



Friday, September 19, 1934.

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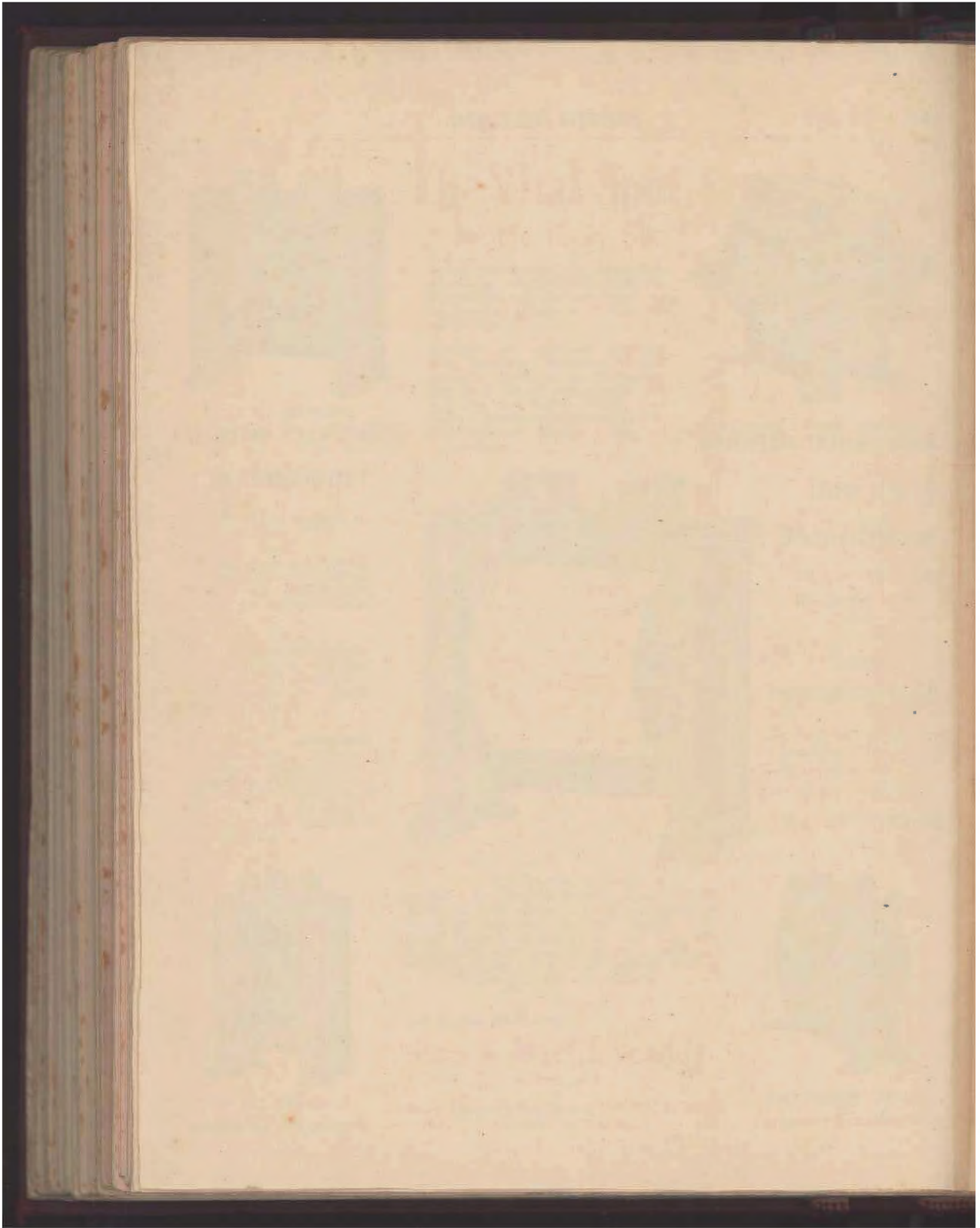
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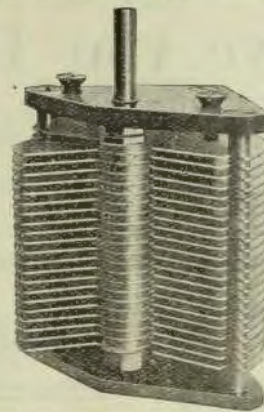
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Those distant stations, those beautiful violin solos, the theatre music, cannot be distorted if your set incorporates GILFILLAN PARTS.

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These condensers are of new design, are equipped with heavy moulded bakelite end plates, are rigidly braced and will not warp out of shape. The metal plates are of scientific design and occupy centre of space at all positions.



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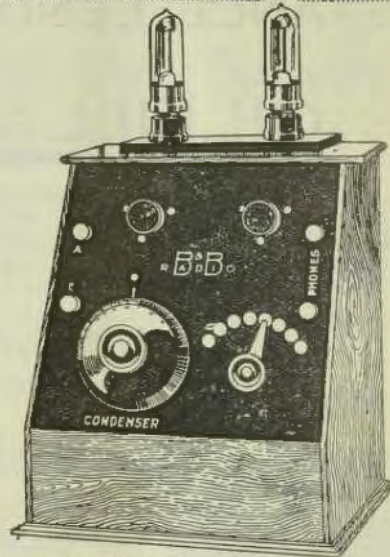
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This set has one stage audio frequency, but if so desired can be changed for one stage radio frequency.

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O'Sullivan's Radio Shop, Pitt Street.
Ross C. Bayliss, Lithgow.

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Double Head Phones, Frost, 2,000 ohms each	32 6	Variable Condensers, 42 plate, Plain each	18 9
Marco Jacks, Open Circuit, each	2 6	Variable Condensers, 14 Plate Vernier with dial and knob, each	26 6
Marco Jacks, Double Circuit, each	3 6	Variable Condensers, 23 plate, Plain, each	17 6
Marco Jacks, Single Filament, each	3 9	Lightning Arresters for outdoor mounting, each	8 6
Marco Jacks, Double Filament, each	4 3	Crystal Detectors, Brass, each	2 6
Valve Sockets for American Valves, each	2 9	Crystal Detectors, Nickel Plated, each	3 0
Valve Sockets, for English Valves, each	1 10	Tested Crystals, mounted, each	1 6
Shock Absorber Type Bakelite, each	6 3	Cats Whiskers, 18ct. gold, each	0 8
Rheostats, 30 ohm, each	5 6	Cats Whiskers, silver, each	0 5
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Frost Push Pull Switches, each	4 0	Switch Arms, 1in., each	1 6
Hellesen 45 volt B battery, with plugs each	15 9	Complete parts for Loose Coupled Receiver, with Detector, Crystal and Panel, ready for Assembling	24 0
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2 Coil, each	30 0		
3 coil, each	37 6		

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Your receiver must not be connected directly to the lamp socket, or damage to both your receiver and the lighting circuit will result.

The Ducon forms a safe and efficient attachment between your receiver and the lamp socket—it uses no current and is tested to 2,500 volts.

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Phones, Redfern 964 and 930.

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

Vol. 4. No. 23.

SEPTEMBER 19th, 1924.

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EDITOR: A. W. WATT The Editor will be glad to consider Technical and Topical Articles of interest to Australian Experimenters. All Manuscripts and Illustrations are sent at the Author's risk, and although the greatest care will be taken to return unsuitable matter (if accompanied by stamps), the Editor cannot accept responsibility for its safe return. Contributions should be addressed to the Editor, "Wireless Weekly," 33/37 Regent Street, Sydney, N.S.W.

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Agents in Great Britain: The Colonial Technical Press Ltd., Dudley House, South ampton Street, Strand, W.C. 2.

EDITORIAL

WHERE ARE WE HEADING?

In the August issue of Q.S.T., the official organ of the American Radio Relay League, appears a notification by Mr. F. H. Schnell, Traffic Manager, headed "Short Wave Tests with Australia." The dates of the tests are given as from August 10th to August 20th, and again from September 7th to September 16th. The article is a trifle misleading because it makes it appear that these tests are between American and Australian amateurs generally; the fact is that the tests have been, and are actually being conducted between American amateurs in general and Mr. C. Maclurean (2CM) in particular.

Several letters have reached us from local experimenters asking us why, as a live paper, we failed to publish particulars of the tests. The answer is that we did not know of them ourselves. We can now, however, let in a little further light both upon this and other things which call for comment. The tests were privately arranged by Mr. Maclurean during his visit to San Francisco, and were not intended as general tests.

To those who would criticise Mr. Maclurean's action in not endeavouring to arrange general tests, there can be only one reply, and that is this: past records, and present performances, show that the bulk of Australian experimenters are affected by the chronic complaint known as "lack of co-operation," and no doubt, 2CM realised the hopelessness of trying to arrange something that would suit everybody. The American amateur some of us are prone to criticise, and to link up with that indefinable quantity known as "hot air." We point to our own individual achievements with pride and then, with chest thrown out, turn to our American cousin, and say, "Can you beat it?"

Yet the American Radio Relay League, with a membership of over sixteen thousand, can, within a few hours put into operation a net-work of relay and intercommunication stations that cover the whole of the United States and Canada. Why? Because they believe in and act upon the slogan—"Co-operation"—there's no other reason. Out here, it seems we can't even organise a bun fight, simply because there's no co-operation between us.

WHAT ARE FROST LINES? SEE PAGES 2 and 3.

The fact is that a mere handful of hard workers have for years, been carrying the bulk of the experimenters along on their backs. We ought to be ashamed to admit that about 2 per cent. of the experimenters have fought the battles of the other 98 per cent., and without any active support from those who owe their claim to the title of experimenter to the efforts of the few who have ungrudgingly and without any hope of reward pushed their claims and succeeded in getting the authorities to recognise them. That is the plain, unvarnished truth, and that the authorities realise it, is shown by the fact that as each experimental license expires, the holder will be called upon to show cause why he should not be given a Dutch promotion to the ranks of the broadcast listener.

The peculiar part of it is that in America there is no broadcast fee, which might spur a man on towards trying for a cheaper experimental license—amateurs are amateurs simply because they love the game, and the fact that they are enrolled in the League, a privilege for which they have to pay, marks them at once as genuine. Here, the position is somewhat different, and the fact that there is some little difference in price between an experimental and a broadcast listener's license, would undoubtedly act as a powerful argument in inducing a man to join the ranks of those who, when all is said and done, are interested in wireless primarily from a research point of view. But there can be no blinking the fact that we have in our midst, sheltering under the protection of the experimental organisation, large numbers who never have been and never will be of the slightest assistance to the progress of experimental wireless in Australia—this applies not only to some holding experimental receiving licenses, but also to certain transmitters, and for the safety and progress of the experimental movement, it behoves us to pause and sum the situation up in the broad light of day.

What is the function of an experimental transmitting station? To conduct experiments in wireless research and other work likely to be of value to the community. It can in no sense of the word be defined as the eternal pumping of gramophone records into the air and the shouting of aimless re-

marks. Yet we have, operating under the term "experimental transmitting station," a number who are in effect nothing more or less than "B" class broadcasting stations, working in competition with existing broadcasting services, but without a "B" class license. In some cases, the owners are not even proficient in the Morse code.

Now, experimenters, you know, and we know, that such transmitters are not experimenters; they can do nothing but harm to the experimental movement, because it is often by their activities that experimenters in general are judged. We take the stand that they should either be compelled to take out "B" class licenses and adhere to a regular schedule or programme, or if not, and where there is a possibility of them interfering with even one listener who has paid the broadcast fee, steps should be taken to keep them off the air altogether during broadcasting hours; on the other hand, they should not be permitted to retard the activities of genuine experimenters after those hours.

Now, what is the function of an experimental receiving station? To conduct experiments in reception, or to carry out such research work as may prove of benefit to the community. The fine records put up by genuine experimenters prove beyond all doubt that a number are engaged in research work, for only research work could have yielded them the results. These have consistently shown a desire to co-operate in anything for the benefit of experimenters, or for that matter, wireless in general—but it is positively criminal to put under the same heading as these men, others who by the longest stretch of imagination, cannot lay claim to any other title than that of broadcast listener. They are of no value to the experimental movement, they lend no hand in anything that might prove constructive, and unless they can be brought to a realisation of their responsibilities, they are likely to become a dangerous factor when the status of the experimenter is next questioned by the authorities. Now, by some, our remarks may be misconstrued, and for their benefit, we want to point out that we have always consistently advanced the cause of the experimenter. It would not be consistent with the unbiassed policy of this journal, if we failed to discuss fearlessly this stumbling block in the path of experimental progress. In any case, no genuine experimenter could do other than back us up in our statements. What we want in Australia, is a live experimental organisation; an enthusiastic body of genuine experimenters, eager to co-operate, realising the importance of their posi-

tion, and ready to share in the responsibilities inseparable from an organisation which there is no reason in the wide world, cannot be placed on a par with the A.R.R.L. But before this can be achieved, it is absolutely essential that the dead heads be weeded out, or in other words, the sheep be separated from the goats.

The problem of interference between amateur transmitters and broadcasting listeners, is one that must be faced in the very near future; in fact, clashes have already occurred. It is of no use to sidestep it with the statement that experimental transmitters paved the way for broadcasting; things must be faced as they are, and the position is that broadcast listeners have as much right to the ether as anyone else, and yet on the other hand, experimenters have certain privileges which must be protected. Here again, co-operation will be necessary, and so that a few enthusiasts will not be faced with the unpleasant task of again fighting the battles of the crowd who are content to sit back and let others do all the work, it is up to those who have not so far given any assistance, to come out of the woods and do something now. There are dozens of ways of assisting; they have been outlined too often in these columns to bear repetition.

In conclusion, let me say this to holders of experimental licenses. What are you doing to justify your claim to the title of experimenter? The answer is with yourselves. Check up on yourselves now.

WIRELESS WEEKLY TRANSMITTING TEST WEEK

From places as far distant as Townsville, Adelaide, Brisbane, Kalgoorlie, Albury, Melbourne, Hobart, New Zealand, and many country towns, we have received offers of co-operation in these tests which it is proposed to hold from October 1st to October 7th. We welcome everybody.

Here are the names of Sydney transmitters who, so far, have advised us that they will join in. 2JM, R. C. Marsden; 2YI, Phil Nolan; 2CM, Chas. Maclurcan; 2DC, Jack Davis; 2GR, J. S. Marks; 2BC, Norman Hurl.

