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**A TALK WITH "WIRELESS WEEKLY."**  
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There is no denying that there is bad feeling between certain Sydney clubs. Almost any person interested in wireless will tell you this; as the saying is: "the very dogs are barking it."

This journal deplores such feeling. To any right-minded person it is a mystery. Why should it be? How did it originate? What will be the result of it?

The first question is easy to answer. There is absolutely no reason why it should be; in fact, there are scores of reasons why it should not. As to the second question, a close study would reveal two or three causes, but there is no need to give them here.

The result of it all cannot fail

to reflect very seriously on the amateur cause.

It is all so futile, so petty, and altogether ridiculous, and every sensible experimenter must be looking forward to the time when someone among the amateurs will arise and sweep away the bad feeling.

There will assuredly come a time when the experimenters will find that any lack of co-operation in their ranks will rebound to their disadvantage.

The clubs—all of them—must pull together; and they must stand solidly behind the newly-formed Radio Association of Australia. Already there are rumors of clubs pulling out.

Good feeling can only come about by the experimenters getting to know each other. Why not a wireless brotherhood,

Clubs should set about cultivating this spirit. They should invite other clubs to attend their meetings, and vie one with the other in getting tip top lectures and lecturers.

In this way better feeling will be brought about, and the standard of amateur wireless raised.

Senseless inter-club jealousy should be squashed as quickly as possible.

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October 27th, 1922

WIRELESS WEEKLY

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### RESIGNED.

#### Club Officers.

Something of a sensation was caused in amateur radio circles in Sydney last week by the announcement of the resignations of the three executive officers of the Metropolitan Radio Club.

The officers were the president, Mr. R. C. Marsden; the hon. treasurer; Miss F. V. Wallace, and the hon. secretary, Mr. A. Mitchell.

Mr. Marsden makes no secret of his reasons for resigning. "Now that the experimenters are strong," he told "Wireless Weekly," there are plenty of men who have no connection with radio in a commercial way to run the club. I hold the opinion, and always have held it, that no person interested in the sale of apparatus should hold office in an amateur wireless organisation. As I am so interested, I have decided to resign from office. I shall still give the club my support, however."

Miss Wallace gave a similar reason, and Mr. Mitchell said: "Pressure of business does not allow me to devote the time to the club's affairs that I think is necessary."

The resignations of these officers leaves the committee without a quorum, and it has been decided, therefore, to conduct an election of committee and officers at the next general meeting of the club, at the Laurel Cafe, Royal Arcade, on Wednesday next, at 8 p.m.

Nominations for the committee will close with the secretary, care 6 Royal Arcade, on Monday, October 30. Nominations must be signed by the nominee, and also by another member of the club, who will second him.

### Wireless Apparatus.

All Instruments and Parts made to order.

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### AN OPEN LETTER.

To the Right Hon. William Morris Hughes, P.C., Prime Minister of Australia, c/o North Sydney.

Dear Bill,

So sorry to worry you while you are in the middle of expounding your policy to the electors of North Sydney, but what about those Radio Regulations you promised us? Up to the time of writing (Tuesday, 24th October), we have heard nothing of them.

But I am sure, dear Bill, that you have not forgotten us. I can picture you summoning special meetings of Cabinet, and trying to induce your colleagues to let us have those licenses for a nominal fee. How you would thump the table and cry "the wireless experimenter of this country is working to improve the science; he should be given every opportunity." Good Boy!

Dear Bill, there are quite a lot of wireless men in North Sydney.... we wonder whether Mr. Piddington or any of the others would hold up Radio Regulations.... but Bill, you are not accusing you of holding them up. Not you are battling to get them out for us.

Keep going, Bill, you will get our vote.

Yours, etc.,

E. X. PERIMENTER.

P.S.—If they are out before this appears in print you are forgiven.

### AT NEWCASTLE

#### STRONG CLUB FORMED.

A meeting of those in the Newcastle district who are interested in wireless was held at the residence of Mr. Lionel Swain, 135 Beaumont Street, Hamilton, on Friday, October 13th.

