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A TALK WITH "WIRELESS WEEKLY."
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The Regulations are now in force—what about broadcasting?

This journal has persistently pointed out that something should be done officially to encourage the popular side of the science, and now is the time.

It is known that there are several firms in Sydney willing and anxious to get a regular broadcasting service going, but as things seem to be now, their plans will never materialise.

The authorities should take steps at once to invite all those interested in this direction to indicate the kind of service they propose to give, and call a conference to discuss ways and means. There is certainly no obstacle in the way of each capital city in the Commonwealth having several broad-

casting stations. All that is needed is to get them properly regulated, and a schedule of sending times drawn up.

By this means there will be no two stations sending at once, and the public be given the maximum amount of service with the minimum of expense to the broadcasting concerns.

"But it takes money to run a broadcasting station, and firms, with the exception of advertisement, will get nothing back for their trouble. If the success or failure of the whole matter is endangered by this point, something should be done with a view to subsidising them.

The whole question of broadcasting, however, is a burning one, and the authorities must see that

it is their duty to give it their best attention.

Australia is well behind the world as it is; don't let us lose any more time.

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A Pioneer Looks Back.

Mr. Chas. MacLurcan who can fairly claim to be the leading experimenter in New South Wales, if not Australia, has been prevailed upon to recount his reminiscences.

To all experimenters the account of "Mac's" early days in the science will be of interest.

This is what he told "Wireless Weekly" in an interview:—

"My wireless activities date back to 1908 or '9. There were very few experimenters in those days. The leading men then were Mr. Chas. P. Bartholomew, very rightly called 'The Father of Wireless,' Mr. F. Leverrier, and Mr. Jack Pike, and it seems as though

this mast cost £75 to erect, and was a very fine piece of work.

"The first receiver consisted of the usual loose coupler arrangement, with a Pericon detector, and great was the excitement when, some time later, Suva station was copied. The transmitter then consisted of a 19 inch spark coil, with Leyden Jar condensers. When the key was pressed things happened everywhere.

"Later the transmitter was altered to a 1½ K.W. rotary spark set (non-synchronous). A rotary spark (non-synchronous). A rotary transformer, giving 10,000 volts on the secondary.

"The furthest distance covered was only about 2000 miles, and as

Forest Audions, pear-shaped, with a thin flat plate and grid. It 'blue glowed' on the slightest provocation, but, nevertheless, was a great improvement on the crystal. The second one of these valves was imported for Mr. Bartholomew, who, by the way, now has the transmitter of this station resting peacefully in his workshop, 'stuffed' on the mantelpiece, as it were.

"The photos will give some idea of the enormous amount of gear used as compared to the up-to-date valve station.

"The motto then was 'Whatever gear you possess, work it all in.' "

LINK IN TELEGRAPHY.

Experiments on substitution of a radio transmission link for the customary wire transmission lines on the commercial multiplex printing telegraph, have recently been carried on.

Results are given of tests made between New York and Cliffwood, N.J., a distance of 25 miles. The usual outgoing signals from the printer were transmitted by wire to the radio room, where by means of a relay controlling the radio transmitter they were converted into radio signals.

The received signals at Cliffwood actuated a polar relay and converted the radio signals back to wire signals which were relayed by wire back to the printer laboratory in New York. These tests showed that 180 words per minute could be satisfactorily sent, according to the Journal of the Franklin Institute.

The charge of wireless receiving licences in the United States, is only one dollar (about 4/2) per year.



THE SET AT THE WENTWORTH.

they've been leading ever since.

"I don't suppose I would ever have taken it up only Jack Pike and I were both rather keen on the same girl, and he seemed to be getting more of her attention, that I thought was strictly warranted. I decided, therefore, to make a noise like a spark gap in an endeavour to sidetrack her.

"I didn't succeed, but, anyway, she married someone else, so it turned out alright.

"The first aerial on the Wentworth Hotel was an inverted 'L,' suspended from a 75ft. mast one end, and a 20 ft. one the other. It was only about 75 ft. long. Incidentally I may mention that

there was no Sydney land station, ships frequently called LMX to report their probable time of arrivals.

"In 1911, while I was away in Europe, the station was destroyed by fire, and before my return work was well in hand adding two more stories to the old Wentworth. The Aerial once more became a familiar landmark in 1912, as an umbrella type. It was then 40 feet higher up in the world.

"The set then consisted of Clapp Eastham, ½ Kn. Hytone transmitter, and what was, I think, the first valve receiver used in Australia.

"This was one of the original De

FOR THE BEGINNER.

MAKING A CRYSTAL SET.

Now that the license fees have fallen there will, no doubt, be many recruits to the ranks of wireless amateurs, and everybody agrees that it is best for the beginner to start on a crystal set, and if he makes his own apparatus he will learn a lot. With a view to assisting the beginner we publish the following lecture, given by Mr. R. C. Marsden, to members of the Metropolitan Radio Club:—

In dealing with the construction of a crystal set, I will start from the aerial insulators to the grounding system as herein lies the successful working of a crystal set.