As was pointed out, these tests have for their object a definite purpose. It is hoped not merely to make them of value to transmitters in checking up their sets, but to achieve something in the way of research. Are there any other dinkum experimental transmitters who would like to co-operate? Our address is 33/37 Regent St., Sydney.

WHAT ARE FROST LINES?

SEE PAGES 2 and 3.

HEADQUARTERS
Room 24 2nd Floor
82 Pitt St.
SYDNEY NSW



Phil Renshaw Hon Sec.
Box 3120 GPO Sydney
Phone B 2235
A.H. Perrett Publicity Officer

September General Meeting.

BY the time these notes are in the reader's hands, the monthly meeting of the N.S.W. Division of the Wireless Institute will have been held. At the time of writing, however, indications are that a most enjoyable evening will be spent. The Institute's apparatus, consisting of a standard wave meter, Jewel testing set, and various other pieces of apparatus will be on view and will be explained by the president, Mr. C. D. MacLurean, 2CM. Every member has also been circularised and asked to bring along any piece of apparatus which may prove of interest to members generally, and they will be invited to give a short description of the various points of interest. Judging by the number of offers which have already been received, this item will be a very popular one and the collection of apparatus threatens to rival that of the experimenters' stand at the recent exhibition.

2 GW.

Dr. W. G. Woolnough, 2GW, one of the most enthusiastic members of this Division of the Institute is at present on an expedition into the heart of Australia. Dr. Woolnough has made several expeditions of this nature, and he carries with him a wireless receiving outfit for the purpose of obtaining time signals and thus enabling him to establish definitely his position when undertaking geological surveys. At the same time, this receiving set enables Dr. Woolnough to get somewhat in touch with the outside world, and Sydney transmitters in particular are requested to send messages by Morse to 2GW between hours 9 to 10 p.m. Sydney time. As reception under conditions which will be experienced by Dr. Woolnough will be very difficult, it is requested that those who send messages to 2 GW will transmit very slowly. The party will not be equipped with a transmitting set, so that no replies can be expected, but QSL cards will be forwarded as opportunity occurs. These messages will be greatly appreciated by those in the interior of Aus-

tralia, no doubt Dr. Woolnough will have a very interesting story to tell us on his return some months hence.

Club Lectures.

The matter of the roster of lectures for the Affiliated Societies has not been forgotten, but owing to the continued ill-health enjoyed (?) by our friend "Insulator" this matter has inevitably been somewhat delayed. However, a definite move will shortly be made to finalise this matter.

Radio Relay League.

Matters have now been brought to such a point in connection with the Australian Radio Relay League that a special meeting of all those transmitters who are willing to co-operate has been called for Tuesday, 23rd September, 1924, at 7.30 p.m. sharp. The meeting will be held at Institute Headquarters, Room 24, Second Floor, 82 Pitt St., and it is hoped that everyone will make a point of attending punctually at 7.30. The scheme which has been drawn up by the sub committee dealing with the League will be laid before the meeting and a very definite step will be taken with regard to getting matters finally going. At the present time messages are being transmitted every Friday night and the stations which have notified their willingness to take an active interest in this work are being utilised for the purpose. It is, however, very important that the messages, however trivial they may seem, should be regarded as important, as it necessarily takes some little time to get matters under way. In the near future, however, matters will improve, and the more stations taking part in the work, the more interesting will it become. The tendency has manifested itself, however, for certain operators to be satisfied with merely exchanging the code sign and attempts to transmit messages have proved futile. The usual excuse given is that QRM is bad, but this points to one of two causes. Either the operator is not able to work at the required speed of 12 words a minute,

ARE YOU USING FROST PARTS? SEE PAGES 2 and 3.

or his set is not sharply enough tuned to eliminate the outside interference. Under the old regulations, every transmitter was required to work at a speed of 12 words per minute before he could obtain his license so that the advent of the new regulations cannot be held as an excuse for failure in this respect. Moreover, the mere fact of recording speech is by no means such an achievement as receiving Morse over a long distance, and as there is every indication that the authorities intend tightening up the regulations with regard to the experimental transmitting licenses, it behoves every genuine experimenter to look well to his Morse and make sure that he is able to do the required 12 words. It may be argued that for experimental work there is no necessity in many cases to make use of the Morse signals at all, and that speech presents a better field for experimenting. This may be so in certain cases, but before passing any judgment as to the real merits for and against the use of Morse, it would be well to consider the wider aspect and to remember that the experimenter is the one who will be looked to in case of national emergency, to carry on the traffic of the country. Some very interesting information will be given with regard to this at the special meeting called for the 23rd inst., and it is only necessary to recall the work done by our American cousins when a recent tornado entirely broke down all means of communication over a large portion of the United States, when the whole traffic was carried on by the American amateurs under the auspices of the American Radio Relay League. In any case it must be emphasised that those who take up this work must be serious about it. It will prove of the most absorbing interest and the officials in charge are quite confident that as soon as things get on the move there will be a rush to take part in the activities of the League. The working rules have been drawn up and the procedure will be in accordance with the International Radio Telegraph Convention.

New South Wales has been divided into 9 areas and each area will have a district manager, and one or more sub-managers, according to the size of the area. Each sub-manager will have a specific area allotted to his control. Specific stations will carry on the work of the League and traffic will be put through these stations at regular times.

More detailed information as to the organisation will be published at a later date, but at the present time it is sufficient to say that the whole scheme is thoroughly attractive and is being based on a sound organisation. Progress may be some-

what slow, but it is all the more sure for that reason. A supply of QSL cards have been printed and they are of an attractive design and it should be the aim of every experimenter to add one of these cards to his collection.

A. H. PERRETT,
Publicity Officer.

SMART RELAY WORK

Mr. MacLurean writes:—

Last night, September 9th, I wished to get a message over to Frank Bell, 4AA, New Zealand, and being unable to call 4AA direct myself owing to other tests at the time, I asked Jack Davis, 2DS, to put it over. This is how it went:

2DS sent it first to 2AC, N.Z.; 2AC relayed it to X3AA (Orbell, on the S.S. Port Curtis, 3,000 miles away); 3AA then got QSO, 4AA and give it to him. Bell sent a reply first to X3AA, who relayed it to 2DS direct. Later I worked 4AA direct, who confirmed both messages and answer. There were no mistakes, and when it is realised that 2DS worked 3,000 miles (without repeats) to X3AA, one must admit it is fine business.

Gang, this is the stuff to gime them. Congratulations, 2DS.

A RECORD TO BE PROUD OF.

At 12.40 a.m. on Tuesday, September 16th, Mr. Len Schultze, Lane Cove (2LO) established communication with 6AG, Coxon, Perth, W.A., and held him until 2 a.m. Surely some going!

Commercial Gentleman (Enthusiastic Experimenter in Radio) seeks the management or sub-management of Radio business.

Over 25 years' commercial experience and warehouse management, coupled with mechanical tastes and inclinations fit the advertiser for the position sought, especially as buying, selling, staff control, finance, and general office routine have taken up the whole of career.

As an alternative, financial assistance would willingly be availed of, with a view to opening in business in Radio.

Reply in first instance to—

"PUSH-PULL,"

c/o H. E. Hoare,
Solicitor,
Martin Place, Sydney.

PAGES 2 and 3 TELL YOU ALL ABOUT THE FROST LINES.



80 High St., Carlton,
9th September, 1924.
To the Editor

Dear Sir,

Last night, listening-in on a loose coupler crystal set, I heard Broadcasters Ltd. announce the usual report of Pitt, Son & Badgery's sales. Immediately after they had closed down, I heard a man's voice, faintly, and in a few moments I heard the chorus of "Auld Lang Syne" sung by a gathering of men, followed by three "hoorays." The time was 7.51 p.m., and it seemed to me to be remarkable for a function to end at that particular hour.

Naturally, I am curious to know if any of your readers heard this particular item, and know its origin, and I hope to see the explanation in the columns of your esteemed journal.

Yours etc.,

A. E. EDE.

SPECIAL MEETING OF THE AUSTRALIAN RADIO RELAY LEAGUE

See notice in the columns of the Wireless Institute of Australia, New South Wales Division.

SET FOR ALEXANDRA HOSPITAL.

Some weeks ago, Mr. John Harrington (Managing Director of Harrington's Ltd.), realising the wonderful possibilities of radio listening-in, to those confined to their beds by sickness—made an offer to subscribe £ for £ for all money collected by "Uncle George, of Broadcasters Ltd.," from his nieces and nephews who listen in to his bed-time stories nightly. His idea was carried out by a 1/- appeal in which all children subscribing 1/- or more, were thanked by "Uncle George" per medium of the wireless. Subscriptions which have now closed, total nearly £150. This means that with Mr. Harrington's splendid offer, a total of nearly £300 will be expended on a radio installation in the Royal Alexandra Hospital for Children.

A specially designed radio receiving set is now being constructed for the purpose of enabling all the little inmates of this great institution to listen-in to bed-time stories and other interesting items broadcasted by the broadcasting companies now operating in Sydney.

A loud speaker will be installed in each ward, which will enable all patients to hear without any effort in any part of the ward. To distribute sound over such a large area, no less than 11 speakers



Mr. John Harrington

will be used, the wiring and arrangements of which requires special designing, and is now receiving every attention of Harringtons Limited Radio Engineering Staff. The radio installation should prove a boon to the little sufferers, and is an innovation that is worthy of being copied by all similar institutions.

TRADE NOTES

During the week we have had the opportunity of inspecting the ranges of apparatus manufactures by the Acme Apparatus Co. and the Walnart Manufacturing Co., whose sole agent for Australia are Messrs. P. H. Clark Ltd., Head Office, Wynward Buildings, 44 Carrington St., Sydney.

The Acme apparatus consists of a full range of transmitting apparatus, including power and filament transformers, chokes, variable inductances, power condensers and rheostats. Receiving apparatus includes the famous "Acme Lowest Loss" condenser which will be invaluable to the experimenter who is making up the low loss tuners so much the rage just now, and which was advertised in our last issue.

Other receiving apparatus is Acme audio frequency transformer, radio frequency transformer, twin rheostat, pot rheostats, 30 KC transformers for use in super heterodyne and the "all ratio" audio frequency transformer, which is capable of giving any ratio from $2\frac{1}{2}$ to 1 up to $11\frac{1}{2}$ to 1, or even higher if required, and the Acme klerspeaker in which a loaded bakelite membrane is used instead of a diaphragm, as this construction allows a piston movement of non-resonant character.

The apparatus manufactured by the Wainart Co. is all guaranteed "trouble-proof." The items of particular interest are all metal shock absorber tube sockets, which are guaranteed unbreakable. If they should break for any reason whatsoever they will be replaced free of charge. Wainart variable condenser is also a guaranteed "trouble-proof" article, being made with polished aluminium plates fitted into slotted aluminium supports which absolutely does away with any side movement. Contact is established by two pressure bars on the rotary plates with a spring contact fitted on to the bakelite end piece. Condenser dials, friction vernier adjusters, binding posts, both engraved and plain, variable grid leaks, grid condensers and inductance switches.

Messrs. P. H. Clark Ltd. are to be congratulated on having the agencies for such fine apparatus, which we feel sure will find a ready sale.

Amateur Notes

Mr. H. K. James, of Summer Hill, operator of Station 2XA, has been carrying out extensive experiments with a view to try and rebroadcast music and speech from Pacific Coast Station, K. G.O., Oakland, California. So far, very little success has crowned his efforts, owing to intense Q.R. M., from local howling valves. However, he is living in hopes.

The rebroadcasting of music from a distance should provide some interesting experiments, as if done successfully, it will mean that users of crystal sets whose range is limited to the local broadcast station, will be able to hear stations too distant for them to ordinarily receive. Speaking of rebroadcasting, there are two stations in Honolulu who rebroadcast regularly the programmes of K. G.O., and other American Pacific Coast Stations. This is done every night, and the music comes through perfectly. I believe the reception of the music is done on a Beveridge Antenna which is extremely directional.

More and more low loss tuners are being used among the amateurs and everyone seems well pleased with their results. There is no doubt that these tuners are efficient, and although they may not appear very attractive, they nevertheless deliver the goods.

It is pleasing to note that a large number of the transmitters are doing more in the sending of code than the sending of gramophone records. There is no doubt about the fact that C.W. or I.C.W. will carry further than phone, and if any constant D.X. work is to be attempted, code will be found to be far more effective. Phone is very convenient for local communication, but there is no reason why amateur transmitters should waste time sending gramophone records. If people want to listen to music, there are two perfectly good broadcast stations for them to tune in.

Station 2ZN is again on the air, with plenty of strength and good modulation.

2CX was heard testing over the week-end, and although possessed of plenty of strength and good modulation, the rectification is not all that is should be. Still for a new station, the results were excellent.

2CI is building a new transmitter, extra M.I.M., we believe.

2GR still comes in strongly with excellent modulation, especially on some of the pianola items.

2YI has fined up his tuning a lot lately, and is one of the most sharply tuned stations heard. This station is of the strongest, and plenty of D.X. is being done.

SEE THE FROST LINES ON PAGES 2 and 3.

CONSTRUCTING WIRELESS PARTS

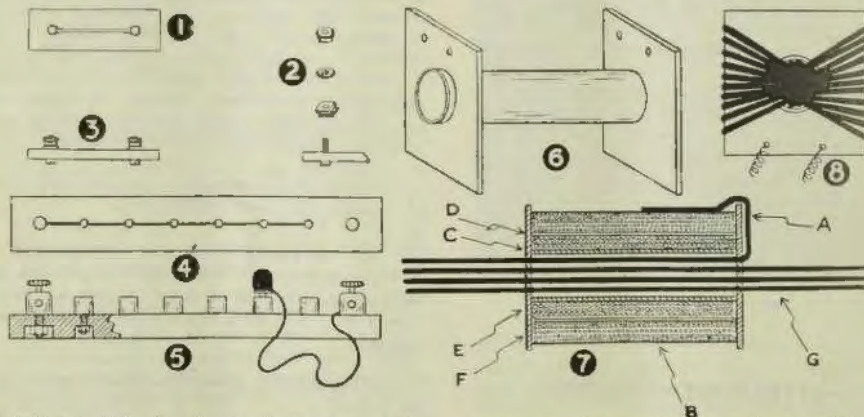
A GRID LEAK, or grid resistance as it is sometimes called, consists of an element made up from an intimate mixture of conducting and non-conducting substances, placed in the grid circuit of a valve receiver to serve as a by-pass for the high frequency currents which would otherwise collect on the grid of the valve.

