The Hundred per cent. Australian Radio Journal.

# THE WIRELESS WEEKLY

A Journal Devoted to the Interests of Wireless Enthusiasts both Amateur and Professional

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MEMBERS OF THE WAVERLEY AMATEUR RADIO CLUB. (Photo Carlton Studios, Darlinghurst)

# A TALK WITH "WIRELESS WEEKLY."

The benefits of radio telephony are to be given to the residents in Australia's great "out back," according to the chairman of directors of Amalgamated Wireless (Australia) Ltd.

He told the shareholders at the annual meeting that the company was about to establish a Radio Concert Service.

"Wireless Weekly," in the second issue, expressed the view that weather forecasts should be broadcasted by Radiophone, for the benefit of the farmers. Now comes the announcement that this is to be done, also that market reports, news items, etc. are to be sent out.

On this public-spirited action, Amalgamated Wireless is to be heartily congratulated.

The inauguration of this service will bring into the radio field a new type of amateur altogether.

He will be the man who will want to use radio in a similar manner to which we use the telephone. The way his set is wired, or the type of apparatus used, will interest him not at all. He will merely want his set installed so that by turning a switch he can get his weather reports and music.

This will mean, of course, that the radiophone will become as much a public utility as the line telephone is now.

But the Government should do something toward making this concert service a permanent thing. It is not fair to expect Amalgamated Wireless to carry on a service which should rightly be a public one.

The Government being the biggest shareholder in the company, could easily do this. It would hardly be a fair thing if a large number of people purchased apparatus, and then found, after a few months, that the radiophone service was to be discontinued. It is, of course, not likely that the company would do this, but nobody could blame them if they did, for the service will cost money.

The Prime Minister is the chairman now, so "Wireless Weekly" asks him now not to lose sight of this point.

## HOW IT IS SPREAD

Radio sets have marked demonstration advantages over many of the interesting entertainment devices which preceded them. Wherever is the air, there are wireless waves to be picked up, and with a good loop aerial and a 3 or 4 stage amplifying receiver, a portable wireless telephone set may be assembled and set up in a few moments.

Various radio shops in America make a practice of going to clubs and institutions and giving demonstrations on these portable sets, so that we hear of the "Women's Club" devoting an afternoon and evening to the study of wireless telephony.

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In using a valve receiving set, try and work with the coupling as loose as possible for the best results.

# EILVESE.

## BIG GERMAN STATION.

Although not as well known as the Nauen station, the Eilvese station is by no means unknown to ambitious American amateurs who can receive its signals providing their sets tune up to extreme wavelengths and they make use of good amplifying equipment. The Eilvese station in Germany obtains its power supply from the Weser power station as three-phase, 15,000-volt current, and transforms it into 5,000 volts before it is rectified in a 600-horsepower motor-generator set consisting of one alternating current motor and two direct-current dynamos, one for 220 volts and the other 440 volts. The 440-volt generator feeds the Goldschmidt high-frequency machines. To be assured of continuity of service there are also installed five Diesel oil engines of 200-horsepower each. For the regular telegraph service, 400 horsepower to 600 horsepower is needed. There are two aerials, one of the umbrella type for waves of 7,000 meters, to 12,000 meters and a ring type for longer waves. The main tower is 800 feet high and the six smaller towers are 340 feet high. Six weights of network under proper tension mechanically. The receiving station is at Hager, three miles from Eilvese, and is connected to two 3-mile straight-line antennas, laid out and built like a double high-tension line on poles with disk-type insulators, with two wires 30 feet above the ground and two wires 60 feet above the ground, both lines on the same poles, one above the other. Eilvese works with the Goldschmidt station at Tuckerton, N. J.

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It has been estimated that Washington, D. C., (U.S.A.) has 1,800 private receiving sets; that in Detroit there are between 40,000 and 60,000; and that one home in every six in Pittsburg is equipped with a receiving set.

# ON COILS.

The ratio of resistance to inductance in bank wound coils is lower than in single layer coils of the same dimensions.

In long wave work, they are to be preferred to the latter owing to the smaller space taken up and consequently their comparative freedom from capacity effects while tuning. Their large distributed capacity is not so objectionable in long waves as in short waves.

# SULPHATED CELLS.

At a recent meeting of the Metropolitan Radio Club a member described a novel method of curing a badly sulphated accumulator.

The ordinary acid electrolyte was emptied out and was replaced with distilled water. The cell was then charged and discharged at normal rates, and it soon returned to its usual condition.

This method had none of the bad effects of the rapid charge and discharge usually adopted.

# MANY YEARS AGO.

This is a photograph of Mr. R. C. Marsden's set, taken soon after he went into the game many years ago. A review of his radio activities, written by himself, was published in "Wireless Weekly" of August 11.

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An American report reveals in fact that at present there are in use in the United States approximately ten million automobiles, six million phonographs, and that according to present indications there will be approximately six million radio receiving sets in use within five years.

