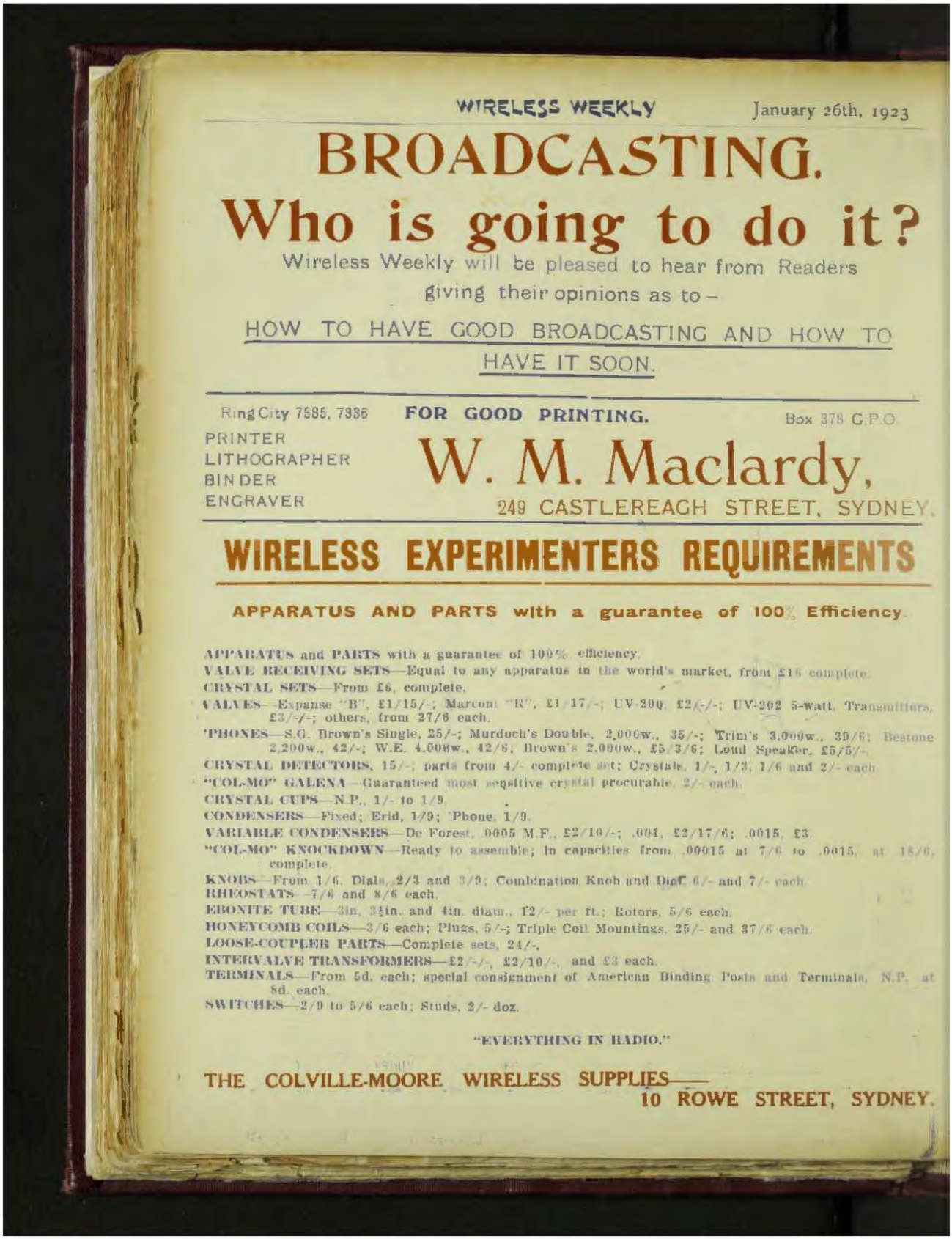
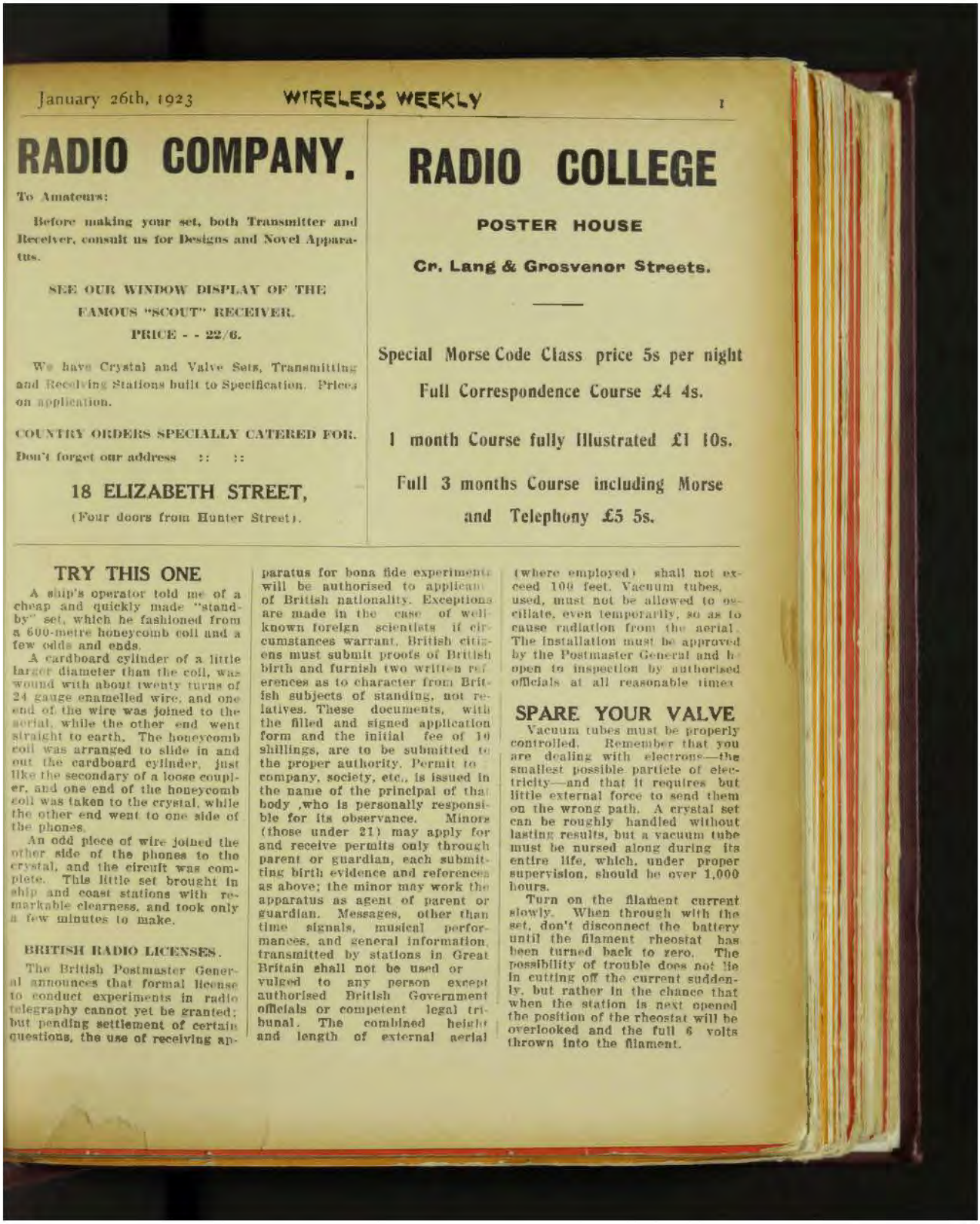