The simplest form of grid leak consists of a graphite pencil line drawn between two terminals mounted on a strip of ebonite or other insulating material. This very simple device will usually give satisfactory results providing the resistance value of the pencil line is suitable for the valve and circuit in which it is employed. This, of course, is a matter of experimenting with lines of various widths. The construction of such an instrument is a very simple matter. Obtain a strip of 1/8in. ebonite, about 3in. wide, and 13in. long,

each, large enough to slip over the terminal screws. Pass the terminal screws through the holes in the ebonite (Fig. 2), slip on the tinfoil wads, pressing them well into the enlarged parts of the groove, screw down the clamping collars and hold these firmly while the terminal screws are tightened up from underneath with a screw-driver, then place the two terminal nuts in position. A little experimenting will determine whether the pencil line is too narrow or too wide, and when the best results are obtained disconnect the instrument and apply a coat of thick shellac varnish along the groove. A side view is shown in Fig. 3.

A Variable Grid Leak.

The advantages of a variable grid leak will be obvious. In the one about to be described an Indian ink line is employed as the resistance ele-



and drill two holes for the terminals about 1 in. apart. Cut a small groove along the surface of the ebonite between the two holes and widen the groove at each end where it merges into the holes. (See Fig. 1).

With a fairly soft lead pencil draw a line along the groove and apply the lead freely in the widened portions. Cut out two small wads of soft tinfoil, and punch a hole through the centre of

ment. A piece of 3/8in. ebonite, about 5in. long and 3in. wide, is drilled as shown in Fig. 4, the two ends holes being provided for two terminals, and the other holes for six ordinary contact studs. All holes are well recessed underneath to accommodate the nuts. A fairly thick Indian ink line is drawn along the top surface of the ebonite between each hole with the exception of the space between the last two holes (see Fig. 4). A small hole is

SEE PAGES 2 and 3 FOR FROST LINES.

drilled in the top of each contact stud large enough to take an ordinary wander plug as used on H.T. batteries. The isolated terminal is connected to the wander plug by means of a short length of flexible wire. The other terminal makes contact with the first ink line which is in series with the contact studs. A small washer, made from several thicknesses of soft tinfoil, should be placed under the shoulders of the studs and first terminal to ensure good contact with the ink lines.

The general arrangement of the instrument is clearly indicated in Fig. 5. It will be seen that different values can be obtained by simply changing the position of the wander plug. The correct value of a grid leak in a rectifying circuit is a very critical point, for the maximum signal strength is entirely dependent on the leak. Experimenting



with different leaks made up in a haphazard way is a tedious job. All this trouble can be obviated by means of a few simple adjustments if a variable leak is used. Properly constructed, the instrument just described should be very efficient, and its cost should not exceed 1/-, since the small amount of ebonite required is usually to be found in the scrap-box, and the wander plug and flexible lead retrieved from an old H.T. battery.

A Low Frequency Interval Transformer.

The construction of an interval transformer presents few difficulties, providing one is possessed of plenty of patience and an average amount of skill. Winding approximately 15,000 turns of wire on the secondary will naturally require more patience than skill, but this is not such a difficult matter as is generally supposed. When the exact quantity of wire required is known, it will not be necessary to count the turns, and so the matter becomes less complicated. The quantities of wire required for the component to be described have been worked out as accurately as possible to give a step-up ratio of 5 to 1.

For the primary winding 1½oz. of No. 38 single cotton or double silk covered (latter preferably) wire will be required, and for the secondary winding 1 oz. of ditto, No. 47.

The bobbin or former (Fig. 6) is made entirely of fibre or other insulating material, and comprises a tube 5/8in. in diameter by 1½in. long, glued into two supports or flanges so that a small portion of same projects from each flange. The flanges should be 1½in. by 1½in. and about 3/32in. in thickness. Two small holes are drilled in each as shown for the ends of the windings, which can be attached to terminals if desired.

The No. 38 wire is wound evenly on the bobbin to a depth of 1/8in. A very thin sheet of waxed paper should be placed between each layer. This forms the primary winding of the transformers, and the two ends are taken through the holes in one of the flanges and carefully marked I.P. and O.P. (In Primary and out Primary). The beginning of the winding will, of course, be the I.P. and

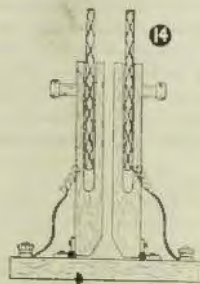
the end the O.P. Two or three layers of waxed paper should be wrapped round the winding, and the No. 47 wire carefully wound over this in the same manner to a depth of 3/16in., taking the ends through the two holes in the other flange, making them I.S. and O.S. (In Secondary and Out Secondary). Some good adhesive tape should be wound all round this winding.

The core consists of a small quantity of No. 28 (or nearest) S.W.G. soft iron wire, cut into 4½ in. lengths, and packed tightly in the tube as shown in cross section in Fig. 7. Force as many wires as possible into the tube. The nearer they are to each other, i.e., the tighter they are packed in the tube, the greater will be the efficiency of the instrument. The projecting ends of the wire are bent over the flanges in two bunches in the manner indicated at A. and bound down to the adhesive tape covering B. with another length of tape.

For sake of clearness only four wires are shown in the diagram. The flanges and tube are shown at C; D. indicates the waxed paper between the primary and secondary winding; E. primary winding; F. secondary winding; A. method of bending over core wires; G. core wires; and B. adhesive tape covering over secondary windings.

SEE THE FROST LINES ON PAGES 2 and 3.

Fig. 8 shows an end view of the completed instruments. The resistance of the primary winding which comprises some three thousand turns, is approximately 250 ohms, and that of the secondary winding, having about fifteen thousand turns, 9000 ohms. This give a step-up ratio of 5 to 1, and if carefully constructed this component will be very efficient when coupled to a low frequency amplifying valve.



Basket Coils.

The basket coil, as its name implies, is constructed on similar lines to an ordinary basket. The wire is interwound round a number of radiating spokes arranged equidistantly round the periphery of a small hub or former. In a simple form the hub may consist of a cork about 1½ in. in diameter. A strip of paper is cut long enough to go round the edge of the cork, and marked off into 17 equal sections. The paper is then gummed round the cork and a large pin or panel-pin as used by cabinet-makers, is pushed into each section on a straight line with diameter of cork as shown in Fig. 9.

No. 22 double cotton covered wire should be used for the winding which is commenced in the following manner: Take two turns of wire round one of the pins and leave a free end of about 6 in. Hold the former in the left hand so that it is edgewise to the body. Take the wire round the left of the next pin, round the right of the next, left of the next, and so on until the required depth of winding is obtained. The method is clearly indicated in Fig. 10.

It will be seen that every time a complete turn is made round the former the wire will be on the opposite side, thus producing the basket appearance. This is due to the odd number of spokes. Whatever the number employed they must always be odd, and not less than 13 should be used.

The coil will now require fixing. This is done by dipping the wound former in melted paraffin wax and then taking it out again and shaking it well so that only just sufficient wax is left on to make the coil rigid when set hard. When the wax is thoroughly set, the pins are carefully drawn out with a slight twisting movement, and the cork removed from the centre. Fig. 11 shows the completed coil ready for use. A simple method of mounting the coils is shown at Fig. 12, where they are arranged to slide along a short length of round, wooden rod, slightly smaller in diameter than the inside of the coils, secured at one end to an upright support attached to a suitable baseboard. Short lengths of flexible wire should be soldered to the ends of the coils, and these can be connected to terminals provided on the baseboard or made long enough for connections direct with receiver.

Two or three coils are used at a time according to the circuit in which they are employed. The coupling is varied by the simple sliding movements. A more elaborate way of mounting them is to fit each coil to a plug having two pins to engage a socket, a favorite method amongst manufacturers.

An alternative method of constructing these useful little coils is shown in Fig. 13. A disc of thin sheet fibre about 3½ in. in diameter is divided into 9 equal sections and slotted as shown. A circle, 1½ in. in diameter is drawn in the centre and each slot is cut down to the edge of same. The method of winding is clearly indicated in the diagram. The former in this case remains a permanent fixture, and to fix the winding it is only necessary to apply a thick coat of shellac varnish and bake it in the oven. A depth of ½ in. winding will be found suitable for wave lengths up to 300 metres, ¾ of an inch up to 400, 1 inch up to 600, and so on.

A convenient and inexpensive way of mounting these coils is indicated in Fig. 14. Two pieces of wood, ½ in. by ½ in. and about 4 in. long, are slotted to a depth of 2½ in. The coils should fit tightly into the slots, but not tight enough to rub the insulation off the windings. These are attached to a base at the lower ends with two small hinges. A small knob is provided on each piece for varying the coupling of the coils. If three coils are used, the centre coil support would be permanently fixed to the base. The general arrangement of this device will be easily understood by referring to the self-explanatory diagram.

ARE YOU USING FROST PARTS? SEE PAGES 2 and 3.

Before proceeding with other separate components it may be well, for the benefit of those readers desiring to assemble a simple outfit, to describe the making of a crystal receiver suitable for the reception of telephony within a range of 30 miles.

For the best results the inductance coil should be wound to just cover the wave-lengths desired. Any excess of winding beyond this will affect the strength of the signals owing to the resistance offered to the circuit by "dead end" effects.

The conventional 12in. by 4in. coil is quite in order where the enthusiast wishes to receive spark signals, but when it comes to tuning in to the low wave length of 2BL and amateurs on the same coil, only a very small portion of the winding is brought into use, and the remainder constitutes a "dead end." An ideal coil for wave lengths up to about 450 metres would be about 3in. in diameter by 3in. or 4in. long. The length will depend on the amount of wire put in the aerial. A coil 3in. long would be suitable if the full 100ft. aerial was employed, but if circumstances permitted only a very short aerial, the coil should be proportionately longer. Perhaps this is best explained by saying that the aerial itself possesses a fixed wave length value,

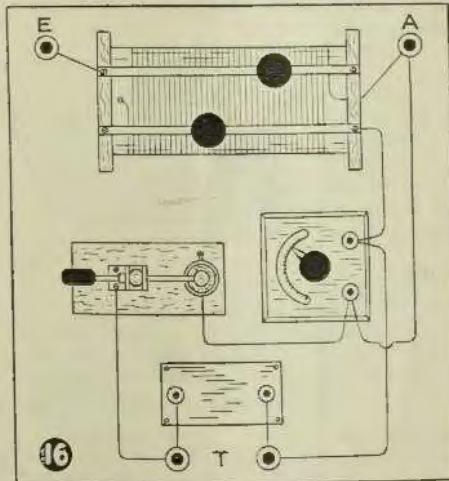
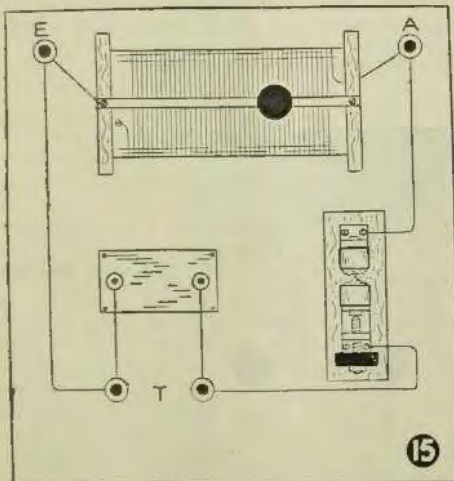
and if it could be made long enough to correspond or synchronise with the wave length of the transmitting station, one end could be connected direct to the detector, and no tuner would be required.

However, about 100 feet of aerial wire is advisable, and as this amount represents approximately 100 metres, we have to connect it to a coil wound with a sufficient quantity of wire to make up the required wave length.

Crystal Circuits.

The four circuit diagrams (Figs. 15 to 18) represent respectively a simple crystal receiver employing a single slide inductance known as a single circuit direct coupled receiver, and probably the most popular outfit amongst beginners (Fig. 15); a crystal circuit employing a two-slide inductance with a .00075 mfd. variable condenser connected in parallel across the "secondary" (Fig. 16); the back of a panel of a crystal set employing a tapped inductance with one multiple switch and a variable condenser (Fig. 17); and ditto of a crystal set having a tapped inductance with two multiple switches for coarse and fine tuning as described in Part 1 of the series (Fig. 18).

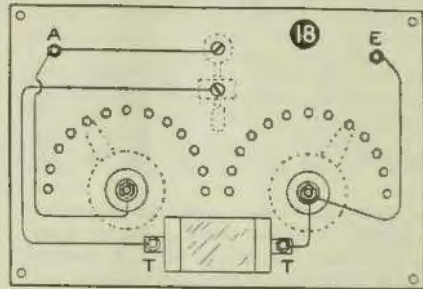
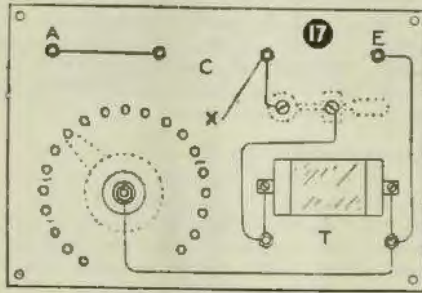
These diagrams being self-explanatory need only a brief description. The single slide set is extremely simple to construct, and if the most im-



SEE THE FROST LINES ON PAGES 2 and 3.

portant item, viz., insulation, is carefully considered, it will give very efficient results. The base-board should be large enough to accommodate the three components and terminals, and should be

The method of connecting up this set is as follows: The dead end or "blind end" of the coil is on the left. The "live" end of the coil is connected to the aerial terminal A, and if it is long



made from a piece of perfectly dry wood. This is most important. The easiest way to make the base board is to obtain an old picture frame of suitable size, remove the glass, etc., and fit in a sheet of three-ply wood. This leaves sufficient room underneath for the connecting wires. If a solid base is used it will be necessary to provide a small leg under each corner high enough to prevent the connection wires touching the table when the set is in use. These wires may be of the same gauge as the coil winding and insulated with "Systoflex." All joints should preferably be soldered, and where this is not possible great care should be taken in screwing up a nut that the wire underneath the nut is not sheared off.

enough continued to the detector crystal cup, or in the case of a Perikon detector to the stationary crystal cup. If too short, a separate length of wire will be required to reach the crystal cup. This insulation should, of course, be scraped away where it makes contact. Another length of wire connects the detector arm to the nearest 'phone terminal, and is continued to one of the terminals of the 'phone condenser. The next wire is connected first to the other 'phone condenser terminal, then round the other 'phone terminal, from there to the earth terminal E, and from there to the left-hand end of the slider rod.