Los Angeles, California, has the largest number of radio telephone broadcasting stations licensed in any city of the United States—18.

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There are now forty-three newspapers broadcasting in the United States. Of these the "Detroit News" was the first.

# A BIG STEP.

## In Telephony.

In view of the attention now being directed to radio-telephony, it is of great interest to learn that a British inventor has discovered a means of reproducing, over almost any distance, with absolute fidelity, the intonations of the human voice.

It is well-known that, at the present moment, the greatest stumbling block in the way of complete success, as far as radio-telephony is concerned is the fact that, hitherto, all known means of reproducing sound have been unsatisfactory.

If, for example, one listens at the receiver of a telephone, many strange noises which have nothing to do with conversation can be heard, and, at time, indeed, make conversation a matter of great difficulty (says a London newspaper). This is because the microphone which translates the electric current into speech is not a perfect reproducer.

**3,000 MILES.**

The inventor of the new instrument has gone on entirely fresh principles, and discovered a new reprpducing device, the basis of which is the inclusion of a small quantity of neon gas in a glass container.

With this new microphone installed at the ends of a telephone wire, the listener will find that, when speaking is not going on the line is absolutely "dead," and when conversation begins, nothing is heard except the sound of the voices, which sound is absolutely faithfully reproduced.

The power of this microphone is still further shown by the fact that the inventor has been able to speak over wires bearing a resistance of equal to three thousand miles without any relay, and is confident that very soon London will be able to speak to New York.

**TALKING PICTURES.**

The full significance of this invention is that it can be applied not only to the telephone, but the radio-telephone and to radio-telegraphy.

Moreover, the inventor has discovered that by photographing sound waves on an ordinary cinema film, he can, by projecting the picture of these sound waves on to a silenium disc, which is connected up with this microphone reproduce with such clearness and strength the voices of actors in the pictures that they can be distinctly heard throughout the largest cinema theatre.

In this way the inventor would appear to have come very near to the ideal solution of the talking pictures which has been a will-o-the-wisp for inventors for the last ten or fifteen years.

# DAH-DA-DAH-DA-DAH!

Dreaming, dreaming, dreaming, all the night I lie
Dreaming all of radio, till morning paints the sky,
And wakes me up from dreamland, and sends me out afar,
To dream again the same refrain of Dah-da-dah-da-dah.

I hear the locusts singing on the gum trees by the way,
I never used to notice them, but now I hear them say,
With their shrill familiar music penetrating far,
Rising, swelling, most compelling, Da-da-dah-da-dah.

The trains, and trams and ferries sing the same old song,
I think it has bewitched me, for as I go along,
The homeward track at nightfall, and gaze up at a star,
It seems to wink at me and say, Dah-da-dah-da-dah!

—Sister Sue.

# WHAT IS IT?

My Primary you will oft get,
When Pennant Hills tunes up his set.
My Secondary 's in eat,
And often you'll meet
My whole in a panel set.
My third and my fourth and my fifth you will find
All in the word evolution, combined.

In some circuits too much plate voltage on the amplifying valves reduce the efficiency of same.

Do not let your accumulator get too low before charging, as it does not improve the plates, and will considerably shorten the life of same.

Should a variable condenser tend to scrape and crackle when on the oscillating in tuning, get a piece of flexible wire and fix same from centre spindle to wiper pole brush. This will get over the trouble.

# MAKE YOUR OWN.

## CABINET CONSTRUCTION.

By "CRAFTSMAN."

Panel type radio sets are now so popular that general advice on the construction of cabinets will be appreciated by many.

A well-made cabinet wonderfully improves the appearance of a set, and, by excluding dust and moisture from the apparatus, helps to

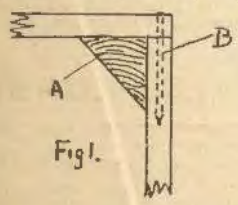

Fig 1.

keep the set permanently in an efficient condition.

The selection of the timber for a cabinet is a matter for individual preference, but some good cabinet wood should be chosen, either Queensland maple or Pacific oak being particularly suitable. The choice between these is decided by the finish required, it being usual to highly polish maple, while oak is given a duller wax finish.

These woods may be obtained from most timber yards, and it is well to order them "mill dressed and selected grained," as this ensures the supply of a good quality timber. For most work half-inch wood is suitable. After mill dressing this has a thickness of about ⅜ inch, while it should also be noted that the width is usually about ¼ inch less than that specified. Thus six inch timber would come 5¾ inches wide.

Proper dressing or "cleaning up" of the timber is essential, as otherwise a good finish cannot be obtained. Mill dressing is not sufficient as the planing machine does not give a sufficiently smooth surface, being followed commercially by the application of a smoothing plane, and a cabinet maker's scraper. The proper use of these tools, however, requires a considerable amount of skill, and the novice is not advised to attempt it.