It is absolutely essential to have a long and high aerial if one desires to do any sort of useful work with crystal sets, and once and for all you must not think that you can do any good with a tin-pot aerial of 15 feet high by 30 feet long, unless same is on top of Mount Everest.

The types of aerial used are varied, but, personally, I prefer the inverted 'L' type, with which I have had very good results.

As a guide to those who are contemplating erecting an aerial, the following dimensions may be of use:—

Height of masts, 50 feet, span of 100 feet or more, with 8 feet spreaders, using a two wires. The best wire, if procurable, is silicon bronze or copper wire of 3/20 or 7/20 stranded.

The insulators used are of varied types, and can be produced at most radio shops. The lead in the wire should be the continuation of the two main aerial wires, and should be joined just before entering the radio room.

All joints should be thoroughly well soldered.

The next part is the grounding system, and, unfortunately, this part of the average wireless station is sadly neglected. A good Earth is an essential as a good aerial, especially in crystal work, though the majority of amateurs fail to appreciate this important point. Various forms of grounding are in use, the most familiar being the water

mains. Personally I find that this can be enhanced by either buried copper plates, wire netting, etc. One of the best forms of earthing is to get a large coil of galvanized fencing wire, about No. 10 gauge, coiled about 2 feet in diameter. Sink this coil in the ground about 8 feet deep, putting the wire in a spiral form, in as damp a place as procurable. If you cannot get a damp spot, fill the inside of this spiral in the ground with coke, and when the earth is filled in have a drain pipe protruding, so when it is dry pour several buckets of water down it.

Another most important point is that the earth wire should be as short as possible from the set to where it meets the ground.

Now, coming to the actual instrument itself, there are several ways of using a crystal, either plain tuner, electrostatically or inductively coupled sets.

The first two systems I don't propose to dwell on, as the third and last is far the best in many ways. The size of the primary and secondary formers is a matter of choice, but I have found 55 inches for the primary and 4 inches for the secondary very suitable. The gauge of wires as used is a matter of controversy, but I have had very satisfactory results with 24 gauge for the primary, and 26 or 28 for the secondary.

The question of whether one uses a slider on the primary, or multi point switch studs in tens or units depends on the length of the pocket, to a great extent.

The tapings on the secondary can be taken every fifteen turns, but much depends on whether one is going to use a secondary condenser.

As regards the method one uses to get contact from the secondary, in my opinion, this is, in most crystal sets, their weakest point. If one is going to use friction contact on the slider rods it has to be very well designed, otherwise trouble will eventuate sooner or later.

The best method is to use flexible wire leads, and one that eliminates any possibility of resistance variations in a frictional contact. The use of a small blocking condenser across the phones is advisable, as it, no doubt, improves the audibility of signals.

A variable condenser of .0005 m.f. in shunt with the secondary is, in my opinion, essential to the successful working of a crystal set. We next come to the choice of phones. This is a matter of paramount importance in a crystal set.

During my few years dabbling in wireless I have used Sullivan's, Brownie's, Sterling's, Baldwin's, Ericson's, Marconi Navy Type, Murdock and Brown's. Careful tests have been made, and Brown's win easily, with Baldwin's a very close second. Brown's are ideal for crystal work, and any person will be amply repaid by getting them.

There are several crystals for use for detecting purposes, and each wireless experimenter has his own pet kind. Several shine out as really good detectors, among which are iron pyrites, galena, zincite, and bornite, radiocite, and magnetite. For stability our old friend carborundum takes a lot of beating, as does a good piece of iron pyrites.

The methods of mounting crystals are varied, but to rears of selecting the sensitive point, the vertical type stands alone.

It is essential, as a last recommendation, that all points should be well soldered, and the best insulation as possible used.

The Radio Idea is taking real shape in France. A recent news dispatch states that 20 ballet girls danced to music played 25 miles away, as a feature of a matinee. The performance was witnessed by Prof. Branley, the pioneer wireless worker, and ex-President Poincare.

NEW RADIO COMPANY.

We learn with interest that a new Wireless Company has commenced activities in Sydney, under the name of "Radio Company," at Post-er House, on the corner of Lang and Grosvenor Streets, near the Wentworth Hotel. Mr. F. Basil Cooke has been appointed Manager of this Company.

Mr. Cooke has always been in the front rank of amateur wireless in Australia, and was the first amateur to hear messages from America and Europe.

The Radio Company at present is going through the tedious process of formation, but hopes within a couple of weeks to have sufficient stock to commence activities, at which time Mr. Cooke hopes to be able to offer amateurs many novel and interesting adjuncts to their hobbies.

Mr. Cooke informs us that it is his sincere wish to work harmoniously with all interested in wireless, and first and foremost his policy will be to endeavour to supply the experimenters with their exact requirements. Further, having lived in the country, he is in a position to cater for the requirements of the man on the land, and he will endeavour to supply a much-needed and long felt want to the farmer, who has so few chances of recreation enjoyed by the city folk.