The same remarks apply to the two-slide set, and the wiring is clearly shown in the diagram.

Fig. X2.

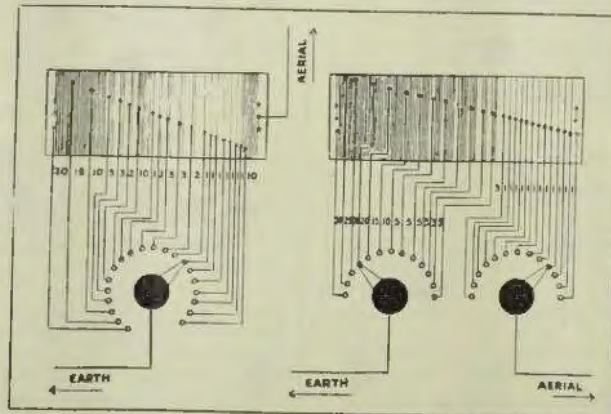


Fig. X3.

WHAT ARE FROST LINES? SEE PAGES 2 and 3.

It is only necessary to add that the wire from the aerial terminal to the variable condenser, should be connected to that terminal of the condenser which is in contact with the fixed plates. A good rule to remember is "in on the fixed—out from the moving." Similarly, in the case of crystal detectors, "in one the crystal cup—out from the arm."

For those desiring a more elaborate outfit, the use of a tapped inductance enclosed in a cabinet is recommended. The method of winding these coils was fully dealt with in *Wireless Weekly*, August 1st. We will first take the coil (Fig. X2) having twenty tappings, including one of the end of the winding. It is assumed that the cabinet is made large enough to accommodate the coil, and that the ebonite panel has been nicely fitted to the top. A circle is drawn on a piece of paper, having a radius to correspond with the radius of the switch-arm, and marked off into twenty equal parts, each section being slightly smaller than the width of the end of the switch-arm blade so that as the blade leaves one stud it will, at the same time, begin to make contact with the next and not fall between them.

This paper pattern is pasted on the panel in the position shown, and the ebonite is carefully marked off and drilled. The paper is then removed, and the twenty contact studs and switch-arm fitted to the panel. The connecting wire, previously soldered to the switch-arm bush, is taken to one of the 'phone terminals T, and on to the earth terminal E, and the other 'phone terminal is connected to the screw of the detector pillar. The two centre terminals C are provided for a variable condenser for finer tuning, one being connected to the crystal cup screw, and the other to the aerial terminal A. If a condenser is not used it will only be necessary to bridge these two terminals with a short piece of wire, thus bringing the aerial terminal in direct contact with the crystal cup. The wire X represents the end of the coil winding, which was left for connecting up purposes (right-hand end in Fig. X2). The tappings taken from the single turns are first connected to their respective studs commencing from the lowest stud on the right, and continued each, in turn, until all the studs are connected up. A 'phone condenser is shunted across the 'phone terminals as shown, and screwed to the panel.

Having carefully examined every connection the panel and coil can now be turned over and placed in position on the cabinet. Before screw-

ing the panel down to the top of the cabinet it is advisable to first test the receiver. In the reversed position the aerial terminal will be on the right (the panel is turned over to the left from the position shown) and the earth terminal on the left. This fact should, of course, not be lost sight of, and the letters A, E, T and C should be gummed on the panel near their respective terminals. If desired, the 'phone condenser can be attached to the side or base of cabinet, allowing longer leads to reach the 'phone terminals.

The next diagram shows the general arrangement of the back of the panel for the receiver employing the tapped inductance (Fig. X3), with two multiple switches for coarse and fine tuning. All the single turn tappings are connected to the series of studs on the left of the diagram, commencing at the stud on the extreme left, and continued in the manner just described. It will be remembered that in this case both coil ends are counted as tappings and connected to the two outside studs—the aerial terminal leading direct to the fine tuning switch-arm, and the earth terminal to the coarse tuning switch-arm. The wiring is clearly shown in the diagram. The 'phone condenser is connected direct to the 'phone terminal shanks. This method is always permissible when space is limited. When the panel is reversed and mounted, the coarse tuning switch-arm will be on the left and the one for fine tuning on the right. Similarly, the aerial and earth terminals will be reversed, and this should be carefully noted.

In either of the circuits described the 'phone condenser may be omitted if desired. It is sometimes wrongly supposed that by using a 'phone condenser the signals will be louder. A 'phone condenser does not improve the quantity of sound, but the quality—it improves the tone, and this is all important where telephony and music are concerned. When a valve or valves are to be used it is even more advisable to employ a telephone condenser.

The Waiter (proffering bottle)—Now this, sir, I can recommend highly; this is five-year-old cognac to which the proprietor has added three-year-old brandy to make some especially fine eight-year-old stuff.—*Le Ruy Blas* (Paris).

Crawford—Who was that man who said he was never kept waiting in anterooms? Some big politician?

Crabshaw—No; bootlegger.—Judge.

WHAT ARE FROST LINES? SEE PAGES 2 and 3.

INTERSTATE NOTES

VICTORIA.

Art in Wireless.

FOR some reason, most of the artists who illustrate wireless subjects, seem to have lagged behind the march of modern progress and in a word become mere camp followers. Particularly in commercial art this is a very big blunder. Have my brothers of the pen and cousins of the brush not realised that pictures of fearsome lightning flashes and obsolete apparatus emitting sparks that were never seen on sea or land, are very unsettling to timid people and likely to spoil sales? A paper published not a thousand miles from Sydney and displayed on some bookstalls recently asked in Mephistophelian accents, "Have you got your wireless set yet?" And emphasised it with a blood-curdling, "close up" of a compelling female done in red with flashes of lightning. Artists who deal in symbolism, would do well to reflect that it was not Caliban, but Prospero's "Dainty Ariel" who could "put a girdle round the earth in forty minutes." Something dainty, next time, Mr. Artist, if you please! You frightened buyers last time.

Bluff—or Sheer Ignorance?

Listeners-in would possibly never hear any good of themselves if some dealers and others had their way. It rather tickles the present one's fancy to have a laborious elementary explanation launched at him by some technical expert in response to a meek enquiry why the thing won't work. Usually the "elementary" part consists in blaming the elements. This is poor salesmanship. The elements we have always with us, and if static is really as insurmountable and frequent an occurrence as its traducers insist, why not scrap wireless sets and sell a good, dependable phonograph? If, after all, the meek enquiry and the laborious explanation, one drops a little remark about some technical point, just enough to show one's hand, how different the expert becomes! Usually he is an enthusiast, and half an hour with him is well spent. Why does he not devote an equal half hour to placing the plain facts before customers who know nothing? An ounce of fact is worth a ton of bluff over the counter.

Martian Signals.

A matter of thirty-four millions of miles does not deter the long-distance lyricist from his extravaganzas. Poor old Mars must feel like a multi-bigamist with so many pars devoted to her of late in the peripatetic press. If some ultra-pressman in Mars did lately go off his dot, and dash code signals down to us during his late propinquity, what would it all be but unintelligible gibberish, and not even composed of English words like some of his afflicted brethren use in earthly prints! These latter seem to imagine that the Martians, if any, talk some such variant of our mother-tongue as they use at Oxford or Boston. The latest theory seems to be that the Mars-upials up there use a sort of hieroglyphic or picture-writing. Some alleged code signals received showed "an arrangement of dots like crudely-drawn faces." Why the unfortunate folk in Mars should make faces at us is best left to the imagination that sees them. The gentleman with a similar name, Marconi, very properly announced that he "couldn't be bothered" listening for signals from Mars. The evidence for their "expectability" is not very strong and it is greatly exceeded by the improbabilities—(a) that they understand and use the Morse Code, which was invented some ages after Mars was; (b) that they should be at the exact stage of development that we earth-dwellers have reached; (c) that they think and act along the same lines as we consider (or at any rate as writers for the popular press consider) intelligent. There are some folk who would believe you if you told them that Mars had gone red in the face shouting to make himself heard on earth. These long-distance tales ought to be put in the "In D X Expurgatorins of Wireless."

A.R. .06 Valves.

It is surprising how few among the foremost experimenters know about the English Dull Emitters now obtainable locally, and fewer still appreciate them. When an experimenter is asked for advice, he most obligingly gives of his very best, but there are times when his very length of tenure

ARE YOU USING FROST PARTS? SEE PAGES 2 and 3.

of the experimental title makes him—forgive me, brother, a "back number." Ediswan A.R. .06s are obtainable in Melbourne. They cost about the same as their American cousins of the U.V. variety. They operate on 2 dry cells, using .06 amps., and anything from 40 volts on the anode. Their freedom from microphonic noises is very noteworthy, and they certainly don't require a rubber pad like other valves we wot of. Why don't leading experimenters experiment in practical tests of apparatus, and keep in touch with modern ideas instead of paddling around in the backwaters of Morse operation? It is often urged, and justly, too, that experimenters should give assistance to beginners in broadcasting, but the specialist in D. X. code is not necessarily the best advisor for a novice longing to hear 3 A.R. or Braybrook.

"Guides, Philosophers and Friends."

When lovely woman stoops to folly, and finds too late that men betray, she is not so very unlike the guileless B.C.L. who goes to an experimenter for advice as to an outfit. A funny case of the sort was reported at a recent club meeting. A very amicable elderly country gentleman wishing to beguile the long winter evenings with music from afar, commissioned a young wireless enthusiast to construct him a set. On installation, nothing could be received, not even the "engaged" signal coming through! Of course, the country gentleman did such minor preparations as erecting the aerial and connecting to earth, himself. He appealed in vain to the young constructor for aid and at last took his set to the nearest club, where the wise looked into it closely, and found the telephone diaphragms touching the magnets. Thus fault number one was rectified; some sort of reception was then achieved on a loop at the club rooms, but still nothing at the home end. So more investigation was brought to bear on the set by enthusiastic researchers. A valve was added (making 3) and minor adjustments made, still nothing worth mentioning resulted. So a city expert was called in, and found a sulphated and inadequate accumulator was the cause. This was revived. Still no result. Then a perfectly harmless and abashed neighbour, who hardly knew a radio transformer from a reel of pink ribbon, stepped in casually and remarked that the aerial was not too picturesque. It looked rather down in the mouth, like its owner. So he chopped about ten feet off it and made its ways straight. Likewise, he rooted

around the earth connection and found it riding on the water pipe with as much ease as the slide on a bad loose-coupler, so he soldered that down with a firm hand. These things having been accomplished as Julius Caesar used to write, the two neighbours went inside and listened-in, and behold 3A.R. and 2B.L. and others discoursed music to beat the band! It is pleasing to add that the harmless and abashed neighbour is at least a humble member of the same club as those that dissected the set, for he appears to have saved the face of the club. The wise ones forgot the simple old rule that to locate your fault you should first examine everything exactly as it stands. Aerial and earth are as integral a part of the wireless outfit as the telephones or the accumulator.

Wireless in Crime.

The utility of wireless in crime must, of course, be undoubted, so long as it is used only by one side in the game. What is to happen when the criminal intercepts messages, or sends out a bogus message, should prove rather a stimulating problem for Melbourne wireless police and others interested. Someone would be feeling sad if the tireless wireless car travelled at approximately 186,000 miles per second towards one point of the compass in response to tap-taps over the ether, while the tappers' confederates were also exceeding the speed and other limits in an antipodal direction, where gold or other objects of criminal interest did much more abound. To some extent, this is overcome by cryptogrammic or coded messages, but there are always inquisitive retailers of misinformation about who might misappropriate even such a system.

"Listening-In."

While on the subject of crime, a more amusing episode is worth noting. Some time ago a publican in one of the suburbs was prosecuted for allowing drink to be consumed on his premises during prohibited hours. His excuse was that he had just acquired a wireless set and he and a few friends were "listening-in" to the usual ceremonial of "wetting it." The Bench evidently considered that the time chosen was an unsuitable one and imposed a fine. It is, therefore, illegal to be a "listening-inn" enthusiast after 6 p.m., unless you can achieve reception among the "best sets."

WHAT ARE FROST LINES? SEE PAGES 2 and 3.

Ebonite Again.

An experienced wireless mechanic tells me that the polishing of ebonite, if not exactly a fine art, requires infinite patience. Just as French polishing can be done in five hours or five minutes, according to the taste and skill of the polisher, so it is with ebonite. A good rub down with two or three grades of emery cloth, starting with 1½ then bathbrick and oil, will produce a smooth lustrous surface, but if you want a glossy coat on it, like a prize cat, or like ebony wood, finish with rollstone and rouge. It may not be worth it, but those who like to have everything in keeping get somewhat annoyed at the inelegant variety of ebonite surfaces presented even on expensive sets. First the dull panel, then perhaps a moderately shining knob on the rheostat, cheek by jowl with your glossy condenser dial. If a bright little thing in bakelite mixes in too, the total effect is what they call bizarre in the best sets.

Malvern Club Entertains.

A sprightly programme was provided by Prahran and Malvern Club on August 20th, in order to augment the fund for providing Anzac Hostel with a wireless outfit.

This Club is one of the largest in Victoria, but in spite of excellent weather conditions, the Malvern Town Hall was not by any means full. The only "jamming" occurred when a wireless demonstration was attempted. Static was bad, but surely the Club could have rigged up a better aerial and not fallen back on the chairman for the usual apologies. It is, of course, all very well for an outsider to criticise, but in the case of wireless, the outsider is in the majority, and poor reception by master spirits is bad for trade. The weather conditions were certainly blameworthy, but there is a danger that we will take to spelling the official delinquent's name with a "C." and call it Catmospherics. It would at once domesticate the excuse, and after all, wireless is becoming domesticated.