A much easier method is to obtain the necessary smooth surface by means of glass paper. Begin by using a medium grade and finish up with No. 00, this latter being extremely fine and giving a very good surface. Always paper with the grain and don't merely hold the paper in your hand. Get a small flat block of wood about three inches by two inches, and wrap the paper around this. This will give a level surface, and prevent the formation of small ridges, which are very noticeable when the wood is polished.

The simplest joint to make is the "butt" joint, and this is quite strong enough for this purpose, and makes a fairly good finish. The pieces to be joined are merely butted together as in Fig. 1, well glued, and then nailed in position. Small blocks (A in Fig. 1) may be glued in the corners to strengthen the job. Very fine nails ("B") are used, the type known as "one inch by 17 panel pins" being very suit-

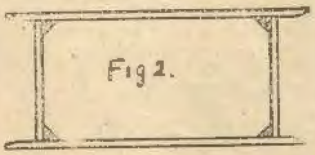
Fig 2.

able. Dovetailing makes a rather stronger job, but does not improve the appearance, and requires much time and skill to make a decent finish.

The panel may be merely screwed on to the cabinet, or, preferably, let in flush with the face of it, this latter giving the better appearance. In this case the panel is screwed to small blocks glued in the corners, as shown in Fig. 2 and "A" in Fig. 1.

If the top and bottom of the cabinet are allowed to project a little beyond the sides and front, an appearance preferred by many is obtained. (See Fig. 2.)

When finishing maple stain slightly darker than the colour desired, as polishing makes it slightly lighter. For the novice a spirit varnish will give a better finish, and one more easily obtained than by polishing, as this latter is very difficult without some experience. The spirit varnish should be applied with a soft brush.

In wax polishing a coat of shellac varnish is applied first to obtain a good surface. The job is completed by the use of a prepared furniture wax. To obtain the golden oak colour, the wood is stained with a bronze green stain, which after application is well rubbed out. Finish by waxing as above.

## MARCONI'S YACHT HAS THREE SETS

Mr. Marconi's yacht, the Elletra, is fitted with triple sets of receiving and transmitting apparatus, which are said to be an advance on anything at present in use afloat or ashore.

The three transmitters are a 3-kilowatt valve set, a 1½-kilowatt quenched-spark set, and a ¼-kilowatt quenched-spark set. Mr. Marconi will make final tests of a system by which a ship could pick up the position of another ship exactly, and so steer straight for her. A ship in distress could signal others directly to her, while vessels proceeding in fog could avoid collision.

# A RADIO CONCERT SERVICE.

A radio concert service is to be established by Amalgamated Wireless (Australasia) Ltd.

At the annual meeting, the chairman, in the course of his speech, said:—

"In addition to an up-to-date commercial wireless telegraph service, we are also making arrangements to establish what will be known here as a Radio Concert Service, and what is known in other parts of the world under the peculiar term of "Broadcasting."

"We have been able to gather a great quantity of valuable information upon this subject from Europe and America, and we find that the latter country has become involved in some extraordinary difficulties through having no definite means of controlling and properly organising this new service."

"The Company, in conjunction with the Government, will establish this new service on such a basis that residents and settlers in all parts of Australia will be able to receive daily in their own homes vocal and instrumental music, lectures and other entertainments."

"We also hope to make arrangements with the principal newspapers by which their news services will be made available to those people who are situated in districts where daily papers are not available. The Radio Concert Service will also be used for giving weather forecasts and market quotations to the people on the land. There is no doubt that this will introduce an entirely new factor into the daily life of Australia, and it is highly important that it should be placed on a basis which will make it available to everyone."

"At the same time it must be carried out under such conditions as to prevent interference with or illegal tapping of the numerous other wireless services which must be carried on simultaneously."

"The whole of the equipment for this service can be manufactured in Australia, and there is no doubt that it will give continuous employment to a great number of skilled and unskilled workmen, and it will be an important factor in the further extension of the wireless manufacturing industry of this country."

## NEW DIRECTORS.

"You are all aware in general terms of the changes which have taken place on your Directorate since our last annual meeting," said the chairman, at the general meeting of Amalgamated Wireless (Australasia), Ltd. "Three Directors have been appointed by the Commonwealth— Messrs. Allard, Stinson and Sir William Vicars. Three of your former Directors, Sir Thomas Hughes, Messrs. Gonnan and Taylor, resigned their seats, and Mr. Taylor now represents Mr. Fisk in that gentleman's absence."

"The difficulty of finding a seventh Director acceptable to all the interests involved has, I am glad to say, been solved. The Prime Minister, Mr. W. M. Hughes, has been unanimously elected, and we have received his intimation of acceptance of the position. We feel that our position will be very much strengthened."

Our Radio Yarn

# The Rough Guy.

By O.R.M.