The meeting was a huge success, the attendance being largely in excess of what was expected. Over 70 were present.

Major Gill occupied the chair. It was decided that a local club be formed, to be known for the time being as "The Newcastle and District Radio Club."

Mr. R. Charlesworth, Assistant Secretary of the N.S.W. Division of the Wireless Institute of Australia, spoke on behalf of that body, and urged that the Club constitute itself as the Newcastle Branch of the Institute.

It was decided, however, that the matter of affiliation with any central body was too big a question to be determined off hand, and consideration was deferred to a future meeting.

Mr. Swain announced that Mr. P. Sharp, electrical contractor, had offered the club the free use of his hall in Maitland Road for meeting purposes.

A temporary committee, consisting of Major Gill, Mr. R. E. Abbott and Mr. Swain was appointed to draw up rules, etc. for presentation to the next meeting. Mr. Swain is secretary pro tem.

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## BIG AMERICAN SCHEME.

Six giant radio stations, portion of a world series which will belt the globe, have been planned and contracted for in Central America, Sweden and the United States, between the Radio Corporation of America and foreign interests, according to information just received from the United States.

It marks the very latest in a great world-circling program of international communication.

Under the new arrangement, just consummated in two separate directions, three stations will be erected in Central America for the United Fruit Company and the Tropical Radio Telegraph Company, two in the United States for local connections, and one in Sweden, through arrangement with the Swedish government, for handling high-powered communications between Sweden and America. The later station will cost 2,000,000 dollars.

The three Central American stations will be located on the corners of the triangle embracing Honduras, Nicaragua and Panama. The Tropical Radio Telegraph's stations will be located at Managua, the capital of Nicaragua, and at Tegucigalpa, the capital of Honduras, the city designated as the capital of the new Central American Union. These stations will connect with the United Fruit Company's station at Almirante, Panama.

The United States terminals of this communication system will be at New Orleans, Louisiana, where the present station of the Tropical Radio Telegraph Company is to be enlarged and new apparatus installed, and at a new station which the Tropical Radio Telegraph Company will erect in the vicinity of Miami, Florida. Intercommunication between these five stations, and ship to shore communications with them, will open up entirely new routes of communication between the Americas, one of which will be the opening of the radio route between Bogota, Columbia, S.A. and the United States, a distance of more than 2,000 miles.

While it is highly probable that direct communication between New Orleans and Bogota will be feasible throughout the favorable season of the year, it is of considerable importance to maintain this relay group of stations, especially where a high degree of performance and reliability are the essential requirements. If the possible event of failure of any one or two of the relay stations another can be relied upon as the completing link.

The area embraced by the three Central American stations includes approximately 54,000 square miles, Managua, Almirante, and Tegucigalpa being separated by 150, 360, 460 miles respectively. Communications originating within the Central American

states may be telegraphed over short distances by land wires to the triangle group stations, then dispatched by radio to the United States or South America by the New Orleans or Bogota stations. Because of the layout of the three stations, service from nearly all parts of Central America is practicable. In fact, the system is designed to tie in all points from Southern Panama to the southern border to Mexico, with North and South America.

The radical changes in the technical design of modern radio telegraph apparatus, the results of the combined efforts of the Radio Corporation of America, and the General Electric Company, will be incorporated in the manufacture of the apparatus used in this project. Years of exhaustive practical tests have slowly eliminated undesirable features of radio telegraph apparatus.

Vacuum tubes of the latest design, and many times more powerful than any tubes heretofore used in sets for commercial service, together with the highly efficient multiple-tuned antenna, will form some of the special features of these new stations. The wave lengths used will range from 2,500 to 4,500 meters and the power actually delivered to the antenna at these wave lengths will be equivalent to over 100 kilowatts of the spark or damped wave apparatus.

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Ditto (with Knobs), 5s.

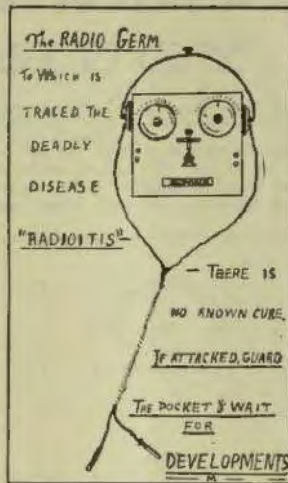
AMATEUR CALLS.

