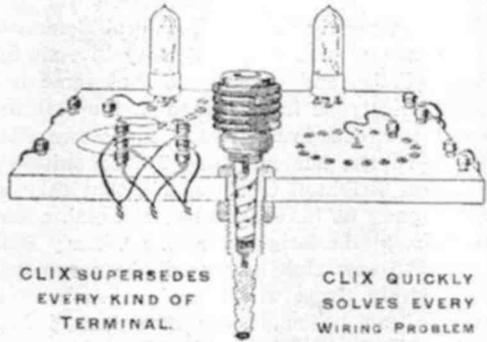
Messrs. C. A. Vandervell's advent into the Wireless world with their new Loud Speaker having met with such unqualified success, they are now putting on the market a transformer which should prove a formidable rival to any hitherto known. It has long been felt by wireless experts that there was much to be done in the way of improvement in this direction and the Acton firm set themselves to work to not only improve but if possible to eliminate many of the defects existing. A trial of this new device will prove whether Messrs. C. A. Vandervell have again succeeded in advancing wireless science.

The C.A.V. dry charged batteries with the famous threaded rubber insulation bid fair to become the universal British battery for the Colonies, the sales having increased of late in a most remarkable degree.

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The Electro Link
with 159 Uses.

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EVERY KIND OF
TERMINAL.

CLIX QUICKLY
SOLVES EVERY
WIRING PROBLEM

CLIX Combination Plug-Socket is the most ingenious and efficient contact ever invented.

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CLIX Illustrated Leaflet describes many applications

CLIX are patented all over the world:

Write for list to-day—Few Agencies still available.

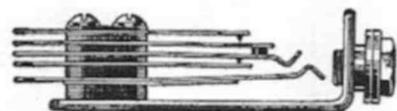
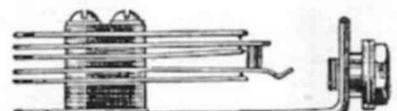
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RADIO ENGINEERS, CONTRACTORS & EXPORTERS

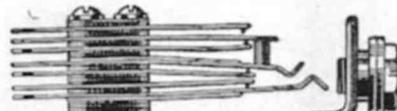
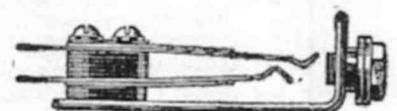
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Telegrams: Autover,
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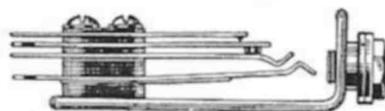
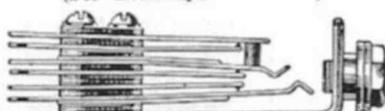
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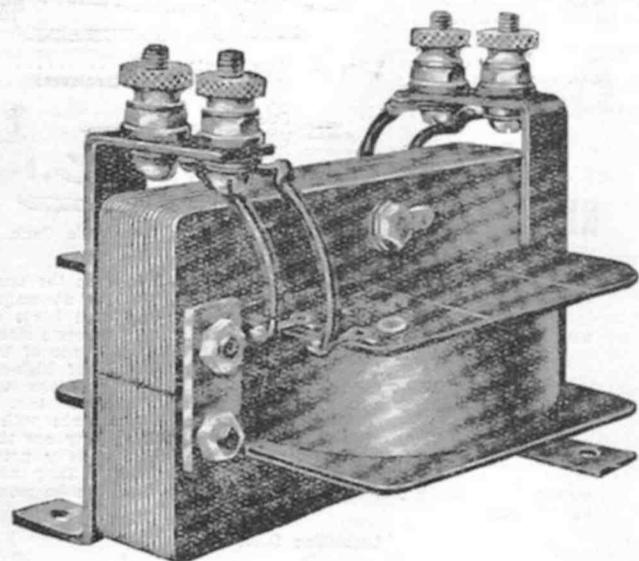
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INFORMATION



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

C.L. (Ultimo.)

Question: Referring to the "Two Valve reflex Set" on page 60 of Wireless Weekly, November 14th, would you please supply the following particulars: (1) Extent of amplification, audio, and radio, secured by this circuit. (2) A clearer diagram of connections showing position of grid leak and valve of same using WD12 valves. In the diagram given in the issue referred to, the two coils appeared to be joined. Is this so?