TRY THIS ONE

A ship's operator told me of a cheap and quickly made "stand-by" set, which he fashioned from a 600-metre honeycomb coil and a few odds and ends.

A cardboard cylinder of a little larger diameter than the coil, was wound with about twenty turns of 24 gauge enamelled wire, and one end of the wire was joined to the aerial, while the other end went straight to earth. The honeycomb coil was arranged to slide in and out the cardboard cylinder, just like the secondary of a loose coupler, and one end of the honeycomb coil was taken to the crystal, while the other end went to one side of the phones.

An odd piece of wire joined the other side of the phones to the crystal, and the circuit was complete. This little set brought in ship and coast stations with remarkable clearness, and took only a few minutes to make.

BRITISH RADIO LICENSES.

The British Postmaster General announces that formal license to conduct experiments in radio telegraphy cannot yet be granted; but pending settlement of certain questions, the use of receiving apparatus for bona fide experiments will be authorised to applicants of British nationality. Exceptions are made in the case of well-known foreign scientists if circumstances warrant. British citizens must submit proofs of British birth and furnish two written references as to character from British subjects of standing, not relatives. These documents, with the filled and signed application form and the initial fee of 10 shillings, are to be submitted to the proper authority. Permit to company, society, etc., is issued in the name of the principal of that body ,who is personally responsible for its observance. Minors (those under 21) may apply for and receive permits only through parent or guardian, each submitting birth evidence and references as above; the minor may work the apparatus as agent of parent or guardian. Messages, other than time signals, musical performances, and general information, transmitted by stations in Great Britain shall not be used or vulged to any person except authorised British Government officials or competent legal tribunal. The combined height and length of external aerial (where employed) shall not exceed 100 feet. Vacuum tubes, used, must not be allowed to oscillate, even temporarily, so as to cause radiation from the aerial. The installation must be approved by the Postmaster General and be open to inspection by authorised officials at all reasonable times.

SPARE YOUR VALVE

Vacuum tubes must be properly controlled. Remember that you are dealing with electrons—the smallest possible particle of electricity—and that it requires but little external force to send them on the wrong path. A crystal set can be roughly handled without lasting results, but a vacuum tube must be nursed along during its entire life, which, under proper supervision, should be over 1,000 hours.

Turn on the filament current slowly. When through with the set, don't disconnect the battery until the filament rheostat has been turned back to zero. The possibility of trouble does not lie in cutting off the current suddenly, but rather in the chance that when the station is next opened the position of the rheostat will be overlooked and the full 6 volts thrown into the filament.

A TALK WITH "WIRELESS WEEKLY."

Why are amateurs, especially those in New South Wales, so apathetic?

It is not the first time that "Wireless Weekly" has asked this question, and it is not asked without cause. In this instance we use it in connection with the Trans-Pacific Tests, which are to be carried out shortly.

Very few amateurs seem to realise what these tests mean. They are of the utmost importance, and the eyes of the world will be on Australia.

The Trans-Atlantic amateur tests aroused tremendous interest, but the English experimenters did not have half the task that is ahead of Australians. Yet Australians are apathetic and do not seem to care whether the tests are successful or not.

This matter must be taken to heart. Everything must be done with a view to making the tests a success, so that nobody can point to us afterwards and say "they did not care very much."

The committee formed to handle the tests is doing excellent work, but it should not be left to this willing band to do everything. It cannot be denied that there are many among the experimenters who care nothing for the science outside their own apparatus and these are the ones who will do great harm to the whole business.

For the sake of the advancement of the science and the good name of the Australian experimenter, "Wireless Weekly" appeals to all to do their best to ensure success.

HOW 'PHONES WORK

A telephone receiver consists of a permanent magnet, which acts upon a metal diaphragm. Around the poles of the magnet are wound fine coils of wire, which vary the magnetic attraction upon the diaphragm and thereby cause it to vibrate at the frequency of the "audio" waves. The alternating current resistance effect of the coil to the carrier frequency, which is 875,000 cycles per second at 360 metres, is very high.

The voice frequency varies from 300 to 1,200 generally, and it is the superimposed voice envelope which is the current actuating the diaphragm.

In order to shunt the carrier frequency across the headphones, which are in series with the circuit of the receiving set, a small condenser is placed in parallel to the headset. This will not permit audio frequency to get through, but forces it to circulate through the headphones.

SHIELDED TRANSFORMERS.

One of the hits of the recent Chicago Radio Show was the completely shielded "All American" transformer made by the Rauland Mfg. of Chicago. This embodies a standard transformer, designed to give maximum amplification without distortion, completely shielded in a nickel-plated glass case. The shielding is claimed to make it possible to mount the transformers close to one another without induction disturbances or howling.

This transformer is made up in three ratios: 3-1, 10-1, and 5-1. The first named is recommended for the third and fourth stages, although the others can be used for as high as three stages without howling.

RADIO NOTES

ANOTHER USE.

To broadcast warnings of flood, not only for the purpose of summoning aid but also to warn distant residents of impending danger, a radio sending station has been installed near the source of the Verde River in Arizona—the water supply base of a 200,000-acre irrigation project. Radio offers the only means of communication between Phoenix and the upper reaches of the river, where storms often cause enormous damage to the country below.

217 LIVES SAVED.

Another stirring chapter was written in the romance of radio at sea when the steampship "City of Honolulu" burst into flames while 670 miles off the California coast a few months back.

Not only did radio keep the world informed of the progress of the fire, but brought help in time to save all of the passengers and crew. Before the days of wireless such a conflagration would have meant suffering and death.

SYDNEY TECHNICAL HIGH SCHOOL RADIO CLUB.

SOMETHING WAS WRONG.