WESTERN AUSTRALIA

FOR the first time subscribers to the broadcasting station of the Westralian Farmers Ltd., were treated to a concert from one of our music halls on Thursday night, August 28th. The entertainment was broadcasted from the Queen's Hall, it being the occasion of the second and last recital by the violinist, Ivan Gladinoff.

The event was a success, the applause at the hall of course, being particularly distinct. Some trouble was evidently experienced at the last moment, however, in respect to the broadcasting of several of the supporting artists at the hall, consequently the intervals between the violinist's playing were filled in by the studio artists. On the whole, considering that this is the first time 6WF has undertaken the relaying of classical concerts, any hitches which may have occurred might well be overlooked and the management congratulated on their initiative.

6WF has now been successful in obtaining permission to link up with all of Perth's theatre and entertainment halls; the result is that the work has been carried out and hereafter any concert of interest will be broadcast to all the States. Once again readers' attention might be drawn to the fact that the value of this style of broadcasting cannot be overrated in its convenience to the "man on the land," hundreds of miles from the city; as one of my friends described to me, "miles from Perth and thousands of miles from heaven."

It has come to my knowledge of late that many of our amateurs have been hearing Sydney on one valve. Fired with this achievement I myself wired up a single valve and crystal "reflex" circuit, and endeavoured to pick up the carrier wave of 2FC. It was not long before I was successful and after considerable "nursing" brought it in sufficiently loud enough to hear the strumming of music behind. I concluded that this was Sydney, as the carrier wave cut off at 8 p.m. Reports have reached me to the effect that the station is being heard on a valve detector alone! I think that this is something of an achievement; further particulars of this will be published later.

An amateur went into one of our local stores the other day and mooched about looking at things, as we all like to do. After a while the departmental manager came along and something like the following conversation took place:

Manager: "Here, let me sell you a good plug."

"Nope," friend Amateur replied. "Haven't got the jack."

Listeners in, particularly the farmers out-back, were very surprised, and undoubtedly pleased, to hear the announcement the other night from 6WF that the full opera from La Boheme would then be broadcasted. Questioning faces gazed in-

(Continued on page 35)

SEE PAGES 2 and 3 FOR FROST LINES.

CLUBS AND THEIR MANAGEMENT

MAINTAINING THE INTEREST

By A. Burrows.

No. 1.

CLUB life seems to be, in many ways, a half-and-half affair. Or, to put it less forcibly, the clubs have not kept pace with the times. Never, throughout the five years in which I have been actively associated with club work, has it appeared to me that the clubs realised their opportunities, or if they have, the chances have not been availed of.

It is true that the number of clubs has recently greatly increased; but even so, this increase has not been anything like that of those actively—and experimentally—interested in radio.

The chance of capturing the enthusiasm of these newcomers has been lost. And now that these beginners have drifted into their individual interests, and channels of information have been found elsewhere, it will be doubly hard to make them see the advantages which a properly conducted club can offer. However, the chances missed were probably shared by every club which was in existence about two years ago. All that remains now is to make good the remission, and devise means by which similar failures can be avoided in the future. And so far, as my experience has shown me, there are definite rules which, if modified and adjusted to meet different circumstances, will go far in making a club a success, and—which is far more difficult—in maintaining it at that pitch.

Flagging Interest.

It is here, perhaps, where so many clubs, launched with great vigor and enthusiasm, fall short. The interest—that “live” touch—is not maintained. Its falling away is not necessarily a sudden, clear cut process; it is more than often an almost imperceptible rot, which happens and has accomplished its purpose before anyone is aware of it.

These terms by no means over-state the case. Practically every club has passed through this phase at some time, and probably, in the older bodies experienced it more than once. And how many clubs have completely succumbed to this dry-rot, or are only remnants of their earlier prosperity?

It can safely be said that more than 90 per cent. of the failures (and the bare fact that a club is still in existence is not proof that it is not a failure) are due solely to waning interest.

Now, all this sounds like so many platitudes—anyone knows that a club goes “dead” because its members have simply lost interest in it. The question is, of course, what can be done to maintain the members’ enthusiasm. But before this can be tackled, the fact should be fully realised that, in most cases, it is this lack of interest which brings about a club’s downfall. The other reasons are few, and can be summed up in a few items: Difficulty of finding a regular meeting place; failure to reach unanimity on the question of a meeting night, and disbandment for unavoidable reasons (such as members leaving the district). All of these are subject, of course, to purely local and individual conditions and need no comment. In all these instances it can be assumed that the disbandment is a matter of regret for the members, and is entirely unavoidable.

What applies to a club or association on the down-grade will also apply in most cases to a club in its normal and healthy state. A club is always subject to its “off” periods, and it is these which need to be guarded against. And this introduces the point, which, in my opinion, is the keynote of club life, and particularly that of radio clubs.

It is a business axiom that a concern is never really in the same condition for any length of time—it is either going up or down. That this applies to clubs, will, I think, be confirmed by those with a little observation. Never does an association remain in what is called its “normal” condition for long—for if it does it will assuredly start on the down grade. And to counteract this things should be kept moving.

This seems to offer the objection that a club cannot be continually on the up-grade; it cannot go on thus ad finitum. So far as numbers are concerned this is true, but with reference to the actual activity of the body the contrary holds

(Continued on Page 34, Col. 2.)

ARE YOU USING FROST PARTS? SEE PAGES 2 and 3.

ELIMINATING INTERFERENCE

By W. A. Stewart.

NOW that we have two broadcast stations in our midst, more and more receivers are making themselves felt, or shall I say heard? More and more single circuit sets are being used, and more and still more B.C.L's are anxious to tune out Farmers if they live at Willoughby, or Broadcasters if they live in Phillip St., or even V.I.S. if they live at Epping. All this and more is often expected of the single slide crystal set, mind you, and if the least bit of interference is experienced, a terrible moan rends the air and there is sundry gnashing of teeth and tearing of hair.

No one ever stops to think that the trouble lies in the receiving end of the business, all blame being laid on the much-abused Commercial Station or nearby amateur transmitter.

If you live within a few blocks of another station, probably the best means of cutting out the interference is to move to another suburb, or induce the transmitting station to do so. If, however, you are more remotely situated, here are a few things that can cause interference:—

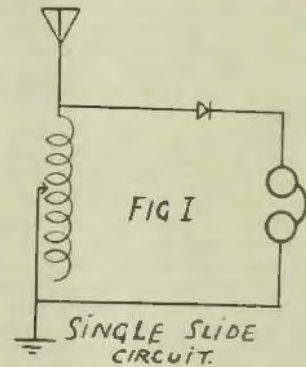
1. A long aerial.
2. Direct coupled circuit.
3. Poor quality or inefficient apparatus.

Take the first case. A long aerial or earth lead causes broad tuning although a long aerial brings in slightly more volume, a shorter aerial, while not giving as loud results, will be more selective, and very little difference in the strength of signals is experienced.

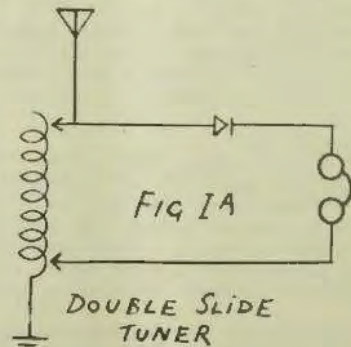
A long earth lead also tends to make the tuning broad, and if a long earth lead has to be resorted to, use a cage lead in from the earth itself. It will often be found that an insulated earth lead will also improve results; the lead should be taken to the nearest earth, not to the surrounding buildings, and as much attention should be paid to the earth as to the lead-in from the aerial.

An aerial from seventy to eighty feet long, with a lead of thirty feet, is ideal, and the earth lead should be only as long as is necessary. Keep the resistance of the aerial as low as possible, as a high resistance circuit will NOT TUNE SHARPLY. A Cage Aerial is a help in this respect; although entailing a little trouble, the results are well worth it.

Let us deal with the second example. Under this heading I think I can also discuss tuners in general, as a good tuner makes or breaks a receiver.

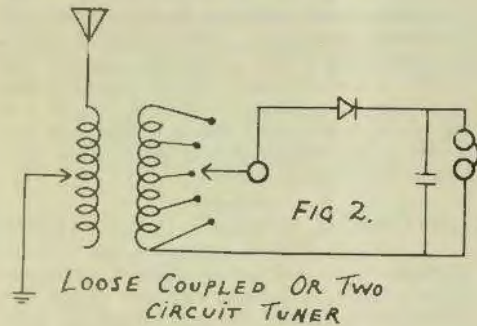


If a single slide (Fig. 1) crystal receiver is being used and the interference is only slight, probably another slider will fix matters up.



The circuit is shown in Fig. 1A, and as will be seen is quite a simple matter to instal, nothing being required except a slider and screws for mounting it. If the interference is very pronounced, a two-circuit tuner or loose coupler, as it

is often improperly called, will have to be used. The standard loose coupler circuit has been illustrated numbers of times, and is, I think, quite familiar; however, it is shown in Fig. 2.



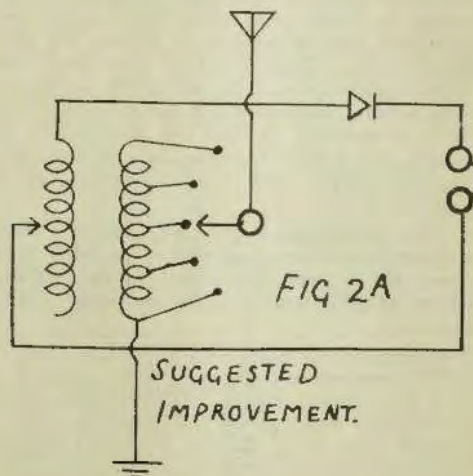
The tuning of this circuit is a little harder to manage, but a little practise will make it simple. In tuning, the primary or outside coil is adjusted to the approximate wave length of the transmitting station. Adjust the secondary so that it is half in and half out, and the switch arm at the end on the centre stud. With one hand vary the switch, and at the same time move the coil until the station is heard the loudest. If interference is experienced on this tuner, a little juggling with the coupling and switch arm will work wonders. However, more can be done by practical work than all the talk in the world.

If you are building your own loose coupler, it will usually be found better to use the inside or what is usually the secondary circuit for the aerial coil, and the outside or primary circuit for the secondary, as shown in Fig. 2A. Instead of connecting the secondary to the crystal detector and phones, connect it to the aerial and earth. Then connect the slider to the catswhisker arm, and the phone terminal to the end of the coil; join the other phone terminal to the crystal cup. You will then be able to get much finer tuning on the secondary circuit, which is the most important and coarser tuning on the aerial circuit. This idea is used on navy tuners, and will give fine tuning.

If you already possess a single circuit set, here is a simple and inexpensive way in which to make it selective. On a three and a half inch former, wind 100 turns of 24 or 26 D.C.C. (the gauge is not very important), tapped at every ten turns. These taps are connected to a switch and ten

studs. Next wind six turns of 18 or 20 gauge D.C.C. wire round the tuning coil of your present tuner. Connect one end of this winding to a terminal, which will be the aerial terminal, and the other end to the beginning of the tapped coil; connect the switch arm to another terminal for the earth connection. Remove the aerial and earth from the old set, and connect to the terminals already specified. You then have a two-circuit tuner with fixed coupling. In operation the set is quite simple, the tuning being mainly done with the slider. The adjustment of the aerial circuit is fairly broad when compared with the secondary circuit. For clearness, I have illustrated the circuit (Fig. 3) to prevent anyone going wrong. The dotted lines illustrate the winding of the six turns.

If you have trouble in deciphering the mystic signs used in the drawing of these circuits, I would like to call your attention to "Wireless Weekly," Sept. 5th, in which a complete list of the conventional signs used and their equivalents was printed. This will then make these circuits clear to all. A circuit such as this can be incorporated on any set, valve or crystal, and will go a long way towards making the tuning sharp. A variable con-



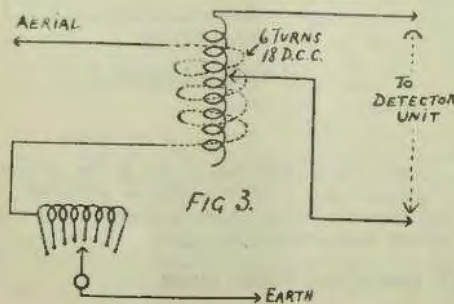
denser for getting fine tuning in the secondary circuit of any receiver is also an advantage, but it must not be very large—a seventeen or twenty-three plate being ample.

PAGES 2 and 3 TELL YOU ALL ABOUT THE FROST LINES.

A wave trap or rejector circuit is another means of eliminating interference, and usually takes the form of a coil and a condenser for tuning purposes, coupled to the aerial circuit. This is adjusted to the wave length of the station it is desired to eliminate, and the tuning is carried on in the usual way. This is made use of in the Cockaday four-circuit tuner, which is one of the most selective circuits ever invented. Another means of fining up the tuning is to insert a small fixed condenser in series with the aerial; this condenser should have a capacity of approximately .0001 or .0002 mfd. If a valve is used, this condenser will enable the user to go down to much lower wave lengths than usually. It will also make the aerial tuning constant; that is, any size aerial can be used without altering the tuning to any great extent. This feature is a particularly good one, as it enables the receiver to be calibrated from a wave meter, and different size aerials will have little or no effect on these calibrations.

In reference to the third section, let me say that the best is none too good, and only the best tuning components, such as coils and condensers, especially should be of the best, as they practically make the tuner. Use thick wire wherever possible, and wind all inductances on thin, dry cardboard tubes. Coils should be kept away from other components, and the set should be laid out with a view to keeping the leads as short and direct as possible. I think this about covers the subject, and if the few simple ideas set down here are followed out, little or no interference will be experienced.