Answer: Audio amplification ratio will depend upon the ratio of your primary and secondary. Radio amplification is usually 7 to 8 times but depends to a great extent on the valves used. Design and layout will also affect the amplification factor. A badly designed radio frequency amplifier unit is worse than not using one at all. We suggest that you drop this circuit and take up the ST100 which was fully described in Wireless Weekly on November 28 under the title of "How to Improve your ST100." This circuit will give you much better results.

G.A.K. (Five Dock):

Question: (1) How could I construct a 100 volt rechargeable "B" battery using test tubes? (2) Where could I obtain the materials for above? (3) How could I construct a 6 volt "A" battery as in question (1)? (4) What would be the approximate ampere hour capacity of the above two batteries?

Answer: In reply to question 1, see Wireless Weekly, June 13, in which an article on the construction of a high tension battery was published. (2) You could obtain the materials for the construction of this battery from Messrs. Selby and Co., George Street, Sydney. (3) Your best plan if you wish to construct your own A battery is to purchase your positive and negative grids from a battery company. You could obtain them already formed so that you would only need to put in separators between positive and negative plates, place them in a suitable container, add sulphuric acid, S.G.1220 and charge in the usual manner. (4) The amperage of an A battery will depend on the number and size of plates you put in each accumulator. Please see article published in this week's issue on batteries. The amperage of a B

battery using sheet lead for grids is .25 after the plates have been thoroughly formed.

R.D.McL. (Tweed River):

Question: With regard to the circuit of a four valve receiver in the last issue of Wireless Weekly on page 55. Would it be possible to run the reaction back to the tuned-anode from the detector instead of back on to the primary?

Answer: Yes it would be quite O.K. to use reaction on tuned plate instead of the primary. See the article on tuned plate in W.W. dated December 19th.

A Beginner (Warrnambool, Vic.):

Answer: If you will observe the conditions at the head of this column and also sign your name and address, we shall be glad to answer your inquiries.

E.R. (Manly):

If you will observe the conditions governing questions and answers, at the head of this column, we shall be glad to deal with your queries.
Add tations Heard.

J.G.S. (Epping):

Question: Please supply me with a circuit for a low loss set with one stage of audio frequency and a list of parts. I want a set that will not cause trouble to other listeners-in as others besides myself may use it. Would you suggest any particular make of dry cell valve to use with this set?

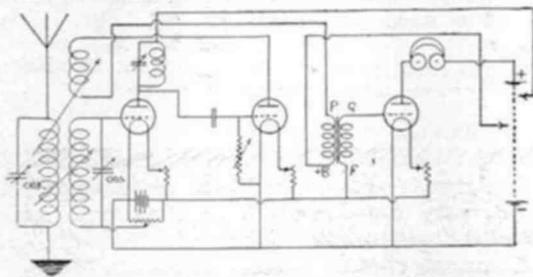
Answer: A full description of the set you require was published in Wireless Weekly, of January 16. The set described will not cause interference if the reaction is handled properly. Dry cell valves have not been found to be particularly efficient with this type of set, but we see no reason why they should not function well, and there are many good standard makes available on the market. They are advertised in various parts of this issue.

C.L. (Dawes' Point):

Question: Please advise me the best circuit for using a 3 dry cell Weco valves. I already have the components of a three valve set, but am not sure of the best circuit in which these valves would be most suitable. The three valve selec-

tive receiver described in your issue, volume 5, No. 10, is, I think, designed particularly for bright valves but the circuit I want is one embodying the features claimed for that circuit.

Answer: The diagram you require is shown below, and the circuit shown employs one high frequency, detector, and one audio frequency. This circuit is very selective and has endless possibil-



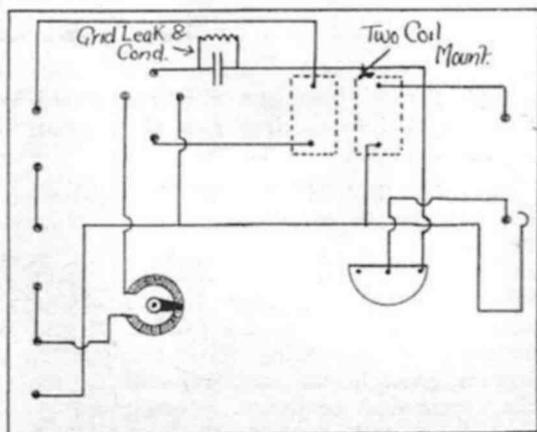
ities. You will readily see that it is the well known three coil circuit, with an extra stage of high frequency (tuned plate) and one audio frequency stage.