Every radio operator who has either received or sent a notice of death can appreciate the feelings of the chap who tells the following story:—

While sailing on the Great Lakes as radio operator on the S.S. "Missouri" I received a message from WGO, Chicago. The message was then two days late, and it was the kind that an operator hates to either send or receive. It was worded somewhat like this:

JOHN RYAN S.S. "MISSOURI."
YOUR FATHER IS DEAD
COME HOME AT ONCE
SISTER

Instead of giving the message to a cabin boy for delivery in the usual way, I took it to the Purser and explained its contents. He said that he would deliver it in a way that would make it easier than as if Mr. Ryan received it without warning of its contents.

The Purser found Mr. Ryan in his cabin.

"The operaor just received a message for you; it contains some bad news from your home. Your father is dead."

Mr. Ryan dazedly repeated the Purser's words:

"My father is dead? Why, sure he's dead. He ought to be dead; he died thirty years ago!"

What the Purser said to me will have to go unprinted, and the Chicago radio station received a pointed service message.

BATTERY CONNECTIONS.

The vacuum tube needs two kinds of batteries—A and B—which will operate in conjunction with the tube only when correctly joined up.

The A or storage battery is used for lighting the filament. When the filament is heated, electrons travel to the plate inside the vacuum tube, provided the plate is charged to a positive potential. In other words, you must connect the positive terminal of your B battery with the plate terminal of the vacuum tube in order to have the tube operate successfully.

The greater the positive potential placed on the plate, the louder will be the response in the telephones connected with your set, up to a certain point. After this point is reached, however, results are spoiled if more voltage is added to the plate circuit. The saturation depends upon the characteristics of the individual tube being used in the set, and it is for this reason that B batteries are fitted with taps to enable you to make connections for different voltages. For this reason also experiment alone will determine the amount of voltage to put on the plate of your tube.

Remember that the negative lead from the B battery should be joined to the same terminal of the storage battery that is connected back with the tuner.

Recent modification of the rigid laws governing the installation of wireless telephone and telegraph stations have made possible the installation of radio broadcasting, according to American Vice-Consul Edwin B. Montgomery, of Montevideo. Applications are now pending which, if granted, should mean the opening of a splendid market for radio telephone receiving apparatus in Uraguay.

WAVES AND THEIR MOTION.

RESONANCE

(C. W. MANN).

In the study of resonance we have to deal with the natural vibration of bodies. All elastic bodies have a natural period of vibration. Scientists assume that matter is made up of particles which are constantly vibrating. A vibration is a periodic motion of a particle in an elastic medium in alternately opposite directions from the position of equilibrium, when that equilibrium has been

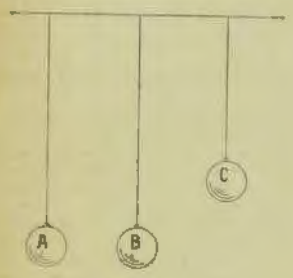


Fig 1.

disturbed, as when a stretched string or a column of air produces sounds. One vibration is commonly understood to mean the complete movement described by the particle during one period. The number of vibrations per second is called the frequency. All bodies have a natural frequency, that is, if caused to vibrate will always vibrate to a certain frequency. This is the natural frequency. If two bodies capable of vibrating have equal natural periods and are made to vibrate, the amplitude of the vibration of each is considerably increased. These two bodies are then said to be in resonance.

Resonance can be best explained by a series of simple and frequently met examples:—

(1) **Mechanical Resonance.** From a string stretched between two points, three pendula A B and C are suspended. A and B have equal lengths, and thus equal frequencies, while C is any other length. The pendula B and C can remain at rest, while A is drawn aside and allowed to swing. After a few vibrations, B commences to swing in its natural period, while the swing of C is marked by alternate positions of fairly great amplitude and rest. B swings on account of the vibrations which are forced upon it by A, per medium of the strings. The peculiar movement of C illustrates the principle of beats (explained in the last article) if the lengths of C and B are almost equal. This experiment requires a lot of words to explain it, and the reader will get a lot of information by trying this and some of the following simple prictical experiments:—A well-known example of resonance in the mechanical sense is illustrated by troops marching over a bridge in step. If it so happens that the natural period of the bridge is that of the stepping soldiers, the bridge will vibrate to a very marked extent, and if a small structure, may even collapse. For this reason, troops are always given the command "Break Step" when marching over a bridge.

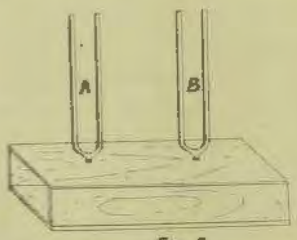


Fig 2.

The effect of resonance is often very marked in ships fitted with reciprocating engines. Owing to the inertia of the reciprocating masses, such as pistons, etc., a periodic force is applied to the hull, and if the period agrees with a natural period of the hull,

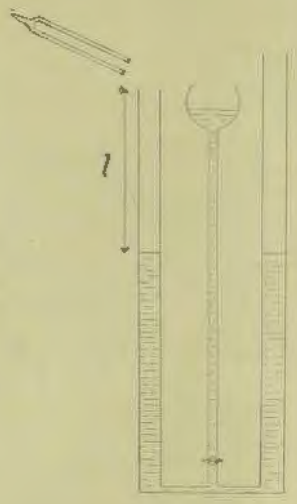


Fig 3.

marked vibration is set up. If, however, the engines are made to rotate at a slightly higher or lower speed, so that resonance no longer occurs, the vibration set up is very much reduced.

(2) **Sound.**—Resonance can be very conveniently studied in connection with sound. Take two tuning forks (A and B) having the same frequency—for example, two forks sounding the note C. Mount these on a resonator—a box without ends—strike the fork A and allow it to vibrate for a second or two. Then damp the fork A with finger and thumb, and it will be found that B has commenced to vibrate, and sound can be heard from the resonator. The same effect can be produced if the forks are mounted on separate resonators, a few feet apart, provided the forks have the same frequency. The vibration of the fork A has caused the surrounding air

WAVES AND WAVE MOTION.

to vibrate, and these vibrations have been forced on the tuning fork B. The resonators are so constructed as to increase the volume of sound by being in resonance with the tuning fork vibrations.

The same effect can be seen in a glass tube containing water (fig. 3). Take a fork sounding C (256 vibrations per second) and hold it when vibrating over the tube. Adjust the level of the water so that the sound is loudest. The fork C and the column the two waves of equal lengths, of air are then in resonance, and having been super-imposed on each other, have increased the resultant amplitude. Hence, the sound is louder than with the tuning fork alone. We might increase the value of this experiment by determining the velocity of sound. The natural wave length (L) of the sound produced by the closed tube A can be shown to be four times the length of the closed tube (l).

$$L = 4l.$$

We know that $v = Ln$ (previous article) where v = velocity of sound, and n = the frequency, and L = the wave length.