A New System.

The authorities have arranged a new system of amateur calls, and many experimenters have already been notified of the change in their letters and numbers.

The old system was to have a letter to denote the State and numbers for the individual stations. Thus, if one amateur wanted to call another and give his own call of a letter and, perhaps, three figures, it would be a lengthy process.

Under the new system there is one number to indicate the State and two letters starting, in the case of New South Wales, from AA for the station. New calls, for example, are 2HP or 2AB and so on.



STRANGE AERIALS.

The tin roof of a shed, the springs of a bed, the rain-pipes at the side of a house, the metal rail of a motor-omnibus, have all been used with success as aerials. An American inventor is perfecting a super-regenerating device which will dispense altogether with the necessity for an aerial.

Most striking of all, perhaps, is the use of the wires of an ordinary house-lighting circuit for conveying radio signals. As yet, this is only for people with considerable technical knowledge, and amateurs should not attempt to use lighting circuits for this purpose; but more than one firm in England is working on a device which will make it possible to "listen in" on radio broadcasting by merely putting a plug in the electric light fixture.

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# MAKE YOUR OWN.

As the experimenter progresses there will come a time when he requires to use a valve, and to enable him or her to utilise his

person who is making the set. A 40 volt "B" battery made up of small flashlight cells, tapped off from the last half dozen posi-

ohms. resistance, and if it has an "off" position, it saves the use of an extra switch on the panel.

The filament switch on the top left-hand corner of the panel in Fig. 1 is for use with the 2 filament type of valve, such as the audion, annaka, etc. On the "B" battery, pick up studs, and make the studs far enough apart so as the switch does not strike 2 studs at once, otherwise you will short the "B" battery.

The variable condenser is self explanatory. See that it doesn't short, and have it accurately mounted. In Fig. 2, where the "B" battery pick up studs are shown in the left-hand lower corner, those studs are connected to the positive terminal shown on the "B," but for ease of drawing they are not all shown.

P1 on the panel goes to a wire, which, in turn, goes to the aerial terminals on the loose coupler.

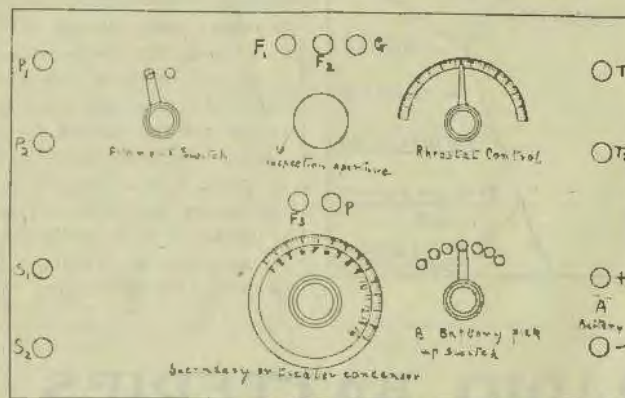


FIG 1

first apparatus, the following control panel is suggested:—

Figure 1 gives a general idea of the layout of the front panel, and shows the necessary material required, while Figure 2 shows the wiring scheme and several parts which it is not possible to depict looking at the panel from the front.

The panel can conveniently be 9 inches by 12 inches, made of either ebonite or bakelite. The latter is the best.