R.P. (Hurstville):

Question: Referring to the one valve receiver described in *Wireless Weekly* of November 21, 1924, I find it somewhat difficult to follow the wiring, and would be glad to have a clearer description.

Answer: The photograph of the back view of

the panel which appeared in the issue you mention was perhaps not too clear, due to the position in which the photograph was taken. The sketch below will show you the wiring of this circuit.



The three terminals on the right are shown to enable you to place the condenser in series or parallel. The permanent link should be made of stout wire which will enable you to short the bottom two terminals. The series position of the condenser is obtained by placing the aerial on the centre terminal and opening the link, and the parallel position by placing the aerial on the top terminal and closing the link.

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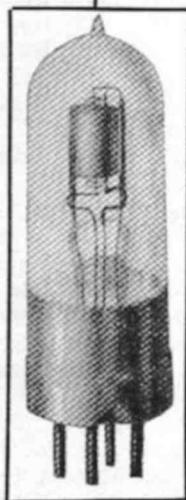
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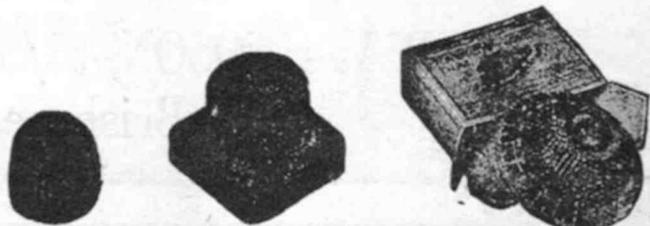
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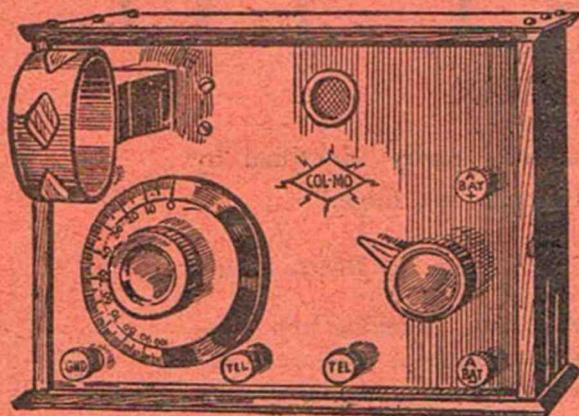
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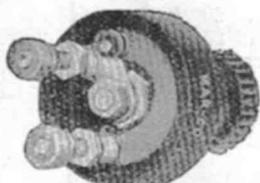
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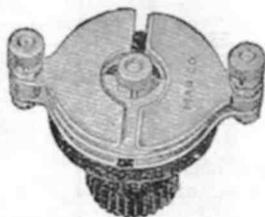