Therefore, $v = 4$ ln.

The frequency (n) will depend upon the tuning fork used—in this case C was used, and has a frequency of 256 vibrations per second. The units used should be metric.

Another example can easily be arranged. Place your foot on the loud pedal of a piano and produce a note, by singing, by a violin, or any other means. It will be noticed that the same note is produced by the piano, due to the forced vibrations. Many other examples of resonance might be suggested, but enough has been said to secure an intelligent grasp of the principle. A definition, at this point, would not be out of place. Resonance may be defined as the continuance or increase of sound, due to the sympathetic vibration of some body capable of moving in proper period: and by extension the counterpart may be experienced in any system of vibrations, e.g., light and electricity.

In wireless telegraphy we usually have one instrument capable of sending out vibrations, and another capable of receiving vibrations. This is not enough. It is necessary to arrange that the vibrations of one may be exactly forced upon the natural period of the other. This is usually arranged at the receiving end by inductances and capacities, and the instruments are in tune when their natural periods are equal and they resonate. It is frequently possible to hear loud stations without any accurate adjustments. In this case we hear the harmonic of the fundamental wave length, but this subject must be left to a later article. We could arrange an aerial of such a length that inductances would be unnecessary, but this would be inconvenient, both for length and also for adjustments for small vibrations of wave length which always occur in commercial work.

A STATIC-PROOF SET.

When two hundred members of the American Canoe Association recently gathered at Sugar Island, near Ganagoque, Canada, for an evening's entertainment, they were treated to a truly remarkable exhibition of the possibilities of radio.

A huge (and obviously home-made) receiving set was carried out before the audience, an aerial was solemnly run up on a flag-pole and a serious radio lecture was delivered by the "operator," Oscar S. Tyson. Inside of the set was concealed George P. Douglas, who with the help of a phonograph for music, a megaphone for speaking, two flashlights for tubes and several "rattlers" and "squeakers" for static gave a very creditable bit of broadcasting, which entirely fooled the audience—until the front plate of the set was removed at the end of the entertainment.

GENERAL LISTENS IN.

The recent mysterious appearance of an antenna running around the top of one of the big United States army limousines used by General Pershing gave rise to rumors that the former chief of the A. E. F. had become a radio fan. The installation was made by the general's son, Warren, in collaboration with an obliging army sergeant.

HELP ONE ANOTHER.

Help your neighbour. If you have discovered any little kink that helps to eliminate trouble in your radio apparatus, or if while experimenting with the connections of your set you should run across some interesting phenomenon, or if you should discover some new hook-up that gives better results—send it to "Wireless Weekly."

MAKE YOUR OWN.

TRANSMITTING KEY.

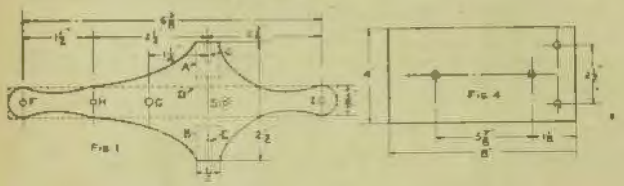
Cut from a piece of ¼-in. sheet brass, a piece whose dimensions correspond to those given in Fig. 1. Cut a second piece, from some ⅛-in. stock, ⅝-in. wide and 7in. long, and solder it to the first piece, as shown by the dotted line D in Fig. 1. File off the edges and ends of this piece, after it is soldered in place, to conform to the outline of the main piece. Solder two other pieces, ¼in. wide and ⅝in. long, to the first piece as shown by the dotted lines A and B, Fig. 1, and insert two pieces of ⅛-in. steel rod, of such a length that the ends project about ¼-in. These projecting ends should be pointed, as shown in Fig. 2. Drill a ⅛-in. hole at F. The holes at H, G and I should be threaded for 3/16-in. screws.

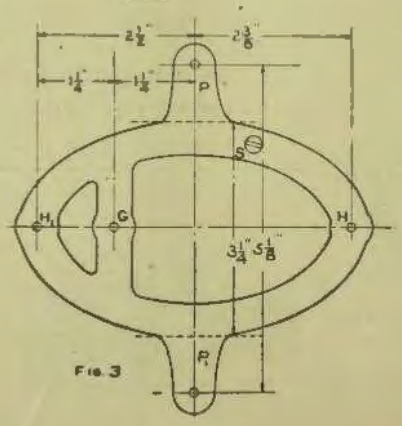
Cut another piece from some ⅛ in. sheet brass as shown in Fig. 3. The projecting arms P and P1 should be bent up at right angles to the rest of the piece, at the points indicated by the dotted lines. Before bending these pieces, two holes should be drilled in them, as indicated in the figure, and threaded to take 3/16-in. screws. Place a 3/16-in. brass thumbscrew, with a lock nut on it, in the hole G, Fig. 1. The end of this screw should be turned down to ⅛-in. in diameter for a distance of ¼-in., and a ⅜-in. washer of 1/16-in. brass made to slip on the end. Secure two 3/16-in. brass bolts, about 1½in. long, that are threaded their entire length, and each having three or four washers and four nuts.

Place one of these bolts through the hole H, Fig. 3, and fasten it in place with a nut on the under side. The other bolt should be fastened in the hole H1, but insulated from the piece of brass. The hole H1 should be drilled 5/16in. in diameter and a small bushing with a 1/16-in. wall placed inside of it. The opening in the bushing should be 3/16-in. Place a metal washer on the bolt first, then an insulating washer and slip it through the hole and then place on a second insulating washer and metal washer and lastly the nut which will hold them all in place. This bolt should, however, have its head filed off flat and a small hole drilled in the centre, into which a short piece of platinum wire is forced, and the projecting end hammered down, thus giving a platinum surface considerably larger than the area of the wire. Obtain two thumbscrews, about 1in. long, that will fit the threaded holes in the arms P and P1.

Drill a 3/32-in. hole in the end of each of these screws and provide each with a small nut that will aid in holding them in place when their final adjustment has been made.

The piece shown in Fig. 3 can now be mounted on a wooden base. This base can be made from a piece of close-grained wood, about 1in. thick, and its dimensions should correspond to those given in Fig. 4. The holes in this base should be countersunk on each side with a ⅜-in. bit to a depth of ¼-in. so that the nuts on the screws used in mounting will be entirely below the surface. Mount two back-connected binding-posts in the corners of the base and connect them to the two screws with wires placed in





grooves, cut in the under side of the base.