The transmitting stations, both amateur, broadcast and commercial, round Sydney are fairly finely tuned, and if more care is paid to the receiving equipment, little trouble will be the result. Here



is a case in point. Several amateur stations have been accused of broad tuning. One night during the week I received 'phone from Station 2 Y.I. on a condenser setting of forty on my receiver, and on condenser setting forty-three, Station 4 A.G., New Zealand was coming in strongly without any interference from 2Y.I. This station, 2 Y.I., is the loudest one I hear among the amateurs, and is only a short distance from my place. I don't think there is anything wrong with this for tuning, and it demonstrates that if a little more care is paid to the receiver, less of the so-called interference will be experienced.

SUCCESSFUL WIRELESS INSTALLATIONS

The Burgin Electric Co., advise that their representative has successfully installed a "Burginphone," Model 9 (5 valve receiver) in the Condobolin Public School. At tests carried out during this installation it was demonstrated that during the mid-day transmissions from Farmer's broadcasting studio in Sydney, it was possible to hear clearly and distinctly the words, etc., at a distance of 350 yards from the school. This particular distance was paced out by the representative. At night time the people on the hotel verandah 600 yards away could hear the announcer from Farmer's very plainly.

Considering that Condobolin is about 250 miles air line from Sydney, this performance is on a parallel with a demonstration given by a similar instrument, during the recent Bourke tests.

A further installation has also been effected by Burgin Electric Co., at the West Maitland High School, where the Principal, after exhaustive tests has decided that the "Burginphone" 5 valve receiver can give her every degree of satisfaction in the day time; of course this was naturally much stronger in the night time.

On Wednesday night, the first time "grand opera" has been broadcasted in Australia, the school hall was full with over 150 people in it and they all listened to the excellent reproduction of the grand opera by wireless. On Thursday night, the second night of the grand opera transmission, the Principal again entertained quite a large number of friends to perfection.

These are practical instances of where wireless is of actual advantage to the schools, and the Burgin Electric Co. are confident and are prepared to guarantee that their machines will reproduce on a loud speaker anywhere within New South Wales under normal conditions. The sets used in both the above schools are of the 5 valve type.

BATTERIES

By Catswhisker

THIS week I intend to explain what an "A" battery is and what a "B" battery is, and the difference between them.

Every day I am asked the question "What is an A battery and what does it do?" I think this subject will interest many readers. An A battery is used for lighting the filament of a valve, as the power lights our electric light globes.

Now, every substance is composed of Molecules. When substances are heated to a certain heat, these molecules fly away from the heated substance. The action of a valve largely depends upon this principle. The filament is, therefore, heated so as to cause particles to fly off it, and the A battery does the work of heating the small wire filament. The voltage or pressure of an A battery is usually 4 or 6 volts. An A battery can be either "dry" cells or an accumulator of suitable voltage. Valves using .06 of an ampere, can be lit from dry cells, but valves taking .25 to 1 ampere, require an accumulator for the most economical results. I have found that an accumulator as an A battery is cheaper in the long run, as dry cells cost about 9/- per set, and have to be scrapped when run down; but an accumulator costs anything from £2/2/- or a little less and is always usable if kept charged.

If dry cell tubes are used, little current is consumed, so that the accumulator need not be charged very often. If you work out the cost, you will see that in two years, or less, the accumulator is the cheaper. Dry cells run down when not in use, and their action is not so steady as that of an accumulator.

Now for B batteries. B batteries are used to supply a positive potential, or pressure, to the plate of a valve. On no account should the B battery be allowed to be connected across the filament terminals, or you will be paying a visit to your radio dealer for a new valve. Every valve needs a positive potential on the plate, so that it may operate. B batteries are usually of voltages from 30 to 100 volts, according to the purpose for which they are used. A detector valve generally requires from 20 to 30 volts on the plate whereas amplifying valves take 40 to 100 volts on plate to give best results. B batteries can also be accumulators instead of dry cells, and a few weeks ago our

friend "Insulator" gave a description of how an accumulator B battery can be made at home.

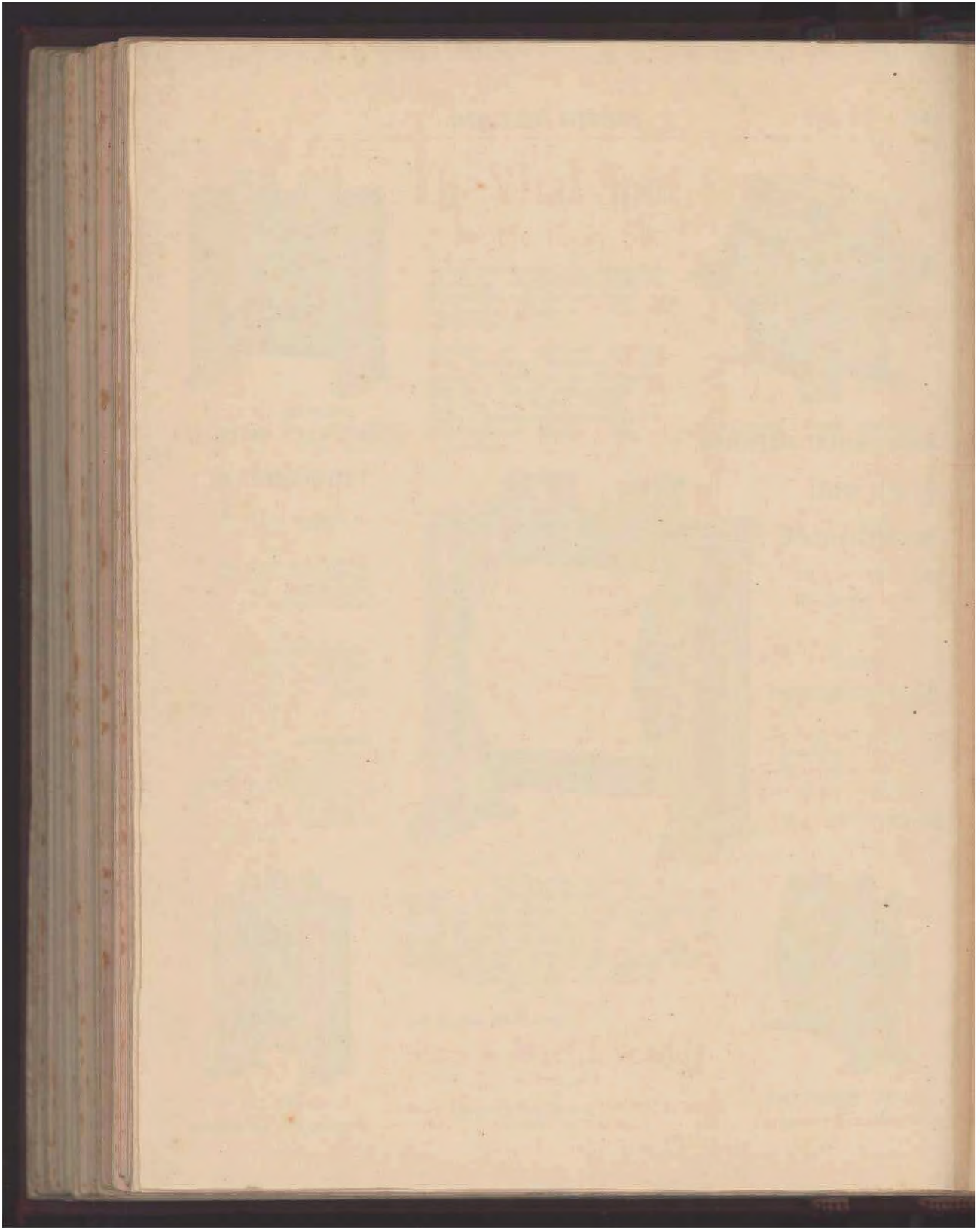
In connecting up the A and B batteries to a valve set, the A battery is connected to one filament terminal of the valve socket and the other to one terminal of the rheostat and from the other terminal of the rheostat to the remaining filament terminal of the valve. The rheostat is used to control the brightness of the filament.

The negative terminal of the B battery is connected to the positive terminal of the A battery, but remember any positive terminal of a B battery is never connected to the A battery. If the negative of the B battery is connected to the positive terminal of the A battery, you have an extra 6 or 4 volts B battery, as then the A battery acts both as A and as an extra to the B battery.

When the B battery is getting old, many peculiar noises are heard in the phones. This is caused by the generation of gas in the dry cells of the B battery, which should then be replaced by a new one. To test this, pull the aerial and earth wires off your set, and if the crackling noise is still present, providing all connections are tight, your B battery is faulty. Very often static is blamed, when really the B battery is ready for replacement.

It is a very good plan to place a good mica dielectric condenser across the terminals of the B battery, as this often reduces noises. Be sure you get a good fixed condenser of capacity .002 upwards, and test it periodically or you may find that it does more harm than good. If you have a faulty condenser, the B battery will be short circuited by the condenser and will run down. By short circuit I mean that the battery is being discharged through a path of very low resistance. If a low resistance is placed across a battery of any kind, the latter will be injured. Another useful tip is to place 400 ohm potentiometer in series with your detector B battery terminal and the battery itself as a rheostat of high resistance. By doing this you can regulate the potential on the plate of the detector tube to a very fine degree, and so get the best results, as very fine adjustments of plate voltage can be got by this method.

(Continued on page 34)



The Name to Know in Radio

Wiles' Wonderful Wireless and Electrical Stores

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Table listing components for the KT. 100 Reflex Set including parts like 1 2 1/2" Coil, 2 Agate Transformers, 3 Neon-tube Audio Transformers, etc.

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Table listing components for the Single Valve Set including parts like 1 1/2" x 1 1/2" 2/10 Khamia, 1 200 Variable Condenser, etc.

Table listing Loud Speakers models like Grodan Horn, Western Electric Baby, etc.

Table listing Loud Speakers models like Amplion Senior De Reine, Amplion Dragon, etc.

Table listing Loud Speakers models like Pimont, T.M.C. Adjustable, etc.

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ESTAB. 20 YEARS Please address all communications to our Head Office, 60-62 Goulburn Street.

(Continued from page 31)

When you get your accumulator back from the charging station, get a damp rag and wipe all the acid from the outside top between the terminals, as this acid film has been known to give rise to crackling and hissing noises in the phones, while the set is in operation. A little vaseline on the metal parts of the accumulator terminals will prevent them from becoming corroded by the acid which gets on them.

I think after reading this you should have an idea of what each kind of battery is used for and you will not confuse the A and B batteries when connecting up the set. Remember A battery terminals to the filament of the valve; B battery negative to the A battery, and positive terminal of B battery to the plate of the valve.

Now, I almost omitted mentioning another battery and an important one. This is called the C battery. A C battery is usually a dry battery, and its voltage varies from $\frac{1}{2}$ a volt to 4 to 6 volts. A C battery is placed in the grid circuit of a valve to keep the grid at a negative or positive potential, as may be required. In amplifying valves a negative potential is required and the greater the plate voltage supplied by the B battery, the greater grid negative voltage will be necessary. The addition of a C battery to the amplifiers will make a great difference to the results obtained.

When constructing a set always have a rheostat for varying the filament current of the detector and another rheostat for the radio frequency valves. If you wish to get the best results, do not use one rheostat for two valves performing different work, but more than one valve may be controlled by the same rheostat if it is doing the same work as the others, such as amplifying valves; radio, or audio, may be controlled by the same rheostat, but have one rheostat for the radio valves and another for the audio valves. Always make the B battery leads of the detector, radio frequency and audio frequency valves, so that they may be attached to various tappings on the B battery. The detector will require a certain plate voltage, the R.F. valves another plate voltage, and the A.F. valves yet a different plate voltage to give best results.

A WONDERFUL DEMONSTRATION

A wonderful demonstration was held at the Warringa Hall, Neutral Bay, on Thursday night last; the occasion being the reception of Grand Opera from Her Majesty's Theatre—Farmer's service.

Harringtons Ltd. arranged the demonstration, and splendid results were obtained on an "Imperia" 3 valve set, operating a concert grand amplicon.

In opening the entertainment, Mr. H. C. Wal-

ker, general manager, of Harringtons Ltd., explained that his firm were doing what they could to educate the public on the subject of the broadcast listening in, and in view of the remarkable results and its effect on the audience, their methods are successful.

To the prospective listener-in, the most interesting item of the evening was furnished by Mr. Kingsley Fleming, manager of Harringtons Ltd., Radio Section. He explained in a series of talks just what takes place in the transmission and reception of radio speech and music, and Mr. Fleming succeeded in making many points clear.

If you should desire to attend one of these demonstrations which are being given in various suburbs, you may communicate with the manager, Radio Dept., Harringtons Ltd., 386 George Street.

(Continued from page 27)

good. For every business, society or club has always a tendency to go backward—it seems to have a natural "lag" which must be contended—and if an attempt is made to keep a club in its normal condition this lag will in the end pull it backward.

It doesn't follow, of course, that the energy expended in opposing this tendency should be enormous. All that is needed is some small departure from the regular routine; some feature of the meeting, no matter how insignificant, which will successfully counteract the natural tendency for the interest to flag. The enthusiasm of the members can never be relied upon to maintain the enthusiasm of the meeting—and there is a vast difference between the two.

The All-Important Executive.

Exactly what form this should take is a matter to be decided by a club meeting itself. There are a hundred and one ways in which interest can be carried from one meeting to the next—competitions, debates, "question boxes," lecturettes (lecturettes rather than lectures—it takes a better speaker than most clubs are fortunate enough to possess to hold the audience's interest for more than half an hour), and a dozen more original methods will suggest themselves. But it should be remembered—and this is worth repeating—the bare fact of having a weekly or fortnightly meeting is not sufficient to overcome that inherent lag which every club possesses.

It does not seem wise to always let the club meeting decide the procedure for each successive night. If this is done the matter very often is stale by the time it has been thrashed out. This matter should (with the meeting's consent) be left in the hands of the executive officials or committee,

who, if they are worthy of the positions they hold, will have the courage of their convictions. Providing these men have even a modicum of originality they will be able to spring a night's programme which will achieve its object far better than if it had been chewed over by the members previously. And if some of their pet ideas should occasionally fall flat, the members should realise the difficulties which their officers may have in pleasing them.

Everything, however, will depend upon the nature of the executive; and nothing could be more important than their possession of the confidence and sympathy of the meeting. The club's success depends upon having the right men in the right job.