I had brought my American friend to my place to hear how we get radio concerts in Australia, and the last note of "God Save the King!" having faded away, we listened for a while to the whistling of the valves from a few nearby amateur stations.

This brought back memories to my friend's mind. He was an enthusiastic experimenter when he was at home in California.

Say!" he said, "I calculate your Government people would call those dinky little bird-cheeps interference; ain't that so, pard?"

I assured him that users of the valve in this country had to be able to read the code at a certain speed before getting their licence, so that if necessary they could be told by a commercial station to shut down.

"Wal," he drawled, "I kin assure you that they don't know what interference is, no sir! Did I ever tell you the story of the rough guy we had back home? —No? Well, it was like this:

"He was one of those pampered kids; Pop had all the money in the world except some loose change held by Rockefeller and Astor, and the little galoot sure put on the dog of the President's mascot. Vanden V. Van Duce was what he was christened, but the lads called him—when they didn't use a harder name—Van.

"Till he took up radio Van was just the ordin'ry blot on the landscape, but after Pop had built for him the huge operating room, and the aerial that gave you a kink in the spine to look at it, he became the one and only origin'l ether devil. I'll say he did!"

"Now, the boys of the town had a nice little radio club, and as we worked with other clubs in neighboring places, it was very interesting. The commercial station in our town said we were the goods, as far as law and order was concerned, and we were proud of the reputation.

"One night we were carrying out a ticklish test on short waves with another club, when Van opened up with his 4 KW transmitter. Believe me, Pard, the very windows and doors rattled!

"Before we could shut off two pairs of our 'phones burned out, and three of our most cherished audions suicided right away. One of the members was sent out to find the ether pirate, and the rest just sat around and talked murder. When the scout came back and reported that it was only Van calling up Annapolis to ask for gun time, someone moved that we go up and burn him out. But our President had another scheme which tickled us to death, so we went home to make preparations for carrying it out.

"The next night, when Van was at work in his Radio room, four of us managed to climb on to the roof of the building without disturbing him, and all was ready for us to carry on with our stunt. We rigged up a buzzer near his lead in wire, and called him up, signing ourselves NSS, which, as you know, is the call of Annapolis. When he replied, we earthed his aerial with the aid of a handkerchief, and the following conversation ensued:—

" 'NSS to 6 NUT: The President has heard of your wonderful Radio transmission, which constitutes a world's record. It is his desire that you send your transmitter to the National Museum for exhibition, and that in future you confine your experimenting to reception, with a view to eliminating X's or static, as he is sure that an amateur of your ability will be able to get success."

"6 NUT to NSS: I shall obey the President's commands."

"NSS to 6 NUT: Thank you. Good night and good luck."

"As we climbed down from the roof we saw Van dismantling his transmitter."

"We heard later that the set had been badly knocked about travelling to Washington and back, and as Van had stung Pop for an automobile in the meantime, he found that he had no leisure to fix it up."

"So thereafter there was peace in the ether over our home town.

## A USEFUL TABLE FOR AMATEURS.

Particulars of Average Copper Wires. Note:—Figures only Approximate.

| No. of wire. S.W.G. | Diameter in inches. | Sectional Area, in sq. inches. | Current Capacity. At 1000 Amp. per sq. in. | Pounds of Wire, per 100 yards. | Yards of Bare Wire per lb. | Yards of Insul. Wire per lb. | Resistance in Ohms per yard. | Resistance in Ohms per mile. | Resistance in Ohms per lb. | Yards of Wire per Ohm. | Turns of Wire per inch (bare). | Turns of Wire per inch (S.S.C.). | Turns of Wire per inch (D.S.C.). | Turns of Wire per inch (S.C.C.). | Turns of Wire per inch (D.C.C.). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | .08 | .005 | 5.02 | 58.13 | 17.1 | 16.7 | .0048 | 8.6 | .0837 | 204 | 12 | 11 | 11 | 11 | 10 |
| 16 | .064 | .0032 | 3.21 | 37.2 | 26.8 | 24.8 | .0075 | 13.3 | .2036 | 131.5 | 15 | 14 | 14 | 13 | 12 |
| 18 | .048 | .0018 | 1.81 | 20.93 | 47.6 | 45 | .0133 | 24.6 | .6664 | 71.4 | 20 | 19 | 18 | 17 | 16 |
| 20 | .036 | .001 | 1.01 | 11.77 | 84.9 | 80 | .0236 | 42.2 | 2.037 | 41.6 | 28 | 25 | 24 | 23 | 20 |
| 22 | .028 | .0006 | .616 | 7.12 | 140 | 129 | .0391 | 70 | 5.6 | 25 | 35 | 33 | 31 | 29 | 24 |
| 24 | .022 | .00038 | .38 | 4.39 | 227 | 215 | .0632 | 112 | 14.52 | 15.6 | 45 | 41 | 38 | 35 | 29 |
| 26 | .018 | .00025 | .254 | 2.94 | 339 | 316 | .0945 | 169 | 32.54 | 10.4 | 55 | 50 | 45 | 41 | 33 |
| 28 | .0148 | .00016 | .172 | 1.98 | 501 | 467 | .1398 | 246 | 70.14 | 7.14 | 71 | 62 | 55 | 50 | 38 |
| 30 | .0124 | .00012 | .12 | 1.39 | 713 | 670 | .1991 | 352 | 142.6 | 5 | 83 | 71 | 62 | 55 | 41 |
| 32 | .0108 | .00008 | .091 | 1.05 | 939 | 870 | .2625 | 475 | 253.5 | 3.71 | 110 | 77 | 67 | 59 | — |
| 34 | .0092 | .00006 | .066 | .768 | 1300 | 1163 | .3617 | 651 | 481 | 2.7 | 144 | 90 | 77 | 67 | — |
| 36 | .0076 | .00004 | .045 | .524 | 1870 | 1613 | .5301 | 950 | 1009 | 1.85 | 250 | 125 | 100 | 83 | — |
| 38 | .006 | .00002 | .028 | .327 | 3050 | — | .8503 | 1513 | 2623 | 1.16 | — | — | — | — | — |
| 40 | .0048 | .00001 | .018 | .209 | 4760 | — | 1.328 | 2288 | 6188 | .77 | — | — | — | — | — |