Eleven terminals of the screw down type will be required, 2 telephone terminals T1 and T2, 3 contact studs, 2 switches, a rheostat and scale, 1 .0005 variable condenser, 2 fixed condensers, one to be .00025 and the other .001. The small one is for the grid, the other to act as a bye pass across the phones and "B" battery. There will also be wanted A.V.T. socket to allow the use of a four prong standard valve. A valve will, of course, be required, and the choice must rest with the

positive terminals, is an excellent source of energy to supply the plate. In Fig. 1, it will be noticed F1, F2, F3, P and G. These terminals are so arranged that you can use an oscillation type

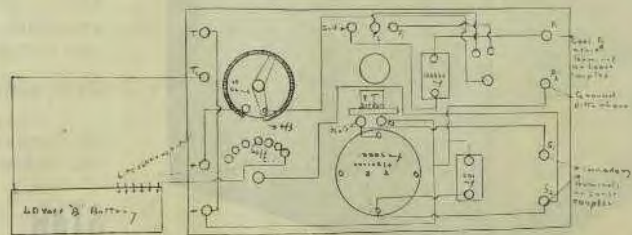


FIG 2

of valve. The V.T. socket is placed behind the panel, and a hole is cut in the panel to view the valve, to see if the filament is at the correct brilliancy, etc. The rheostat required is about 10

while P2 is ditto ground terminal on loose coupler. S1 and S2 go to the secondary leads of the loose coupler. It will be necessary to change the leads (S1 and S2).

## —VALVE CONTROL PANEL

Be sure that the accumulator you will have to get is one of a good make, otherwise you will have endless trouble with your set.

The V.T. socket is not shown as

minimal, filament to filament, etc.

When the panel is completed it can be mounted in a polished cabinet, and makes a nice piece of furniture.

The circuit, as drawn in on

bare copper.

The dotted line on the variable condenser in Fig. 2 is only to show that a strip of brass from the movable plates makes contact with the screw. Where wires

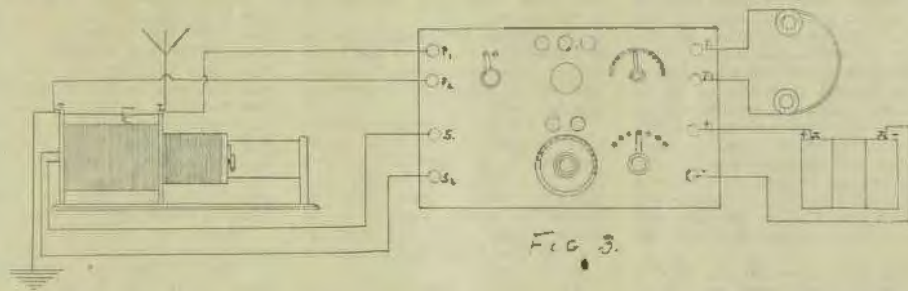


FIG. 3.

wired in Fig. 2, as, owing to the maze of wires, it would tend to muddle the persons tracing it out. But it is obvious how it is done, as the grid goes to the grid ter-

panel Fig. 2, is a well tried regenerative circuit, and is suitable for all purposes.

The wire used for wiring up the circuit on the panel is No. 14

cross, take care that they do not touch, otherwise it will very likely mean a new valve or your headphones rewound. Fig. 3 shows the complete hook up.

### NIGHT EFFECT.

A curious phenomenon is the increase in the range of transmitting stations during the hours of darkness.

The cause of this is the greater conductivity of the atmosphere during daylight than during darkness. Conductors rob the wireless

waves of their electromagnetic energy, hence when the atmosphere is less conductive more energy makes its way to the receiving aerial. Occasionally a wireless station may hear signals from another so far distant as to make it impossible to explain the matter away by regarding it as a "night effect."

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## The Deception.

By  
G.O.

Dick Southwell leaned against the stable door and gazed gloomily in at the beautiful horse, whose shiny coat bore evidence of constant attention and care. Dick loved this horse, and all his hopes were centred upon him, as on the next day the great race was to be run which would either ruin Dick or put him firmly upon his feet.

Dick had mortgaged everything he possessed to back his favourite, and should he lose, he would have to part also with the animal which meant more to him than anything else.

The horse came to the door of the stable and nosed up against Dick affectionately, as if he sensed the trouble that was in the air.

"Blackbird," whispered Dick, stroking the sensitive nose, "run your hardest to-morrow, and nothing can beat you."

There was only one horse that could beat Blackbird, mused Dick, and that was West Wind, but she was in Melbourne and not entered for this race, so if he had any luck at all, to-morrow should be a great day.