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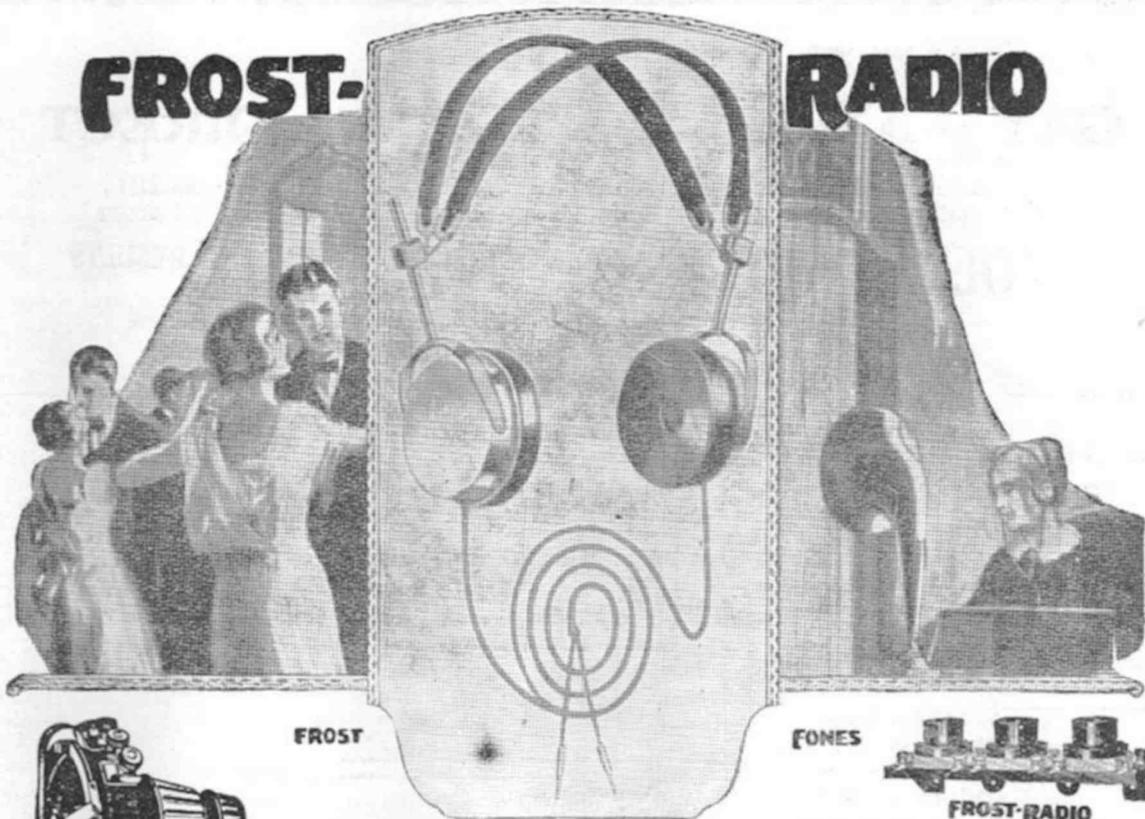
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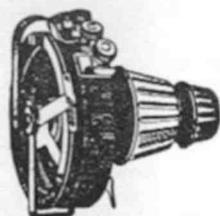
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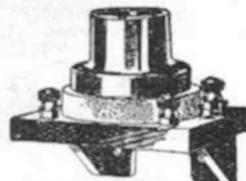
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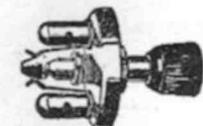