(Continued from page 26)

to the light of their dull emitters, but their feelings were relieved with a jolt when the familiar scratching of a gramophone needle was heard. Things continued smoothly however, throughout the evening, and concluding with a few gramophone selections from "Dorothy," a fair imitation of a 2LO opera night was the result.

The 5 kilowatt plant of the Westralian Farmers is assembled and it is rumoured that a start will be made in testing at the end of this week. Great excitement is apparent amongst amateurs. It is thought by the "don't know too much" that the valves will not be able to stand the strain of the "enormous" (h-m-m) power. Indeed, it is also upon unofficial records that the receiving aerial will provide an admirable source of energy by which the charging of accumulators will be simplified (?).

Evidence of increased interest on the part of the wireless public here in matters wireless is very pronounced. Proof of this may be seen on a visit to any wireless store, where it will be found that in every instance there is in action a big rush on component parts; indeed, traders are wondering what they are going to do when all the present stocks are exhausted. Every trader has large shipments coming, huge orders that have been placed by several of our large emporiums, which carry radio departments: It is unfortunate, however, that, on the part of these large "houses" it is possible for them to cut their prices to an exceedingly low figure, thus, in no small degree affecting the all wireless stores greatly. A revival is on foot to establish increased interest in the radio clubs. The Subiaco Radio Society is having a lecture shortly, the subject being, "high frequency currents." A large hall will be secured for the purpose, and a good rally of local residents will

be assured. Attractive radio windows are doing a lot towards making the public "stop, look and listen," while many firms are exhibiting colourful posters advertising their radio goods.

A.R.R.L. ENDORSES ESPERANTO AND RECOMMENDS THE LANGUAGE TO ITS MEMBERSHIP.

After a two years' survey of the international language situation the American Radio Relay League, with certain qualifications, has decided in favor of Esperanto as its official international auxiliary language, this action having been taken by the A.R.R.L. board of directors at their annual meeting recently.

This decision was made on the ground that Esperanto is easily the chief of the auxiliary languages and has by far the greatest number of followers, with hundreds of thousands of users. Not wishing to enter upon the subject unadvisedly, the League first communicated with all of the national amateur radio societies of the world and all of these which expressed an opinion in favour of any artificial language recommended Esperanto.

Interest in an international language developed rapidly among members of the A.R.R.L., following the successful communications in radio telegraph code between transmitting amateurs in the United States and Canada and those in many foreign countries. The necessity for the endorsement of an auxiliary language has become particularly apparent as a result of the increasing interest of amateurs in international communication during the past year.

There is every reason to suppose, the A.R.R.L. believes, that radio communication in code between the private citizens of one country and those of another will become even more popular the coming winter, making the use of an auxiliary language by the amateur radio operators of the world almost imperative. Esperanto societies exist in most of the large cities, it was pointed out, and the language may be learned in a very short time.

In presenting Esperanto to its members the directors of the American Radio Relay League, issued a statement of which the following is a part:

"In thus adopting and recommending Esperanto, the American Radio Relay League wishes it to be understood clearly that it does not regard that language in its present form as necessarily the one which should come unchanged into world-wide recognition, and that it stands ready to adopt such

(Continued on Page 38.)



THE LEICHHARDT AND DISTRICT RADIO SOCIETY.

The 23rd monthly business meeting of members of the Leichhardt and District Radio Society was held at the club-room, 176 Johnston St., Annandale, on Tuesday, September 2nd.

The meeting was well attended, and several important matters were dealt with. These included the election of a new member, the reading and reception of the minutes of the 2nd and 3rd meetings of delegates of clubs and societies affiliated with the Wireless Institute of Australia, and the finalisation of matters connected with the exhibition of members' apparatus to be held at the club-room next Tuesday evening. This latter function promises to be very interesting and successful, and it is anticipated that members will have quite a big quantity of gear on exhibition.

At the following meeting, to be held on Tuesday, September 23rd—the fourth lecture of the syllabus will be delivered by Mr. E. J. Fox, who will discourse on the interesting subject of "Telephones."

The membership of the Society continues to increase steadily, and all local experimenters and others interested in radio would be well advised to join up. Inquiries are always welcomed, and should be addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Booth St., Annandale.

The above report was inadvertently held over from last week.—Ed.

CONCORD AMATEUR RADIO CLUB.

The usual weekly meeting of the Concord Amateur Radio Club was held at the club rooms "Euripides," Wallace Street, Concord, on Thursday, 4th September, at 8 p.m.

After general business had been finished, the lecture, "Thermionic Valve Operation," was given

to the members by Mr. A. C. Smith. This lecture was very much appreciated by all present, and would have been a good one for the "Local Howlers."

When the questions and answers period had been finished, there followed a lively discussion on aerials.

The meeting adjourned at 10 p.m.

Last week-end the members formed a working-bee, and erected the new mast and aerials for the club's use. It comprised an 80-foot mast, with three cages in the form of an umbrella. The mast is the local landmark of this club.

Next Thursday will be buzzer night.

Persons interested in the activities of this club are invited to communicate with the hon. sec., W. H. Barker, "Euripides," Wallace Street, Concord, who will be pleased to supply any information required.

THE CROYDON RADIO CLUB

The usual weekly meeting of the Croydon Radio Club was held at the Club Rooms, "Rockleigh," Lang St., Croydon, on Saturday, September 6th, at 7.30 p.m., when all business on hand was quickly finalised. The meeting was mainly devoted to questions, which proved as equally successful as on the previous occasion. The meeting closed at 10 p.m.

During Sunday afternoon, through the courtesy of Amalgamated Wireless (A/sia) Ltd., seven (7) members of the club, had the opportunity of visiting V.I.S. (Pennant Hills). Many thanks are due to the officer-in-charge, who so generously gave up his time to conduct the party over the station. All intending members are respectfully invited to communicate with the Hon. Secretary, Mr. G. M. Cutts, "Carwell," Highbury Street.

STRATHFIELD AND DISTRICT RADIO CLUB.

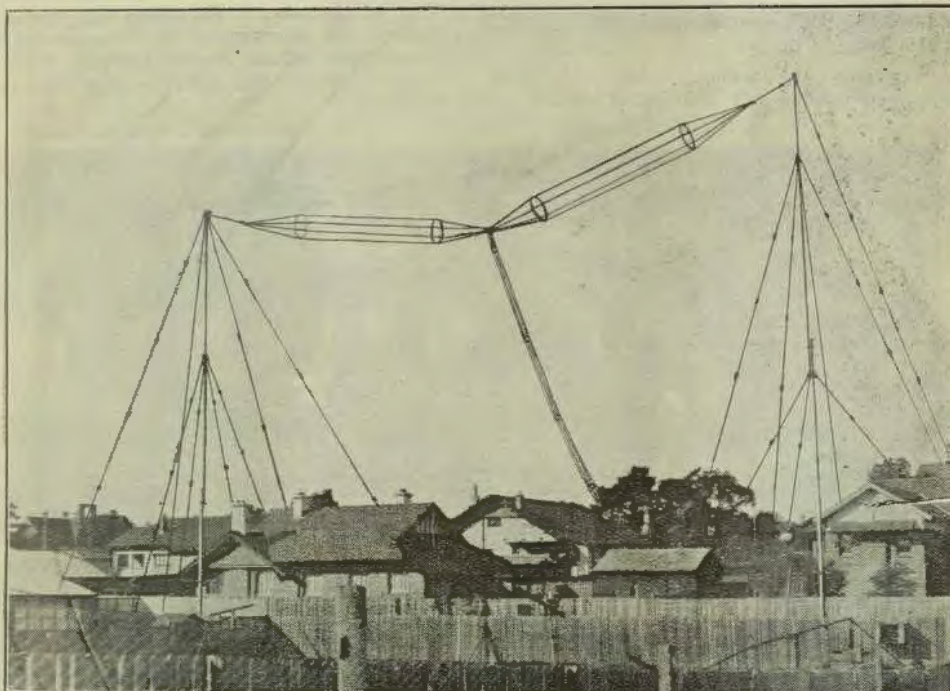
At the meeting on Thursday night the Club had a very enjoyable evening when Mr. Phil Renshaw came along and told the members all about the Wireless Institute, its aims, etc., and congratulated the club on its affiliation. Our Patron, Mr. C. Maclurcan, also spoke a few words to the members and wished the Club all sorts of good luck.

We are, on the 18th inst., to have a visit by Vice-President, Mr. Raymond McIntosh, who will deliver an address on Wireless matters generally.

Everybody is reminded that the Club is holding a Grand Concert and Wireless Demonstration at the Burwood School of Arts on Monday, September 15th., when a splendid programme has been arranged—so roll up Sports and help the Club make a success of its functions.

All enquiries for membership will be gladly answered by the Secretary, Mr. M. Wraxall, "Almor," Long Street, South Strathfield.

We regret very much that owing to the late arrival of blocks, Insulator's article was unavoidably held over this week. Watch next week for full constructional details, drawings, and photographs of "A Loose Coupler That Will Work."



Aerials at 2CM, the Station of Mr. Chas. Maclure, at Strathfield, N.S.W.

"INSULATOR" TO BROADCAST

Wednesday, September 24th, is to be "Insulator" evening at 2BL. The whole programme of the evening session is to be arranged by "Insulator," and his voice will also be held over the ether. Don't forget the date, folks, and don't fail to let us know your results.

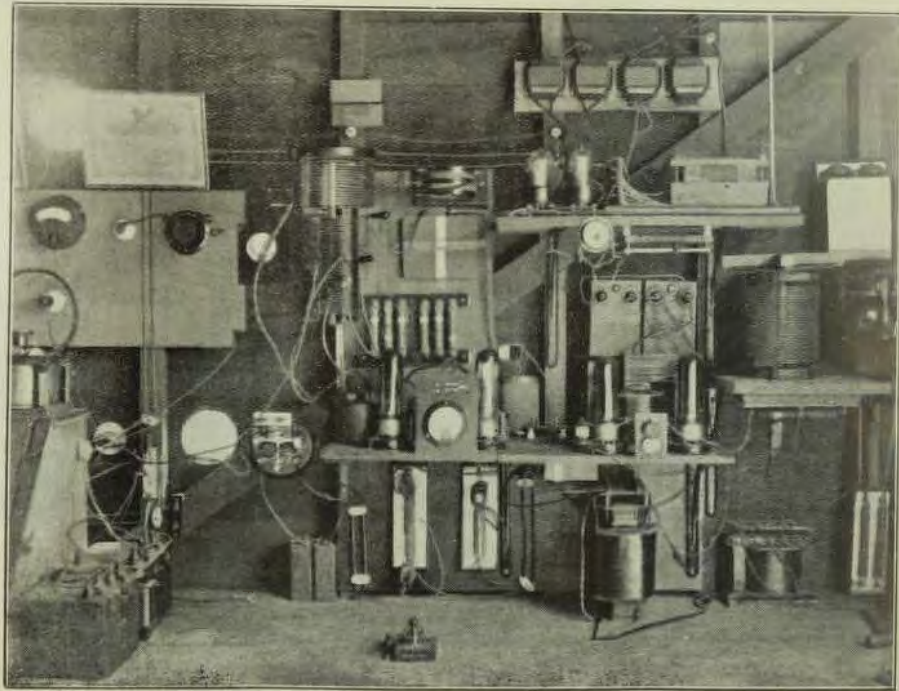
(Continued from page 35)

modification of Esperanto or whatever other language may eventually be agreed upon by an authorised international agency of the great nations of the world. We believe that it is essential to the eventual success of an international language that some language of this kind become a world-wide working vehicle of expression, after which authorised agencies can make such rectifications as may then seem desirable. We believe that our members can accept Esperanto in the expectation that it will be one of the factors taken into account in the formation of an eventual I.A.L., if not indeed the chief support thereof.

"Esperanto's dominating position in the field, however, its position as a leader of the movement,

and most particularly the fact that it is already in actual use by a number of people many times larger than all other projects combined, have caused us to lend our endorsement to it. To do otherwise at this stage would only retard the ultimate success of the whole movement, regardless of the merits of the others.

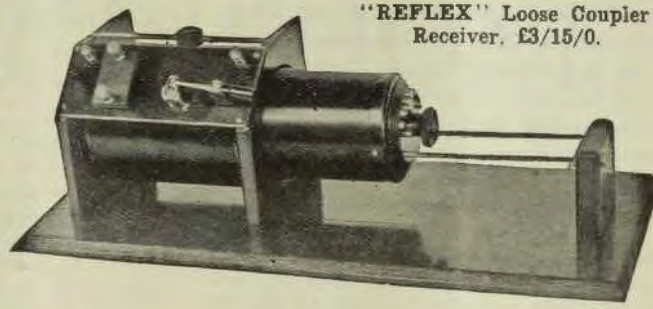
"It is apparent to us that it is nothing short of destructive to the success of the whole movement for the advocates of an international language to split into camps and attempt to shout the merits of their particular project and to decry the language of the other. The time will come when changes and improvements can be made—when an international tribunal assumes charge. Meanwhile controversies can only delay the attainment of the object."



The 100 watt transmitter at 2.CM.

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OUR SPECIAL
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Peerless
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"REFLEX" Loose Coupler Receiver, £3/15/0.

Complete Set of Parts to make the above Set, 36/6.
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Valves and Headphones*

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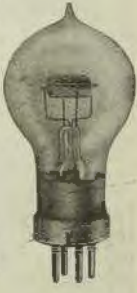
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PEERLESS, 2000 ohm	32/6
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THE QUALITY RADIO STORE.

A WIRELESS TRAGEDY.

Two listening insects wanted to get married. Unfortunately there was some resistance to the design, so they eloped to Italy, taking the tube and then travelling by aeroplane over the waves and thus avoiding the alternating currents of the Channel. On arrival, they were received by Signor Irphono, and inducted into the registry office, where they were married by the Rev. Vario Coupler.