They were great mates, these two, and it would just about break Dick's heart to part with Blackbird.

Dick was very popular with his associates on the turf, and his one enemy was his next-door neighbour, Oscar West, who owned two racehorses, West Wind and East Wind. These two horses were very similar in appearance, and it took more than a casual glance to tell them apart, but East Wind was not nearly so fast, and he was entered for the race on the next day.

Blackbird's owner was up at daylight the next morning, and went straight out to the stable. Blackbird neighed, tossed his head, and seemed so restless that Dick got quite nervous, and examined the locks on the stable door to see if everything was in order. He was relieved when the jockey came along, and the two had an earnest consultation.

The jockey led Blackbird round the yard, and then laughed at Dick's fears.

"I believe the beggar is so lively because he knows that nothing can pass him to-day," said he, and Dick's heart grew lighter as the day wore on.

Just before the race started, Dick glanced at the other horses lined up for the race, and noticed that East Wind was looking particularly fresh. Just then he caught the jockey winking at the owner, Oscar West, but Dick did not fear East Wind, and a splendid start was made.

As expected, Blackbird, gradually drew ahead, and Dick was wildly excited as he saw his favourite galloping on to victory. Then a murmur arose from the crowd as another horse crept up towards Blackbird, and it was soon apparent that the race was not to be so easily won. Dick's eyes grew misty for a moment, and when they cleared again, he saw that this other horse was gaining slowly, and before the post was reached was half a head in front of Blackbird, who was striving gallantly. The winner was proclaimed, and Dick was astonished to learn that it was East Wind. It seemed strange that East Wind should beat Blackbird when the latter had simply surpassed himself, and broken all his previous records.

Dick's jaw was set in very stern lines that night, as he commenced to gather up his belongings preparatory to leaving the State next morning to make a start at the bottom of the tree once more. He would say good-bye to his dear old Blackbird in the morning, and perhaps he would be able to buy him back again some time.

Dick had not very many possessions, the bulkiest being his wireless set, which occupied a table just near the telephone on one side of the room, and he absent-mindedly picked up and adjusted the receivers and listened in for a few moments.

Just then the telephone bell rang, and Dick, not wishing to speak to anyone, and being annoyed by the persistence of the ring, lifted the receiver off the hook, and put it on the table. He was surprised to hear in his wireless receivers a voice asking for the telephone number of the next door house, and in a few moments he heard Oscar West reply. "Well, Oscar, we fixed it up all right this time," said the voice, "and no one is any the wiser."

"Have you got him safely aboard the train?" said West.

"Yes," replied the voice; "the West Wind will be safely back again in Melbourne to-morrow, and you will be even with Southwell."

Dick did not wait to hear any more. He realized that he had just overheard a conversation which exposed one of the biggest racing frauds ever perpetrated, and knew that his wireless set, owing to a combination of circumstances, had picked up a conversation from the telephone lines which were running parallel to his aerial.

He had been puzzled several times by hearing faint voices in his wireless phones, and had been at a loss to account for them. He had, however, never happened to listen in before when the telephone receiver was off the hook, and the fact that his telephone had accidentally been rung at the same time as the one next door, had proved a very fortunate chance for him.

There was no doubt in his mind about West's scheme. He had evidently brought West Wind secretly across from Melbourne, and had substituted him in East Wind's place, with the latter's light handicap.

No time was lost in getting into touch with the proper authorities, and a big sensation was caused next day, when the whole scheme was exposed, and Blackbird was announced as the winner of the race.



## ART OF TUNING. THE RADIO RECEIVER.

(By O. F. MINGAY, Member of the Wireless Institute of Australia).

(Continued).

Consider the action of a swing with a boy sitting on it, and it is pushed. If the pushes are given at the correct moment, i.e., just at the precise moment when the swing commences to return, it will be noticed that the motion is increased at each vibration. But if an attempt is made to push when the swing is coming toward you, the effect is a deadening one, and it will not take many such ill-timed pushes to stop the swing vibrating altogether.