# HOW WE HEAR THE WORLD.

During the evidence before the select committee inquiring into the wireless proposals for communication between England and Australia, Mr. Coffey, of the Radio Department of the Post Office, submitted an interesting report.

This showed in detail the value of the signal strengths (based on the International Code) of the transmissions intercepted at Melbourne from high powered stations.

Following is a summary of the report:—The following indicates the state of the reception from various stations throughout an average period of 24 hours :—

New York (Radio Central), Long Island—Could not be reliably copied between the hours of 2 p.m. and 9 p.m. The maximum signal intensity is between 5 a.m. and 10 a.m., when traffic can be read with ease.

Koko Head, Honolulu—Cannot be read with reliability between the hours of 2 p.m. and 8 p.m. The signals are of maximum intensity, and can be read with ease between 5 a.m. and 10 a.m.

San Paolo, Rome—Was not observed to be working continuously, but signals were read with ease at maximum intensity between 5 a.m. and 9 a.m.

Leafield, Oxford, England—Signals are maximum and can be copied reliably between the hours of 6 a.m. and 8 a.m. This station was heard only up till 10 a.m.

Eiffel Tower, Paris—Was read with ease between 6 a.m. and 7 a.m.

Continuous wave signals, believed to be radiated by a valve station, were heard between 4 a.m. and 9 a.m., the maximum signal intensity being for the period of 6 a.m. to 8 a.m. Advice has been received from Perth Radio Station that a valve station (believed to be Carnarvon) is readable there in daylight, but up to the present time the identity of the station has not been established.

### ATMOSPHERICS.

During the above period the average daily atmospherics increased from a moderate intenaity to a maximum at 3 p.m., and again fell off at 8 p.m. to a moderate valve at 6 a.m.

The observations indicate that none of the abovenamed stations are reliably readable between the period of from 2 p.m. to 8 p.m. daily, while during this period atmospherics attain a maximum intensity.

Good directional effects were obtained with the loop, and interference by other stations and by atmospherics, was considerably reduced. The receiving apparatus used was not specially constructed for this purpose, but the test is useful in indicating the great variation in signal intensity from the various stations, over different periods in the 24 hours.

### NOTES ON STATIONS.

New York Radio transmitted traffic at a speed of twenty-three words per minute to Nauen. Single sending (very few repeats).

On 18th January, New York (Radio Central) sending to Nauen: "We are awaiting many repeats. Much delay to traffic. Please give me your attention." "Please we are receiving badly on second set."

Honolulu to Japan—The following extracts have reference to the above circuit :—

"Speed of transmission on 18th January twenty words per minute. Frequent interruptions for repeats from Japan."

19th January—"Much time is wasted repeating traffic; sending letter 'V' for adjustment of receivers, &c."

The speed of transmission is normally twenty words per minute, frequently reduced to ten words per minute, due evidently to prevalence of static, as quality of signals, tuning and manipulation leave nothing to be desired.

Java to Amsterdam—"Speed of working ten words per minute, each word sent twice. Frequently stopping to adjust arc, &c.

### INTERFERENCE.

On Melbourne main aerial system it was noted that Koko Head interferes with New York (Radio Central), and Leafield signals are greatly impaired by interference from Eiffel Tower, Paris, and spacing wave Bandoeng, Java." It was difficult to copy Leafield on morning of 21st instant at Radio, Melbourne, on open aerial, owing to abovementioned sides tones from Paris and Java, coupled with prevailing static."