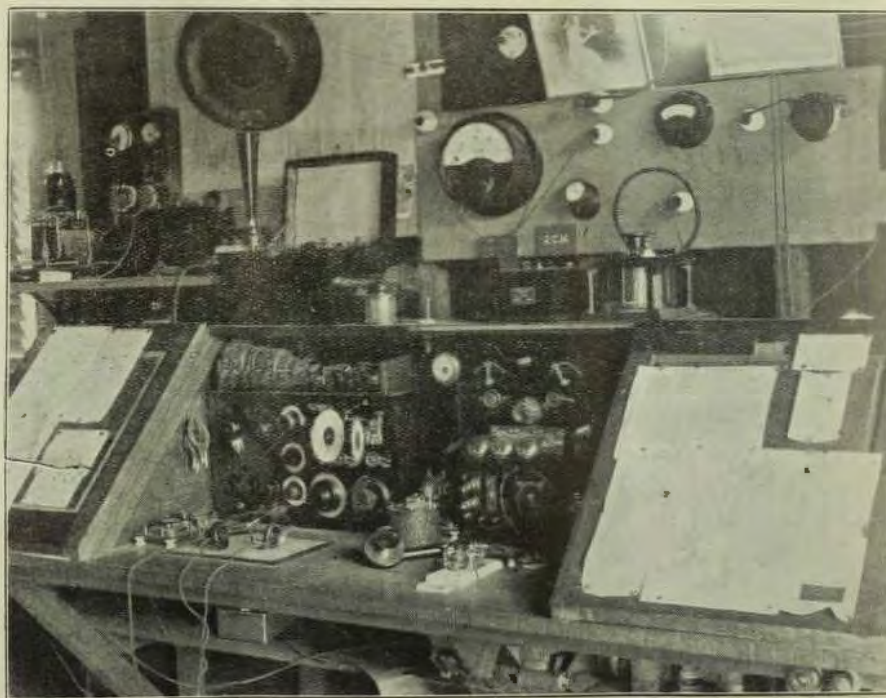
Sad to say, their married life was not ecstatic, as they were both rude loud speakers, and presently Mr. Insect was hauled into court by his wife on a charge of battery, specifically grounded on the following cause: Breaking a T-plate and a pan-

cake griddle over her head. Thus condensed, the charge was heard before a jury especially empanelled to hear the case.

Their joy was ended and the light gone out of their lives, so they parted, Mrs. Insect going back to her Uncle George and Mr. Insect, tempted by good stock reports, joining the ranks of the Farmers!

ALTERATION OF ADDRESS

We are asked to notify experimenters that 2 VM, Mr. V. M. Derrick, has removed his address to 75 Chandos St., Ashfield.



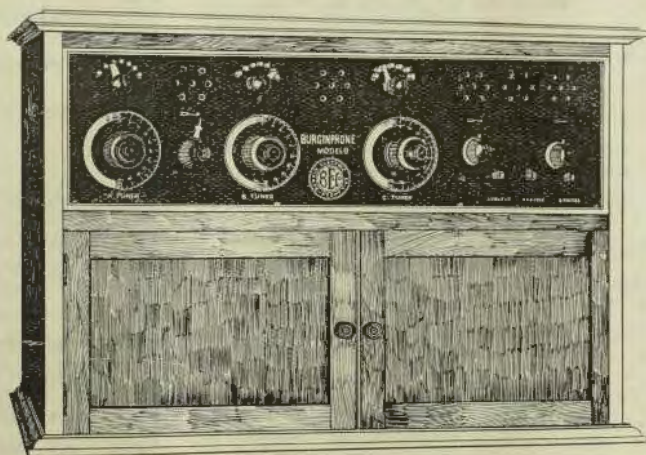
Receivers used at 2CM

FROST LINES ARE SHOWN ON PAGES 2 and 3.

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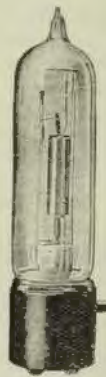
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A New Valve that saves you money



Numerous Radio enthusiasts in Australia have for some time heard of the wonderful results and economy of the

WECOVALVE

Western Electric Co. (Aust.) Ltd., having completed their arrangements for the supply of these valves throughout Australia desire to inform the public that Wecovalues are obtainable from their regular radio dealer.

The Weco valve stands in a class by itself
It is entirely free from Microphonic Noises

The world renowned oxide coated filament as used in the manufacture of the most expensive Western Electric valves is also employed in the construction of the Weco valve thereby ensuring a phenomenally long life and an efficiency equal to the very best of high temperature valves.

It is essentially an all-purpose valve and can be used

either as a detector or amplifier. A single dry cell only is required for filament heating.

Suitable sockets to mount Wecovalues are available, or adapters can be supplied which enables you to fit them to any standard British socket.

Further particulars from your regular radio dealer or direct from

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Base Boards	2/6	Valve Sockets, R Type	2/6
Loose Coupler Ends, Set of 4	2/6	Valve Sockets, Radiotron Type	4/6
Contact Stops, N.P., per doz.	1/-	Winding Wires, all sizes in stock	
Contact Studs, N.P., per doz.	1/-	Aerial Wire, Copperweld 100ft.,	4/-
Runner Rods, nickelled	1/2	Primary Tubes Wound	3/6
Sliding Contacts, brass	1/6	Secondary Tubes, Wound and Tapped . .	6/-
Sliding Contacts, N.P. and Rod	2/6		
Crystal Detectors, Mounted	3/3		
Crystal Detectors, N.P., unassembled . .	2/11		
Crystal Detectors, glass enclosed, mounted,	5/6		
Crystal Detectors, glass enclosed, unmounted,	4/2.		

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SMITH'S RADIO STORES

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OPP. HOTEL AUSTRALIA.

2CM RECEIVED IN U.S.A.

Mr. Maclurcan has received over 25 Q.S.L. cards from American experimenters reporting the reception of signals from 2CM. Until recently, practically none of these checked up with his log.

During the last month, however, several reports of undoubted receptions have been received both by card and direct Q.S.L. by radio.

These are from 6CGW, 6CGO, 6CAE, 6EC, 6ZX, 6AWT and 6CNH.

If any amateur has logged 6CAE will he please let Mr. Maclurcan know?

D.X.

Mr. C. H. Gold sends his report of stations heard:

N.S.W.: 2HM, 2CR, 2BK, 2RA, 2RJ, 2YI, 2JM, 2GR, Wagga Wireless Supplies, 2GO, 2DS and 2LO.

Victoria: 3HL, 3XF on C.W.

South Australia: 5AC, 5BS, on C.W., and South Australian Radio and Broadcasting Co.

New Zealand: 4AA and 4YA; 4AE; others also come in well, intermittently.

Queensland: 4AK, 4CM, 4AN, 4AE; others heard are 4CH, 4EI, 4EZ, 4CC and 4EH.

United States, America: 6BQL and K.G.O., which comes in very well, especially the speech of the announcer, and every instrument can be heard in orchestra.

U.V. 217 KENOTRON.

A two electrode rectifying valve for use with 50 watt power tubes to produce a D.C. plate supply from an AC source.

Two UV 17 rectifiers may be used in a full wave rectification circuit, the DC current and watts current and watts output being doubled.

The UV 217 may be used in the special socket designed for the U.V. 202 valve. There will, of course, be no connections to the grid binding post of the socket.

Voltage of filament source, 12.

Filament terminal voltage, 10.

Filament current, 6.5 amp.

A.C. input voltage, 1250.

D.C. output, 50 watts at 1000 volts, D.C.

Overall dimensions, 2in. x 7½in

Socket type, U.T., 541.



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..... 192....

Signed Address

Annual Subscription, 13/-, post free.

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This advt. appeared in the first issues of this paper:

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You require Condenser Plates (large or small), Turned Spacing Washers, Crystal Cups, or Armature Stampings, I can supply one or a million.

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I have the finest and fastest automatics in the world for screws, studs and stops, etc.

Round head, countersunk, or cheese head, 1/8 Whitwork by 3/16 long, for sliders, 2/9 gross.

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Letters: Box 4 Hurstville.

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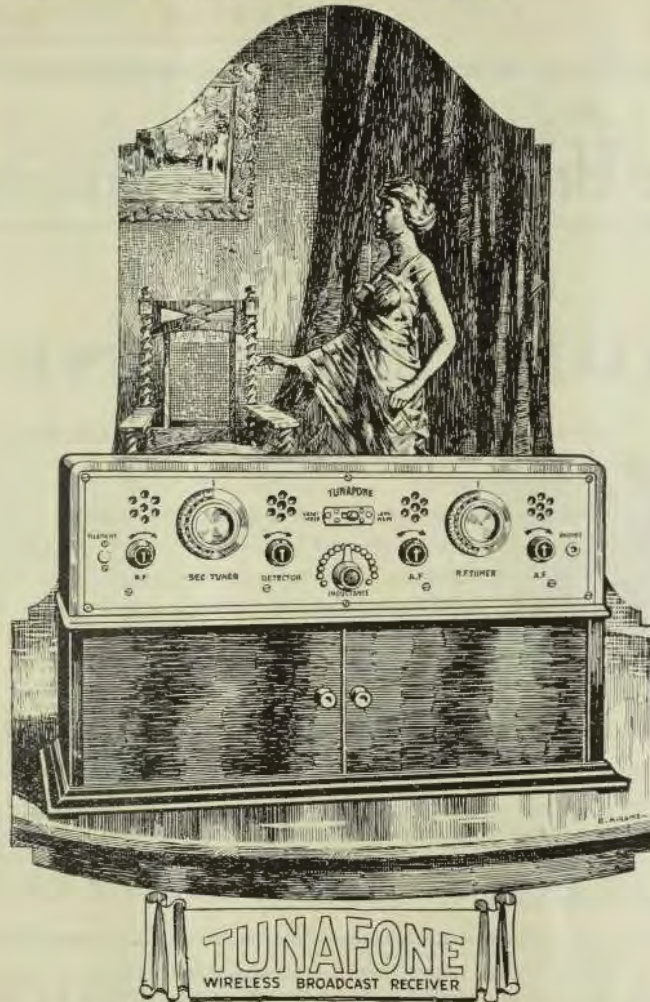
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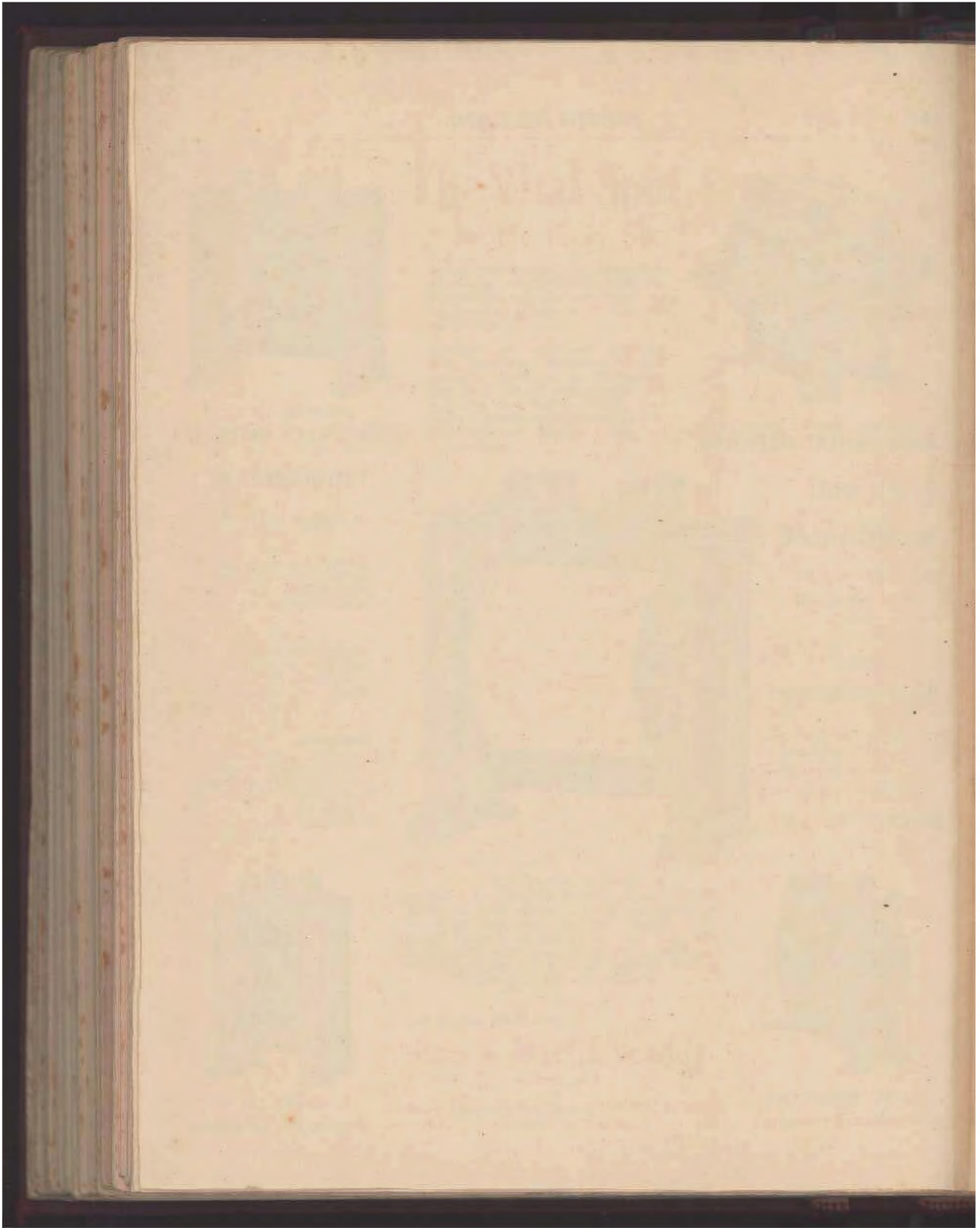
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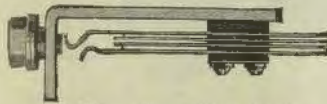
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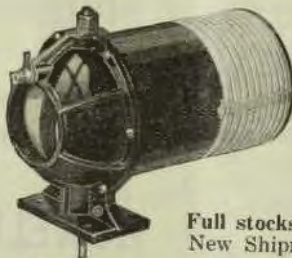
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Switches, Dials, Vario-couplers, Valve Adaptors, Potentiometers, Condensers, Transformers, Variometers, Inductance Switches, Detector Units, Rheostats, Valve Sockets, Detector Amplifiers, Tuning Units, Phone Plugs, Filament Jacks, Radio Transformers.

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Friday, September 19, 1924.

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