A small handle should now be turned from a piece of hard rubber or very hard wood as shown in Fig. 5. This handle can be mounted on the piece shown in Fig. 1 with a ¼-in. brass screw passed through the hole F from the under side. Obtain two thumbscrews about 1-in. in length that will fit the holes H and I, Fig. 1. Each of these screws should be provided with a lock nut. Drill a small hole in the end of the one you intend to put in the hole H and rivet a piece of platinum wire in place. A screw, S, should be provided on both the pieces shown in Figs. 1 and 3, to be used for electrical connections.

Make a small coil spring by winding a piece of No. 20 gauge steel wire around a 2/16-in. rod. The distance between turns should approximately equal the diameter of the wire, and the total length of the spring should be ¾-in. Place the end of a piece of lamp cord about 4-in. long under the screw, S, Fig. 1. Now mount the piece shown in Fig. 1 upon the piece shown in Fig. 3, making sure the coil spring is in place before the screws in the supports P and P1 are given final adjustment. The other end of the piece of lamp cord can now be fastened under the screw S, Fig. 3. The screws in the holes H and I can now be adjusted, giving any desired movement of the handle before the contact is closed. The screw G can be adjusted to give any pressure of the spring desired.

The aerial must not touch a tree, building, metal roof, drain-pipe, or other wire. Dry wood is a fairly good insulator, but if the lead-in wire comes within a few inches of a metal plate that is grounded, the loss of signal strength will be marked.

WITHIN PRISON WALLS.

To pick up a bit of news by radio that may save you from an otherwise sure death must give a man convicted of murder an honest-to-God thrill—particularly if that bit of news comes to him in a prison cell, literally within the shadow of the electric chair. This adventure comes from Boston, and is printed in a contemporary:—

When George Rollins, convicted of murder, was listening in on his little radio set on the evening of August 10, he picked up a piece of information which may bring about his pardon. Rollins was in his cell, listening to the regular late news broadcast from WGI at Medford Hillside, near Boston.

Suddenly, announcement was made that Governor Sproul of Pennsylvania was to release Frank Smith, alias Jesse Murphy, who had confessed some months before to one of the two murders of which Rollins was convicted.

The two killings occurred in February, 1917; no one had yet paid the penalty for them. Rollins and his brother Charles were both implicated and convicted; while George was awaiting sentence, Murphy confessed to one of the murders. While he did not confess to the killing, he positively stated that Rollins did not do it.

Naturally, George Rollins secured a new lease on life when he heard the news by radio that Murphy was about to be released from the Philadelphia Penitentiary and would be brought to justice in Boston.

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.—Electrician's Kit of Tools for sale cheap. "Cecilton," 108 Carrington Road, Randwick. Clovelly tram.

FOR SALE.—L. Coupler, complete with 2,000 O.H.M., Phones, V. Condenser, Two Crystal D., 50 ft. Pole and Aerial. No reasonable offer refused. G. Mason, 27 Wells Street, Annandale; or 'phone City 2917.

GET A PLUG

RADIO WITHOUT AERIALS.

When Radio and I were kids together, I used to enjoy walking around the hedges of high roofs and promenading on back yard fences to erect my aerial. But as time passes I must confess I hate the job of putting up an aerial, especially on these cold days.

It was a long time before I fell for the plugs that make an aerial out of an unsuspecting electric light wire (writes Armstrong Perry, in "Popular Science Monthly"). But at last there arose an occasion which demanded such a connection with the ether. I must either spend another day on the pebbled tar, preceded by the usual cautious and fearful approach to the landlord, or else get a plug.

There were already several of these lamp socket substitutes for an aerial on the market, with new ones appearing every day. First I looked at the one that was said to have beaten the rest in the sprint for the patent office. It was a proper looking piece of gutta percha with a screw on one end and two binding posts on the other. Inside there was nothing apparent but a glimpse of brass and mica so arranged that it was obviously impossible for the electric light current to flow from the light wires into the receiving set. Not having much faith in the contraption, I bought another, which, so I was told, was second in the race for a monopoly.

I tried all possible hook-ups and finally I got good results. I ran my ground wire to a steam radiator, then I put on the phones and began to adjust my crystal detector. I was prepared for a long period of silent experimentation, but the instant the catwhisker touched a tickle spot I began to get signals. I shifted the tuner a few degrees. A deep-chested fellow was speaking at a banquet table. The more I listened, the more I learned and the more possibilities I began to see in the broadcasting of talks at public functions. Why can't public officials, municipal, state and national, let us in by radio on important gatherings?

But to return to my plug. It ushered me into many places. One of them was the broadcasting station of the American Telephone and Telegraph Company. They had three separate musical organizations that night. With my crystal detector and the plug the music came across as clearly as though I were in an adjoining room. No tube noises, no atmospherics, nothing but superlative music.

It looks to me as though these lamp socket plugs are going to introduce the joys of radio to thousands of conservative folks who have held off from buying a radio set because they did not know how to solve the antenna problem. The coil aerial, the super-generator and other radio developments tend to solve the same problem, but not yet for the man or woman who must have simplicity as well as service. The plug any one can understand and use. No lightning arrester or switch is needed. Another five dollars saved.

It seemed wise, before waxing too enthusiastic over the little plug, to find out whether mine was an exceptional experience. I tried out the plugs in a downtown steel-framed building. Sometimes a steel frame soaks up the radio waves and leaves the listener in an aerial desert. I found that music, voice, and code came in this building as well as in my own room. I was very near the broadcasting station, however and am told that in crowded city districts success with these devices is far from certain.

I took set and plugs to William Henderson's in uptown New York. William is 18 and, among his other achievements, he has constructed a simplified Armstrong super-regenerative set that works without either antenna or ground connections. I was sure he would know a good deal about plugs. He did. They did not work in his ground floor apartment. He proved this by testing for my benefit. One flight up, however, the plug worked fairly well. I tried it on the third floor and it worked better. On the top floor it worked fine. Why? William, being an honest radio fiend, told the truth. He does not know and has been unable to find out. Maybe it is some peculiarity of the house wiring.

The most important discovery I made, from the point of view of the man who must scrimp a bit on luxuries, came when I dug out a little old galena detector and hooked it to the plug and ground wire with no tuning apparatus at all. Near-by radio-telephone and code stations came in just as clearly and in as strong volume as they did through the set.

I have talked a good deal, since then, with plug users. Some report great success—some complete failure. An engineer who makes plugs—and who has found no location where his plug will not work—tells me that most of the complaints received from his company's customers are readily satisfied by telling the customer to try again and be very careful with his tuning. In some tests, broadcasts over a range of several hundred miles have been heard.