The Receiving Aerial works in precisely the same manner. It corresponds to the swing, and the radio waves to the pushes. The only difference is that in radio, instead of changing the rate on the pushes to suit the swing, we adjust the length of the swing (aerial) to suit the pushes (radio waves), that is, we adjust the electrical length of the aerial (or whole antenna) to suit the frequency of the waves. Then the antenna will swing electrically as far as it can, depending upon the strength of the wave pushes. Therefore, actual radio receiving sets have to provide some means for changing the electrical length of the Antenna. This can be done easily, by putting in the circuit, some wire, wound up into a coil, with some means provided for changing the number of turns which is used, for example, by a switch or with some means of varying the electrical effect of the turns without actually changing the number of them.

The Variometer is such a means, and is made by having the coil in two parts, one of which turns inside the other. Also it is found that if there are connected in the circuit two metal plates, which are placed near to each other but not touching, and one of them is moved, that this changes the electrical length of the circuit. Such a device is called a variable condenser. Sometimes both condenser and ad-

justable coil, called variable inductance, are used.

### TYPES OF CIRCUITS.

There are two somewhat different ways of connecting up the tuning devices, which are in common use to-day. These are known as the single circuit Tuner, and the Two Circuit Tuner. In the operation of a receiver, based on either one of these tuning systems, adjustment of the tuner part is but half the problem.

In addition to the tuning system, there is a detector, which is connected to the tuning part, and which changes the received high frequency current into one with a form which will operate telephone receivers, as the high frequency current itself cannot. There are two kinds of detectors in general use to-day—the crystal or mineral detector and the vacuum tube detector—so that there are four fundamental combinations in making a set. First, the single circuit crystal type; second, the two circuit crystal type; third, the single circuit vacuum tube type, and fourth, the two circuit vacuum tube type.

The single circuit crystal type receiver is, of course, the simplest to operate. In this there is only the tuning control and the crystal. The proper procedure in tuning this type is to set the crystal in contact and slowly vary the tuning control until desired signals are heard, then adjust tuning and

detector contact to maximum results. The most difficult and oft-times disappointing part of this process is that if no signals are heard at first, it is impossible to tell whether the detector is in a receptive condition or not.

It is possible and very desirable to connect up a buzzer, a push button, and a dry cell, so as to test the detector and set in a sensitive condition. The methods to be adopted are easily obtained from any wireless book.

It often happens that in a house filled with electric light, the operation of a switch cutting off or on a light will cause sufficient electrical disturbance to hear a sharp click on the receiver. This click is not heard if the detector is not in a receptive condition, so that the detector can be adjusted while some switch is being turned on and off until the clicks are heard most loudly.

Just a foreword about the operation of detector vacuum tubes. Assuming that the proper accessories are used and connected up correctly, the adjustment of the

(Continued on Page 10)

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**TUNING RADIO SETS.**

tube to sensitive condition is done on most sets entirely by the filament rheostat, which controls the current through the filament, and therefore its temperature. Usually the tube will operate to some degree if the filament temperature is approximately right, but best signals will be obtained only after it is exactly right, which is accomplished after signals have been picked up.

The filament must not be burned brighter than is necessary. If it is, its life will be greatly shortened. The correct brilliancy is one not quite as bright as the ordinary incandescent lamp filament, and care should be taken always to burn the filaments as dimly as possible.

**REGENERATION.**

Most sets using vacuum tube detectors have another feature added in connection with the tuner which is most valuable and very efficient. This is the regeneration or retraction coil, and is valuable because it adds to the sensitiveness of the set enormously. It consists usually of a coil whose electrical relation to the tuning coil can be adjusted. This coil is called either Tickler, Intensity, Regenerative, or Retroactive Coil. When this is added to a receiver it gives one more adjustment to be made.