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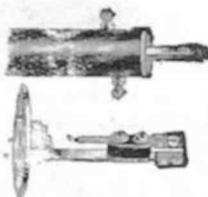
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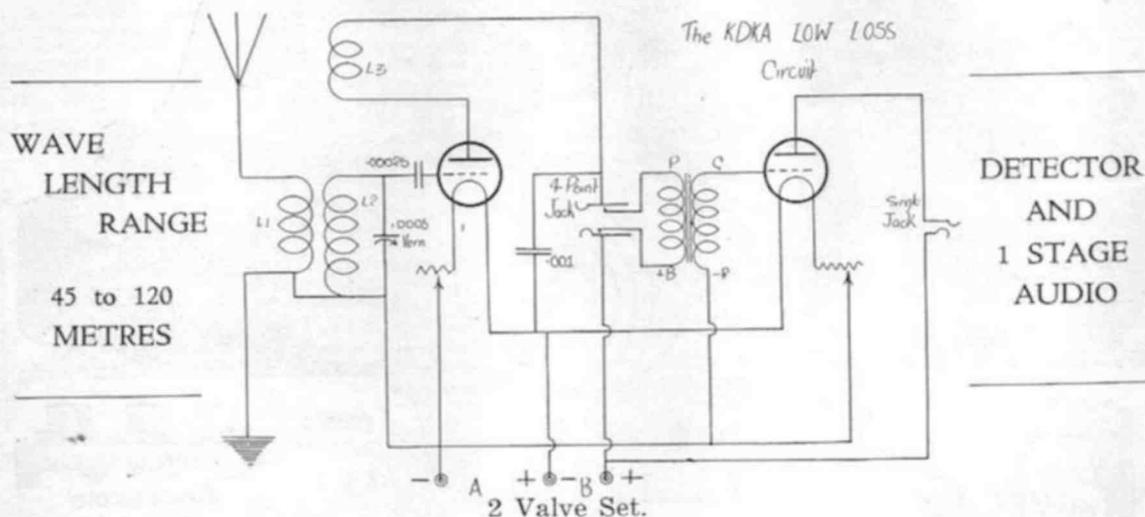
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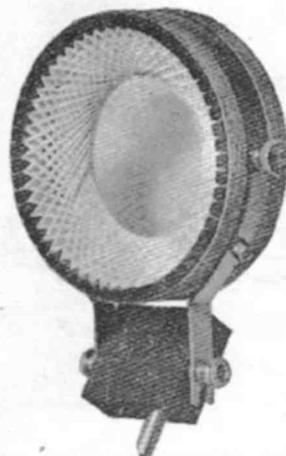
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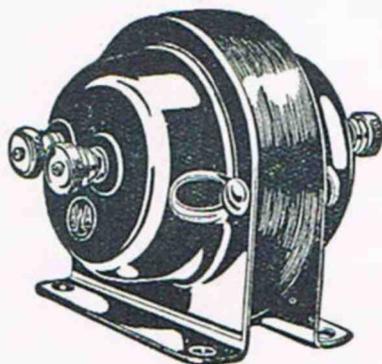
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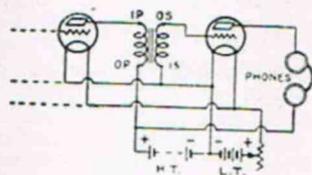
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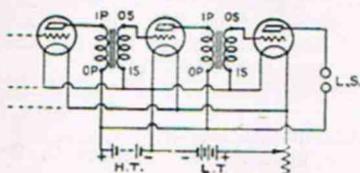
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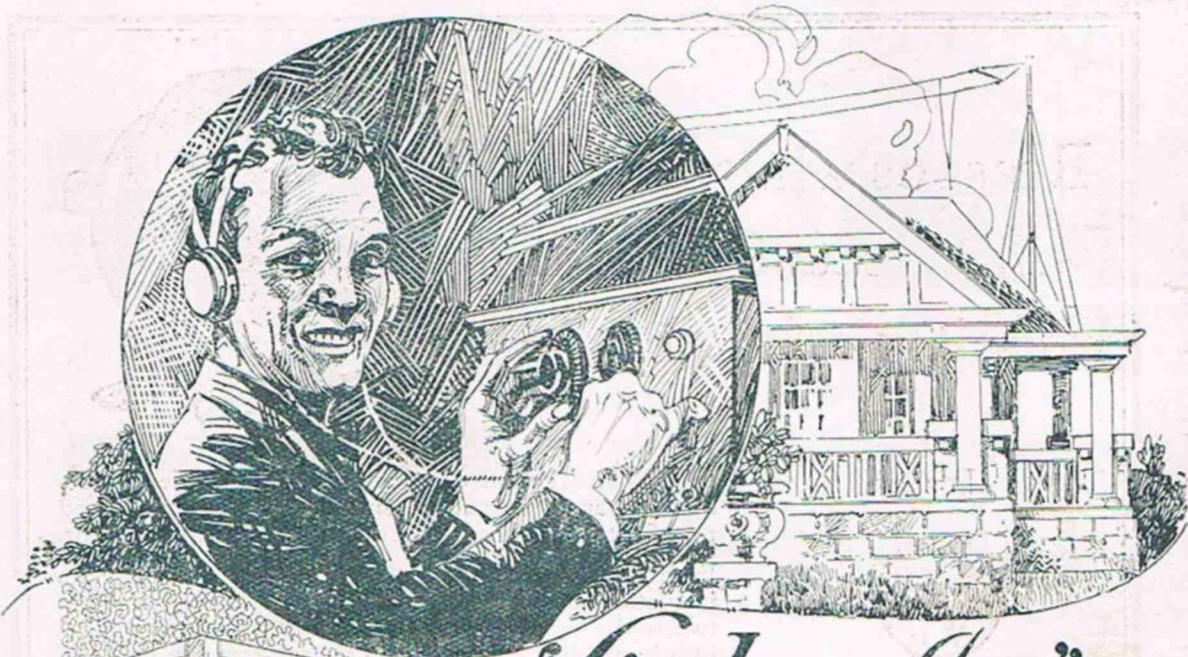
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