The plug plus the lighting system forms an antenna with characteristics very different from those of the outside antenna. For this reason the broadcasting station that has been brought in by a particular setting of the tuner dials when attached to the outside wire is found in a different location with the plug.

The plug sharpens the tuning. Twirling the tuner knobs at the usual rate of speed, it is very easy to slide past the critical point without hearing the station. The knobs must be moved very slowly. Half a degree may bring in or shut out the station. This is an advantage when there are many stations on the air and great selectivity is needed.

Trying the plugs at the different adjustments shown on the diagrams, I found that:

Using both the plug and the outdoor aerial at the same time, the result was sometimes a slight increase in the volume of sound.

RADIO WITHOUT AERIALS.

Attaching the ground wire to the side of the plug opposite that where the antenna wire was connected brought nothing at all, though in a system in which this would make connection, through one of the plug's condensers, with a grounded wire I believe it would work.

Bringing down wires from both sides of the plug to the antenna connection on the receiver made little if any difference.

Adding the regular ground connection made it louder.

Turning on the juice at the socket helped some. The plug had to be in a particular position in relation to the socket. Turning it around stopped the show. The results in general were about the same as with my outdoor aerial.

The absolute limit in my own experiments was reached when, having laid a piece of galena on the table, I touched it with the end of the ground wire that I was holding in my left hand and with the end of the wire from the plug that I was holding in my right. The wires from my phones were attached to these wires, so that with the two contacts on the galena I had what has long been known as the simplest form of radio receiver, consisting of an antenna, a detector, a phone shunted around the detector, and a ground connection. The concert came in clearly. Here again I must admit that the broadcasting station wasn't very far away.

The joy of it is that henceforth I can forget my antenna. I can take a set in my grip when I travel and plug in on the radio concerts wherever electric lights are used, and I can always find a water pipe, a steam radiator or the ground itself when I want to install the earth connections.

COMPACT RECEIVER

A receiver of unique design, consisting of detector and two stages of audio frequency amplification, is announced by the Bryant Radio Co. of Palo Alto, Calif. As may be noted from the illustration, the panel is set at a 45 degree angle, thus adding to the compactness of the set and to convenience in tuning. Tuning is

accomplished by rotating one dial and change from one to two stages of amplification by turning a switch. All connections are at the back and the "B" battery is inside. The circuit is a special one developed by the Bryant engineers to eliminate spark signals, this set being intended primarily for broadcast reception in the home.

TRANS-PACIFIC RADIO TESTS.

LIST OF THOSE ENTERING FOR TRANS-PACIFIC RADIO TESTS

C. D. Maclurcan.
W. Hudson.
I. Spencer Nolan.
Burwood Radio Club (Calibration Test).
Robert James Sharpe.
Sydney V. Colville.
R. C. Marsden.
Western Suburbs Amateur Radio Club.
F. T. S. O'Donnell.
Edward B. Crocker.
C. P. Bartholomew—Donation of £2/2/-.
The Hon. Sec.
Mr. Tatham,
28 Adelaide, Woolaraha.

Will be pleased to give any particulars to those intending to enter.

TRANS-PACIFIC RADIO TESTS PRIZE LIST.

Sea, Land and Air.
Australectric Ltd.
Colville and Moore, Wireless Supplies.
Electric Utilities Supply Co.
Bergin Electric Co.
Miss Wallace.
Mr. Malcolm Perry.
Frank E. O'Sullivan
Radio Company.
W. Harry Wiles.
Electricity House.
"Wireless Weekly."
Western Electric Co.
Sydney Motor and Dynamo Co.
Universal Electric Co.
Mr. H. G. Dewis.

THE MARRICKVILLE DISTRICT RADIO CLUB.

At the last general meeting, 15th January, a full outline of proposed doings was discussed, and now that a larger and more convenient Club room is available, it is expected that a large attendance will attend the meetings held every Monday at 8 p.m. The secretary is willing to answer all enquiries re membership, subscriptions, etc. The construction of the Club's set will be gone on with immediately. Lectures, buzzer practice, practical demonstration are amongst the items for next meeting. The new club room is the Congregational School Hall, Perry St., Marrickville (Addison Rd. tram). It is of interest to note that the club has several lady members and that their chief desire is to see others follow suit. Buzzer practice for VIS is their long suit also.

REG. G. ELLIS, Hon. Sec.,
40 Park Rd.,
Marrickville. Pet. 1628.

WESTERN SUBURBS AMATEUR WIRELESS ASSOCIATION.

At the last meeting of the W.S.A.W.A. a simple explanation of resonance was demonstrated by Mr. Challenger. This was done by suspending equal weights by thread to a cord stretched across the room. As long as two of these were suspended by equal lengths of thread, an impulse given to one was communicated to the other, weights suspended at different lengths remaining unaffected. This demonstration gave a clear explanation to beginners as to the fact that stations working on different wave-lengths did not interfere with one another.

Mr. Challenger also gave an exhibition of high frequency currents producing very brilliant results with Geisler tubes, etc.

Recently the club did a little practice transmitting, and although the results were gratifying to all concerned it was thought that the transmitter was not as efficient as it might be. Consequently, on arriving at the fact that the fault lay in the aerial, it has been decided to erect a new one of a higher capacity in lieu of the single wire aerial now in use.

BALMAIN DISTRICT RADIO SOCIETY

The second meeting of the above Society was held in St. John's Hall on Wednesday, 17th January. Dr. Cookson occupied the chair. There was a good attendance, and great interest shown throughout the evening.

The Society are obtaining the necessary license and intend installing a 10-watt Spark Transmitter, 10 Watt, C.W., I.C.W. and Radio Telephone apparatus, and the license is taken out in the Hon. Sec.'s name, who has high power radio station experience, including spark, arc and valve transmitters up to 60 K.W., together with the various types of receivers ashore and afloat.

Mr. J. Mort, electrical engineer, has been elected on the technical committee, Mr. McCarron has been elected Hon. Auditor in place of Mr. Davis, Mr. Preston, Hon. Treasurer in place of Mr. Riccords. As the Hon. Secretary, Mr. P. G. Stephen is going into hospital, Mr. F. W. Riccords has been elected to fulfill that position until Mr. Stephen returns.

We have experimenters of all ranks, including our vice-president, Dr. Cookson who first took up the science some twenty years ago, and the new experimenter who has just started through reading the articles in "Wireless Weekly."

All interested are invited to write to the Hon. Sec. Pro Tem.,

Mr. F. W. RICCORDS,
77 Grove St,
Balmain.

THE NORTH SYDNEY RADIO CLUB.

The last general meeting of the North Sydney Radio Club, held on Tuesday, the 16th inst., was marked by another great roll-up in anticipation of a repetition of Mr. McIntosh's lecture on "Wireless Telephony."