Let us consider a single circuit receiver using vacuum tube regeneration. We have three controls—the wave length, tuning the regenerative coil, and the filament rheostat. The following is the correct method of procedure to tune such a circuit:—Set the filament to as near proper brilliancy as one can estimate. On many tubes this point is easily found, the tickler coil being set at zero during this adjustment, by increasing the brilliancy slowly until a hissing sound is heard in the head phones, and then decrease just enough to stop the hissing. The next step is to vary the wave-length control over its range very slowly, listening carefully for the desired signals. When they are heard, adjust the wave-length control and the filament control to best results, and then increase

the regenerative or tickler control until signals are best, possibly slightly readjusting the wave-length control, which may have been affected by the change of the tickler. If the tickler is increased too much, telephone signals will be spoiled, speech and music sounding mushy, instead of being clear. Always take pains not to increase the tickler too close, because when this is done the vacuum tube oscillates or becomes a small generator of high frequency current, and this current goes out on the aerial and causes waves, just like a sending station, only not as powerful, and other receiving stations within a distance of one or two miles can hear it, and will be interfered with.

(To be continued)

**ALTERATION TO MR. MACLURCAN'S TRANSMITTING SET.**

Mr. Maclurcan notifies us that he has just completed some interesting alterations to his transmitting set.

The high tension supply has been converted to rectified alternating current, and the power increased to 18 watts. With this input the aerial radiation is 1.5 amps.

The circuit has also been materially altered, and the one now in use which gives such excellent results includes several entirely new ideas which Mr. Maclurcan is developing.

The aerial has been slightly altered further reducing the resist-

ance which now stands as low as 1.9 ohms.

Experimenters will probably notice a marked increase in signal strength, and they are especially requested to notify Mr. Maclurcan of their results after next Sunday's concert.

**WORLD WIRELESS.**

Mr. P. Shaw, Goondiwindi, writes:—

"Was very interested in your article entitled 'How we hear the world.' My experiences are rather different to Melbourne. I can hear most of the high power stations from daybreak until about 7 p.m. LY is at his loudest until 1 p.m., and is still audible about 6 p.m.

NSS is easily readable until 2 or 3 p.m. NBA, NPM, NPO, NPL can be read at any time. NPN and NPO can be read after sunset up to 2000 yds. from a home loud speaker with 2 valves, HF 1 rectifier, and 2 Audio frequency.

NBA at 8 p.m. and JJC at 10 p.m., are usually very loud.

POZ calls NSS at 3 p.m.

Would advise amateurs who listen on long wave lengths to listen in between 7.30 and midnight, as I collect all the static in Australia between those times.

**MUSIC IN THE AIR**

**MR. MACLURCAN'S CONCERT.**

**SUNDAY NIGHT'S CONCERT**  
*Mr. Maclurcan, of Strathfield, will send out his usual concert on Sunday night at 7.30. Listen for him on a wave-length 1460 metres.*

**THE COLVILLE-MOORE WIRELESS SUPPLIES**

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VALVES for all purposes now in stock: Marconi Q, £1 5s, V 24, £1 17s 6d, Expanse B, £1 15s.

Radiotrons: 200, £3; 201, £3 5s; 202, £4; Cunnyham 300, £3; 301, £3 5s.

PHONES, for immediate delivery: Murdoch's 2000 ohm, £2 5s; 3000, £2 10s; Frost's 3000, £2 15s; Brown's 4000, £2 3s 6d; Baldwin (mica diaphragm), £7 7s.

Enquiries invited on all Wireless requirements.

October 27th, 1922

WIRELESS WEEKLY

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The newly formed Leichhardt and district Radio Society held its meeting at No. 3 Annesly St., Leichhardt, on Tuesday last. The first idea of the Society is to work members for the requirements of the Amateur and Experimental license of 12 words per minute.

The members were divided into two classes—Beginners and the more advanced.

It is also decided to have what will be called a Sunday morning's chat, that is an informal meeting of all interested in radio, and members of other clubs and societies are also cordially invited. The idea is to amalgamate ideas and talk of the week's topics. The next meeting of the Society will be held at No. 3 Annesly St., Leichhardt, Tuesday next. All inquiries concerning the Society should be addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Pooth St., Annandale.

THE NORTH SYDNEY RADIO CLUB.