These records indicate that a station such as Bordeaux cannot be relied here beyond a certain number of hours per day. The number of hours daily of reading interceptions of long distance radio telegrams appears to be very limited.

It must be borne in mind that Australian stations are not equipped with modern atmospheric eliminating contrivances.

## MUSIC IN THE AIR

### SUNDAY NIGHT'S CONCERT.

### MR. MACLURCAN'S CONCERT.

Mr. Maclurcan's concert for next Sunday, September 17th, the following Pathe records will be played, starting at 7.30 p.m.:—

Fox-Trot: "Humming."
Duet: "Chance Your Name to Linder Lee."
Hawaiian Guitar: "Honolulu Bay."
Soprano: "Musetta's Song"—La Boheme" (Rosina Buckman).
Piano Solo: "Rustle of Spring."
Code Practice: CW and Buzzer.
Hawaiian Guitar: "Silver Sands of Love."
Violin Solo: "Sonata," Paganini
Tenor: Song from "Rigoletto."
Fox-Trot: "I Want My Mammy."
Recitation.

## ON 3.2 WATTS.

### SYDNEY TO MELBOURNE.

### Successful Tests.

The low power transmission tests carried out by Mr. Chas. Maclurcan on Friday and Sunday last, from his Strathfield (Sydney) station, were most successful.

On Friday evening he carried out the test in three stages. For the first stage he sent out a series of X's on 8.5 watts, the second Q's on 6 watts, and the third Y's on 3.2 watts.

Information has reached the experimenter that the X's, Q's and Y's were all received in Melbourne, and that Tamworth received the signals on the various powers. Mr. Warden, at Mungindi, telegraphed that the low power signals were excellent, and that he heard the speech on all powers.

A similar test was made at noon on Sunday, in order to get an idea as to the daylight range. In the stages of this test, F's were sent on 8.7 watts, B's on 6.2 watts and C's on 3.8 watts.

The Melbourne station reported that, on this occasion, interference was experienced for the first 26 minutes, but the tonic train was copied on the lowest power. Mr. Todd, at Tamworth, reported signals on all powers were strong, also the music. At Mungindi, the tests were also heard well.

## HELP IT ALONG.

### PUBLIC EXHIBITION.

Arrangements are well forward for the Public Exhibition of Radio Apparatus, under the auspices of the Metropolitan Club, to be held in the Congregational Hall (next to the Criterion Theatre), Pitt St., Sydney, on Friday and Saturday, September 22 and 23.

Experimenters are asked to send their entrance forms in as soon as possible. There is a class for crystal sets, as well as the most simple, comic, single and multi valve sets. As this is the first exhibition of its kind ever held in Australia, amateurs are asked to co-operate in making it a success.

## TIME SIGNALS.

New York Central Radio is sending out time signals in a series of dots from 11.45 p.m. till midnight, on a wave length of 19,000 metres, each night till September 21. Annapolis is sending similar signals on 17,000 metres for five minutes from five minutes past midnight.

Mr. F. B. Cooke, of Sydney, would like to hear from any amateur who gets these signals. Letters to him may be addressed c/o. "Wireless Weekly," Box 378, G.P.O., Sydney.

## DEFINITIONS.

**"A" BATTERY.**—The low voltage battery—usually accumulators—used for lighting the filaments of thermionic valves.

**AERIAL.**—The system of conductors designed to radiate or absorb electro-magnetic waves. The term is limited by some authors to that part of the system suspended in the air, the whole being termed the antenna.

**ACCUMULATOR** or storage battery is a cell the elements of which undergo a chemical change when a current is passed through it. After charging the elements tend to return to their original form, and in so doing generate an electric current.

**ALTERNATING CURRENT** is one which periodically reverses its direction. Commencing from zero, it rises up to a maximum in one direction, falls to zero and rises to a maximum in the opposite direction, again returning to zero. This constitutes a cycle, and is repeated at frequencies varying from about 50 per second in commercial work to several millions per second in radio.






"Wireless Weekly" is the official organ of the following clubs:—Metropolitan Radio Club, Illawarra Radio Club, North Sydney Radio Club, Western Suburbs Amateur Wireless Association, Waverley Amateur Radio Club, Concord Radio Club.

## CONCORD RADIO CLUB.

The membership of this club is growing steadily. Meetings are held on Tuesday and Saturday nights. Between 8 and 9 p.m. on the latter days, the club transmits CW and telephony on 200 metres, and if any experimenters hear them, the members would be glad if they would let the secretary know. The club's equipment includes a transmitting set, single valve receiver, short wave receiver, wave meter, and a single stage amplifier. The aerial is 80 ft. long, on two iron masts 50 ft. high. Most of the gear was made by the members. The Hon. Secretary is Mr. Austin Smith, "Quondong," La Mascotte Avenue, Concord.

## THE BOX HILL DISTRICT RADIO CLUB.

VICTORIA.