Unfortunately, however, Mr. McIntosh was unable to be present, and the gap was filled by a lecture upon "The Elementary Principles of the Valve," which was delivered by Mr. McClure, who treated his subject very fully and also touched lightly upon the electron theory.

The next meeting will be held at the clubrooms, Cr. Alfred and High Sts., North Sydney, next Tuesday night.

ILLAWARRA RADIO CLUB.

A busy meeting of the Club was held at the club-room, 75 Montgomery St., Kogarah, on Thursday, 18th inst. After minutes had been read and new members elected, Mr. Gorman reported the proceedings of the last meeting of the Radio Association, when some important matters had been dealt with. He also spoke of the work carried out to date by the Trans-Pacific Tests Organisation Committee, as disclosed at their last meeting. Arrangements were going along well, but it was desirous that all intending competitors enter early to enable proper organising to be carried out. Many points of interest in connection with the Tests were explained.

Several other important Club matters were the subject of discussion, particularly as to the Club's proposed single-valve receiving set, which it is hoped will be in operation at an early date. A license (transmitting and receiving) has already been applied for.

The next meeting of the Club will be held at the Club-room (as above) on Thursday, 1st February, when something of special interest is promised, in the shape of a lecture by Mr. J. G. Reed (of Amalgamated Wireless, Ltd.) on "Short Wave Transmitters and Receivers." Club members are specially requested to be present at this meeting, and visitors are cordially invited to attend. The Secretary (Mr. W. D. Graham, 44 Cameron St., Rockdale) would be pleased to hear from anyone interested in the Club.

LEICHHARDT & DISTRICT RADIO SOCIETY.

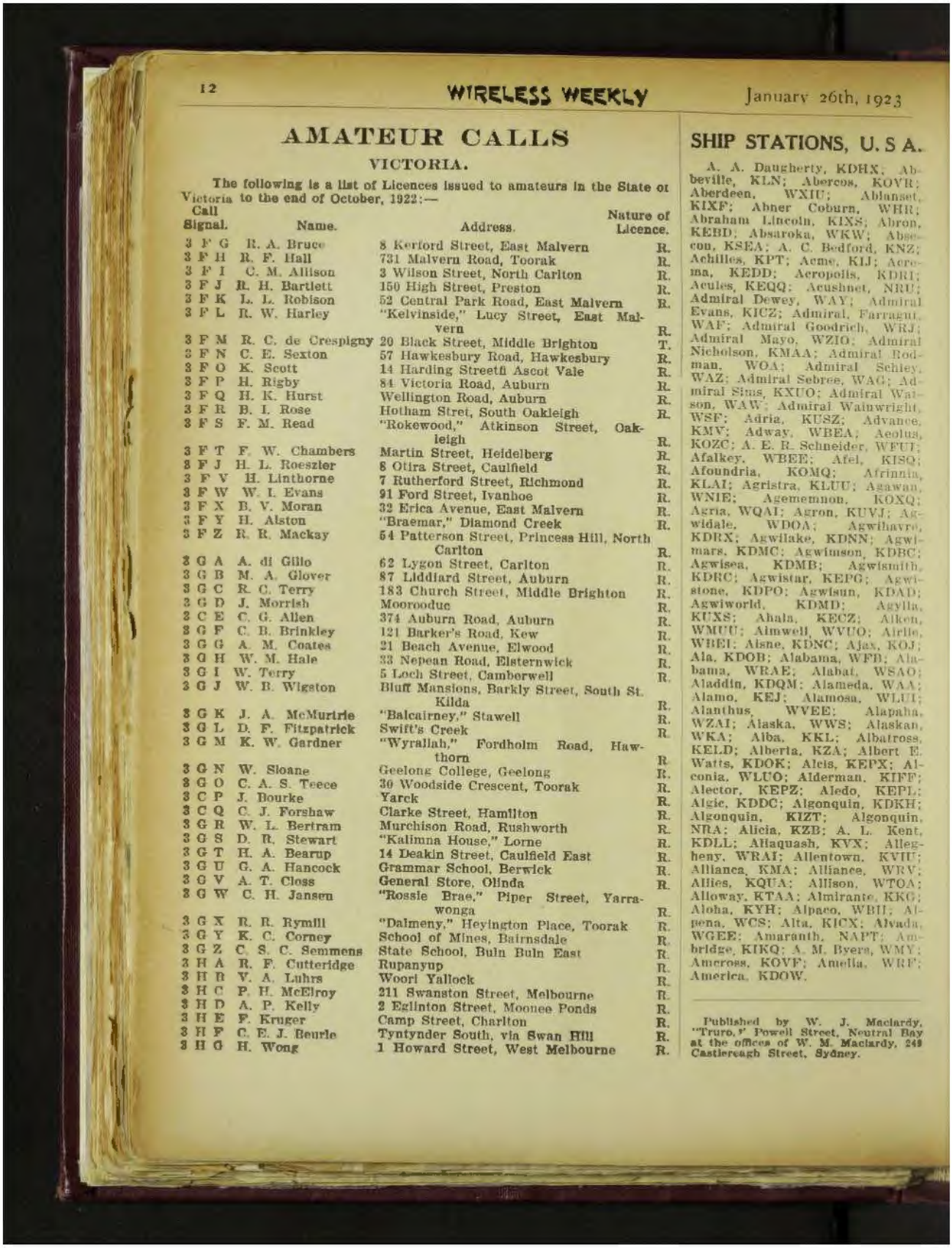
Members of the Leichhardt and Distric Radio Society held their Thirteenth General Meeting in the new Club Room, Victory Hall, rear of Methodist Church, Johnston Street, Annandale, on Tuesday, January 16th.

The meeting was well attended, and the evening was spent with the carrying on with Morse practice, and a discussion on wireless matters generally.

The matter of the erection of an aerial and the installation of a set is now under consideration, and it is expected that same will be in operation at an early date.

All enquiries regarding the Society's activities should be addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Booth St., Annandale.

The next meeting is to be held on Tuesday night next, when all interested are invited to be present.



AMATEUR CALLS

VICTORIA.