At the invitation of Mr. C. MacLurcan, the North Sydney Radio Club paid a visit to his station at Strathfield on Tuesday, the 17th inst., where a very pleasant and instructive evening was spent. The members of the club were fortunate enough to see Mr. MacLurcan at work, and greatly appreciated the advice given them with regard to their own set.

The next meeting will be held on Tuesday, the 31st inst., when all members are requested to be present.

A visit from some of the other clubs would be very much appreciated, and visiting members will be assured of a hearty welcome at any time.

ILLAWARRA RADIO CLUB.

The last meeting of the Illawarra Radio Club was held on 12th inst., at its new room, 75 Montgomery Street, Kogarah, when an interesting lecture was given by Mr. L. K. Hewett, on "Elementary Valve Work." The lecturer dealt very lucidly with the subject explaining in detail the construction, and the detecting and amplifying properties of the valve and the principle on which it functioned. The subject was one which was much appreciated by the members.

On the delegates reporting the proceedings of the last inter-club meeting of delegates, the members unanimously confirmed their actions to date, and passed a vote of confidence and thanks for the work done.

ANTENNA, HARP OR FAN.

An antenna having an approximately vertical section of large area and of considerable width. The wires are close together near the lead in, and widen considerably at the top giving the fan appearance. This type is largely used by the French coast stations.

ANTENNA, LOOP.—An antenna in which the wires form a closed circuit part of which may be the ground. This type is highly directional, strongest signals being obtained when the plane of the loop passes through the transmitting station. The loop aerial is largely used for direction finding, the usual form for this work being a rectangle of wire capable of being rotated about a vertical axis. With this aerial signals are weak, and several stages of amplification are necessary for successful operation.

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SALE & EXCHANGE

Three Lines (approximately 15 Words), may be inserted in this Column for 9d.

Extra Lines or part thereof, at 6d per line.

FOR SALE—Crystal set complete, Murdochs Phones—Cheap. All good. 83 Mills Street, Carlton, Saturday.

Sell loose-coupler crystal set, 150 to 3000 metre and .0005 condensers, 10 phones—£3. Adaptable for valve set. 86 Cary Street, Marrickville.

WANTED—150, 2000, 4000 phones; 5 volt accum.; "B" battery, valves, Millivolt Meter. R. G. Ellis, 40 Park Road, Marrickville.

FOR SALE—62ft mast £16; or 86ft mast, £20. Complete with umbrella aerial wave-length, 1500 metres. c/o Miss Wallace.

WANTED—Pair Baldwin Mica. Amplifying phones. Rogers, c/o J. P. Lister, Bathurst Street.

YVT; Mercuria, YTM; Merganser, GCTL; Merton, MJM; Merkara, GMY; Mersey, MWJ; Merton Hall, GBCW; Mesaba, EOY; Mesopotamia, EVA; Metagama, YZQ; Meteor, GBSP; Methven, YLS; Mexico, MWG; Miami, GBFJ; Michael, GWV; Michaelston, YTP; Michigan, GKM; Middleham Castle, ZVJ; Middlesex, GDQB; Millais, LST; Millpool, LTJ; Milton, BEX; Min, BSL; Miltonstar, YSC; Mineric, LSC; Minia, GUQ; Minna Horn, GBWX; Minedosa, GZX; Minnie de Larrinaga, MLA; Miryapore, GFBK; Mississippi, GRI; Missouri, MLG; Mitra, MZH; Moana, GFYC; Modasa, GFDZ; Moeraki, GFYD; Mokota, GFYJ; Mokta YGA; Moldavia, GDVZ; Molesey, ZXV; Mollere, ZBN; Molton, GCYJ; Mombassa, ZAK; Mona, GFBY; Monadnock, MIX; Monarch, GTS; Monarch, ZBS; Mona's Isle, GFPN; Mona's Queen, GFPV; Monássi, GCMD; Monestoy, ZFE; Monette, YXC; Mongolia, GFBJ; Mongolian Prince, YWO; Monshaven, YCJ; Monkton, GDBJ; Montazah, GCLZ; Montenegro, EMQ; Montezuma, XKY; Montgomeryshire, GDBV; Montreal, GBKN; Montrose, GCBY.

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