The first (inaugural) meeting of the Box Hill District Radio Club was held at the residence of Mr. H. S. Beattie on the 8th of September, 1922. Mr. Beattie occupied the chair. The election of office-bearers took place, resulting in, viz:—Mr. H. Hurst, hon. secretary; Mr. Hickox, treasurer.

The election of president and vice-presidents was left in abeyance till next meeting, September 14.

The election of advisors resulted in Mr. Hickox, Mr. Rose, Mr. Weise and Mr. Edwards being appointed.

All inquiries as to membership will be gladly appreciated by the secretary, Mr. H. K. Hurst, No. 2 Wellington Road, Box Hill, Victoria, or Phone: Box Hill 124.

At the last meeting of the Waverley Amateur Radio Club a motion was carried to the effect that the "Wireless Weekly" be requested to become the official organ of the Club. "Wireless Weekly" will be pleased to act as requested.



## AN EXAMPLE.

At the general meeting of Amalgamated Wireless (Australasia) Ltd., the chairman referred to Empire wireless communication as follows:—

"All indications point to South Africa and India following our example in the matter of establishing direct communication with the heart of the Empire, and it is very gratifying to know that Australia's action has rescued the Empire from an ineffective service, and opened a way for the establishment of a service commensurate with our needs and importance.

"This is a direct result of the pioneering scientific work of your Company and the statesmanship displayed by our Prime Minister at the Imperial Conference last year and the subsequent action of the Australian Parliament."

"One of the greatest steps ever taken in linking together the British Dominions, in destroying Australia's isolation, and in the practical development of wireless communication is therefore entirely due to Australian initiative and Australian statesmanship.

## STATION CALLS.

### SHIPS STATIONS. GREAT BRITAIN

Clare Hugo Stinnes, GBCZ; Clarissa Radcliffe, EWF; Claro, ODV; Classic, ZCF; Claus Horn, GCTK; Claymont, BAH; Claymore, GFPR; Clayton, GCTF; Clearpool, LTI; Clearton, YGI; Clearway, MYH; Clematis, EOB; Clemenceau, ZRH; Cleopatra III, GDPQ; Cliftower, YMA; Clifton-hall, EKV; Clintonia, YHT; Cloutsham, ZIS; Clumberhall, GXW; Cluny Castle, GCRN; Clutha, YVD; Clydemede, BOP; Clydesdale, BDF; Clyne Rock, GDKL; Coatsworth, GCDB; Cobleny, GFCP; Coconada, GCRP.

Colaba, GBT; Colleen Bawn, YWM; Collegian, MTL; Collingham, EJZ; Colon, GCKD; Colonia, MCL; Colonial, YSY; Columbia, MOI; Comanchee, GCRQ; Comedian, ZWD; Comeric, GBTD; Comic, LSK; Comino, BTD; Commodore, BCG; Coq, EYO; Commonwealth, GCRS; Competitor, YQJ; Comrie Castle, GCRT; Concordia, ELI; Confield, XEU; Conia, OFM; Conway, ZHM; Constantin, GDXF; Cooee, GDLF; Cooeyanna, GBV; Copenhagen, EXS.

Coquetmede, BDE; Corbank, BAA; Corbrae, MYT; Corby, BDD; Corcliff, ZDY; Corcovado, MIE; Corcove, ZEC; Corcrag, ZAT; Corcrest, BBV; Cordale, GDFW; Cordelia, MXM; Cordillera, GDRK; Cordoba, GBCR; Cordobes, MHO; Corfe Castle, ERE; Corfell, ZBZ; Corglen, BKM; Corinthic, MWT; Corland, GFCT; Corlock, YTS; Cormorant, BTZ; Cormorant, MFJ; Cormount, XXT; Cornish City, YHR; Cornishman, GDW; Cornish Point, ZPE; Cornwall, GDQM; Cornwood, GFCJ; Coronado, GBC.

Coronaldo, GFDJ; Corpath, GDJR; Corrientes, GDMP; Corsican, MCN; Corstar, EXT; Corstream, GCXW; Cortes, GBXD; Corton, BMO; Cortona, GFDP; Corwen, EVJ; Cosmos, LTD; Cosmos Volga, ZRU; Counsellor, BCH; Courtfield, YCH; County of Cardigan, ETP; Coya, GXH; County of Carmarthen, YVN; Cowrie, ZMW; Courtown, LUS; Coylet, BNO; Craftsman, MHV; Cramond, GBNQ; Crane, YDJ; Cranfield, GDQS; Cranford, GDST; Cranley, YSP.