The following is a list of Licences issued to amateurs in the State of Victoria to the end of October, 1922:—

Call Signal.	Name.	Address.	Nature of Licence.
3 F G	R. A. Bruce	8 Kerford Street, East Malvern	R.
3 F H	R. F. Hall	731 Malvern Road, Toorak	R.
3 F I	C. M. Allison	3 Wilson Street, North Carlton	R.
3 F J	R. H. Bartlett	150 High Street, Preston	R.
3 F K	L. L. Robison	52 Central Park Road, East Malvern	R.
3 F L	R. W. Harley	"Kelvinside," Lucy Street, East Malvern	R.
3 F M	R. C. de Crespigny	20 Black Street, Middle Brighton	T.
3 F N	C. E. Sexton	57 Hawkesbury Road, Hawkesbury	R.
3 F O	K. Scott	14 Harding Streetfi Ascot Vale	R.
3 F P	H. Rigby	84 Victoria Road, Auburn	R.
3 F Q	H. K. Hurst	Wellington Road, Auburn	R.
3 F R	B. I. Rose	Hotham Stret, South Oakleigh	R.
3 F S	F. M. Read	"Rokewood," Atkinson Street, Oakleigh	R.
3 F T	F. W. Chambers	Martin Street, Heidelberg	R.
3 F J	H. L. Roeszler	8 Otira Street, Caulfield	R.
3 F V	H. Linthorne	7 Rutherford Street, Richmond	R.
3 F W	W. I. Evans	91 Ford Street, Ivanhoe	R.
3 F X	B. V. Moran	32 Erica Avenue, East Malvern	R.
3 F Y	H. Alston	"Braemar," Diamond Creek	R.
3 F Z	R. R. Mackay	54 Patterson Street, Princess Hill, North Carlton	R.
3 G A	A. di Gillo	62 Lygon Street, Carlton	R.
3 G B	M. A. Glover	87 Liddiard Street, Auburn	R.
3 G C	R. C. Terry	183 Church Street, Middle Brighton	R.
3 G D	J. Morrish	Moorooduc	R.
3 C E	C. G. Allen	374 Auburn Road, Auburn	R.
3 G F	C. B. Brinkley	121 Barker's Road, Kew	R.
3 G G	A. M. Coates	21 Beach Avenue, Elwood	R.
3 G H	W. M. Hale	33 Nepean Road, Elsternwick	R.
3 G I	W. Terry	5 Loch Street, Camberwell	R.
3 G J	W. B. Wigston	Bluff Mansions, Barkly Street, South St. Kilda	R.
3 G K	J. A. McMurtrie	"Balcairney," Stawell	R.
3 G L	D. F. Fitzpatrick	Swift's Creek	R.
3 G M	K. W. Gardner	"Wyrallah," Fordholm Road, Hawthorn	R.
3 G N	W. Sloane	Geelong College, Geelong	R.
3 G O	C. A. S. Teece	30 Woodside Crescent, Toorak	R.
3 C P	J. Bourke	Yarck	R.
3 C Q	C. J. Forshaw	Clarke Street, Hamilton	R.
3 G R	W. L. Bertram	Murchison Road, Rushworth	R.
3 G S	D. R. Stewart	"Kalimna House," Lorne	R.
3 G T	H. A. Bearup	14 Deakin Street, Caulfield East	R.
3 G U	G. A. Hancock	Grammar School, Berwick	R.
3 G V	A. T. Closs	General Store, Olinda	R.
3 G W	C. H. Jansen	"Rossie Brae," Piper Street, Yarrawonga	R.
3 G X	R. R. Rymill	"Dalmeny," Heyington Place, Toorak	R.
3 G Y	K. C. Corney	School of Mines, Bairnsdale	R.
3 G Z	C. S. C. Semmens	State School, Buln Buln East	R.
3 H A	R. F. Cutteridge	Rupanyup	R.
3 H B	V. A. Luhrs	Woori Yallock	R.
3 H C	P. H. McElroy	211 Swanston Street, Melbourne	R.
3 H D	A. P. Kelly	2 Eglinton Street, Moonee Ponds	R.
3 H E	F. Kruger	Camp Street, Charlton	R.
3 H F	C. E. J. Beurle	Tyntynder South, via Swan Hill	R.
3 H G	H. Wong	1 Howard Street, West Melbourne	R.

SHIP STATIONS, U. S A.

A. A. Daugherty, KDHX; Abbeville, KLN; Abercos, KOVR; Aberdeen, WXIU; Ablanset, KIXF; Abner Coburn, WHR; Abraham Lincoln, KIXS; Abron, KEBD; Absaroka, WKW; Abscon, KSEA; A. C. Bedford, KNZ; Achilles, KPT; Acme, KIJ; Acroma, KEDD; Acropolis, KDRI; Acules, KEQQ; Acushnet, NRU; Admiral Dewey, WAY; Admiral Evans, KICZ; Admiral Farragut, WAF; Admiral Goodrich, WRJ; Admiral Mayo, WZIO; Admiral Nicholson, KMAA; Admiral Rodman, WOA; Admiral Schley, WAZ; Admiral Sebree, WAG; Admiral Sims, KXUO; Admiral Watson, WAW; Admiral Wainwright, WSF; Adria, KUSZ; Advance, KMV; Adway, WBEA; Aeolus, KOZC; A. E. R. Schneider, WFUI; Afalkey, WBEE; Afel, KISQ; Afoundria, KOMQ; Afrinnia, KLAI; Agristra, KLUU; Agawan, WNIE; Agememnon, KOXQ; Agria, WQAI; Agron, KUVJ; Agwidale, WDOA; Agwihavre, KDRX; Agwilake, KDNN; Agwimars, KDMC; Agwimson, KDBC; Agwisea, KDMB; Agwismith, KDRC; Agwistar, KEPG; Agwistone, KDPO; Agwisun, KDAD; Agwiworld, KDMD; Agylla, KUXS; Ahala, KECZ; Aiken, WMUU; Aimwell, WVUO; Airlie, WBEI; Aisne, KDNC; Ajax, KOJ; Ala, KDOB; Alabama, WFD; Alabama, WRAE; Alabat, WSAO; Aladdin, KDQM; Alameda, WAA; Alamo, KEJ; Alamosa, WLUI; Alanthus, WVEE; Alapaha, WZAI; Alaska, WWS; Alaskan, WKA; Alba, KKL; Albatross, KELD; Alberta, KZA; Albert E. Watts, KDOK; Alcis, KEPX; Alconia, WLUO; Alderman, KIFF; Alector, KEPZ; Aledo, KEPL; Algic, KDDC; Algonquin, KDKH; Algonquin, KIZT; Algonquin, NRA; Alicia, KZB; A. L. Kent, KDLL; Allaquash, KVX; Allegheny, WRAI; Allentown, KVIU; Alliance, KMA; Alliance, WRV; Allies, KQUA; Allison, WTOA; Alloway, KTAA; Almirante, KKG; Aloha, KYH; Alpaco, WBII; Alpena, WCS; Alta, KICX; Alvada, WGEE; Amaranth, NAPT; Ambridge, KIKQ; A. M. Byers, WMY; Amcross, KOVF; Amelia, WRF; America, KDOW.

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