Cranmore, EVK; Crawford Castle, BGQ; Crenatula, OFG; Crenella, YPK; Cretic, MRC; Crewe Hall, EIJ; Cufic, GDR; Cromer, ZOB; Cromerton, GDQF; Cronstadt, BUE; Crosby Hall, EIK; Crosshill, BEU; Crostafels, GBDX; Croxteth Hall, GBTF; Culna, GOQ; Cundall, GED; Curaca, YKA; Curraghmore, GCLR; Custodian, CCE; Cutcombe, ZLS; Cuthbert, YPR; Cutty Sark, GDJQ; Cyclops, GTF; Cymric Pride, BJQ; Cymric Vale, LUG; Cypria, ZZL; Cyprian Prince, GCMT.

Daere Castle, MTQ; Dago, ODW; Daere Hill, GDNK; D.A.D.G., 76; GDKZ; Dagenham, GCDQ; Daghestan, YLL; Dakahlieh, GFJP; Dakurian, GFCY; Dakotian, GFNB; Dalemead, YIF; Dalewood, GFQR; Dallington, ODE; Dalworth, GDCM; Dania, GBTK; Danier, GCNZ; Darnholme, YLD; Darro, GCRV; Datchet, EWH; David Lloyd George, EOS; Daybeam, GCYP; Daybreak, GCYQ; Deerwood, XIK.

Defender, YTE; Delambre, BHC; Delaware, GCRW; Delphinula, MXR; Delta, GBJT; Delta, MKG; Denis, MDE; Dememara, GCRZ; Demodocus, ZKH; Demosthenes, MGK; Derbyshire, MYB; Derindye, GBKC; Derwent River, ZEF; Deseado, GGRX; Desna, GCRY; Dessau, GBNR; Destro, GDNT; Deucalion, YOW; Devanha, MOU; Devon, ZBJ; Devon City, ESD; Dido, GDTM; Dewsbury, BEQ; Diadem, GDRX; Devonia, GFNM; Dibble Bridge, ZHJ; Dictator, BDH; Discoverer, EIF; Disona, GFKY; Diyatalawa, ESZ.

Dieppe, MRL; Digby, MNG; Director, ETB; Djerissa, GZC; Dockleaf, EZK; Dogra, BPB; Dolaura, GCTJ; Dolphin Shell, ZEP; Domala, GDMV; Domingo de Larrinaga, ZJC; Dominic, ZKQ; Dominion, MDF; Domira, YJR; Donax, ZNL; Dongola, MNH; Doonholm, ZXM; Dora, GBWJ; Doricstar, GCVQ; Dorie, LSX; Dorington Court, MWR; Dorset, GRY; Dorsetshire, GDKB; Dotterel, ZRC; Douglas, GFBX.

Douro, ODJ; Drachenfels, YUR; Draco, GFQB; Dramatist, GDVY; Dromore, GDSF; Dromore Castle, YAD; Dront, YDL; Drujba, GDSQ; Dryden, ZHW; Duchess of Devonshire, GPP; Duendes, GOSB; Duffield, ZQJ; Duke of Argyll, YWK; Duke of Clarence, YWL; Duke of Connaught, YWI; Duke of Cornwall, XFG; Duke of Cumberland, YWJ; Dumana, GDNF; Dumfries, BFA; Dumra, XGC; Dunaff Head, YAQ; Dunara Castle GFNV; Dunbridge, OCG; Dunclutha, EZA; Dunera, GCU; Dundrennan, EJI; Dundrum Castle, YAX; Duneric, EXG; Dungeness, ELQ; Dunluce Castle, MQO; Dunmail, GBSZ.

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### What do you want to know?

Every reasonable specific query in the field of general wireless addressed to the Information Department will receive a prompt reply.

Address the Information Editor "Wireless Weekly," Box 378, G.P.O Sydney.

A. R. E. (Bay Road), asks:—

(1) What weight of 26 gauge enamelled wire is required to wind a cylinder 7in. x 4½in., and what weight of 0 gauge single cotton covered wire is required for a cylinder 7in. x 4in.? (2) Is a license required for a crystal receiving set?

Answer: (1) See table in this issue. (2) Yes.

E. R. C. (East Hills), asks:—

(1) Will you tell me how to obtain a "Receiving License?" (2) What do you consider a good size for an aerial for a receiving set such as described in No. 3 issue of "Wireless Weekly" (3) Also what distance would messages be received from, with a receiving set such as in No. 3 issue?"

Answer: (1) See last issue of "Wireless Weekly." (2) See last issue of "Wireless Weekly." (3) Telephony about 15 miles, Morse sighals much further.

## 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.**—Tuner, 150-6,000 metres "R" valve mounting with rheostat; 6 volt 60 AH accum.; expanse variable condenser. Write for full descriptions. F. Poole, 518 Sydney Road, Brunswick, Victoria.

**WANTED.**—Pair Baldwin phones, also transmitter as used in telephone exchanges. Box 378, G.P.O.

Will exchange course on ventriloquism (valued £5/5/-) and 3 volt electric motor for 2,000 ohms. Murdoch phones. Apply by letter to C. J. Gray, 32 George St., Marrickville.

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