The Radio Company invites all interested in wireless to call and have a chat about radio matters generally, and will always welcome any-

one bringing along their troubles.

Affiliated with the Company will be a new College, called "Radio College." The purpose of this College will be to supply beginners in wireless with the amount of knowledge required to intelligently read wireless literature, and pass the necessary test for obtaining an amateur licence in either receiving or transmitting.

Mr. Cooke will be the Principal, and he wants to encourage the younger men and women to take a more serious view of radio than is being done at present. The average amateur is keen to hear the various stations, concerts, etc., and there it ends, while they might be doing some very useful and extremely interesting research work. The only reason they do not do scientific research work is that they do not know what to do. Mr. Cooke hopes to supply that want, and gradually develop an army of really useful wireless citizens, who are using their wireless for the advancement of science as well as giving themselves a never-ending source of enjoyment.

Mr. Cooke feels quite sure that wireless will develop in Australia as it has in other countries, and on account of the small population we will eventually find that, although last in the field, Australia will win out as usual, and lead the way.

PANAMA'S TROUBLES.

A special correspondent of "Wireless Weekly," writing from the Pacific Coast of America says:—

Australia is not the only country where private wireless broadcasting is not officially encouraged.

Both in the Republic of Panama, and the Panama Canal zone, private installations are absolutely banned.

The Republic, having previously granted all wireless rights to the United States Government, is unable to do anything in the matter, and the United States officials have vetoed all private outfits.

Thousands of progressive citizens have raised a protest, and offered to pay necessary expense if there is any hope whatever of a relaxation in the regulations, but without avail.

WIRELESS AT GRACE BROS.

A stroll through the Electric Department of these well-known stores will bring you to their Wireless Branch.

Here you will view an extensive display of wireless apparatus such as will make the amateur radio bug's eyes bulge and his mouth water. As soon as official broadcasting commences customers will be entertained with wireless music.

A glance at the top of their main building will show that a large aerial has already been installed.

OF SPECIAL INTEREST TO EXPERIMENTERS

THE CLEAR SPEAKERS A LOUD SPEAKING DEVICE

You simply clip one of your receivers into the base, and Speech, Music, and Morse will be amplified sufficiently to be heard in any part of the room. It works well with one or two valves and produces a loud, clear, undistorted tone. Price, 35s. Post paid.

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A convenient and efficient storage Battery. Each cell gives two Volts. The case is of celluloid. All liquid is absorbed by spun glass, thus preventing splashing. The cell can be re-charged indefinitely. Size, 2½ x 2¼ x 1 inch. Price, 4s 6d. Post paid.

ACCESSORIES YOU NEED

Rotary Switch Arms, 3s; postage 3d
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Triple Honeycomb Coil Mountings,
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Condenser Plates (brass or aluminium), 2d each.
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Ditto (with knobs), 5s.

MAKE YOUR OWN.

ON ONE VALVE.

By Raymond Evans.

To those experimenters whose financial resources do not provide for any but a single valve set, this article has been written, the objects being to place before the reader a simple and easily-constructed receiver, which will give the greatest signal strength with the least expense and trouble.

In order to accomplish this we arrange a radio frequency amplifier, with a tuned anode circuit coupled to a crystal detector. As the use of a tuned amplifier is without doubt the best method of amplification, and a crystal is, in most cases, really better than a valve as a detector, the combination is when carefully adjusted, actually better than two valves, as it means less initial expense and a minimum of batteries to keep in order, with the production of good strong signals or music at the same time.

A glance at the diagram Fig. 1 will make the working of this circuit clear. L1 and L2 are inductances of fixed value, provision being made so that these can be quickly changed in order to alter the wavelength range. C1 and C2 are two variable condensers of about .001 mf. while C3 is of fixed capacity of about the same value (.001 mf).

The tuned anode circuit L2C2 need not necessarily be coupled to the grid circuit L1C1 for reaction, but it is a good plan to arrange that this can be done, as it makes the circuit more flexible, and enables better control.

The action of this tuned plate circuit is such, that when adjusted to the frequency of the incoming wave it acts almost as a complete insulator for that particular frequency, merely allowing the anode battery "B" to furnish the necessary potential to the anode, which, of course, can pass L2 quite readily.

The radio frequency currents, being unable to negotiate L2C2 are then passed on to the crystal, which rectifies them in the usual manner.

The following constructional details are given as a guide. Any variation of the general details will not alter appreciably the efficient working of the receiver. It is suggested that this receiver,

being a complete unit, should be mounted upon a wooden panel, with valve controlling arrangements above, and tuning gear below, as shown in diagram Fig. 2. Make the valve control panel of 1/4-inch sheet ebonite, 10 by 6 in., and mount thereon a valve holder (to suit the make of valve you use), a filament control rheostat (about 8 to 10 ohms), a crystal

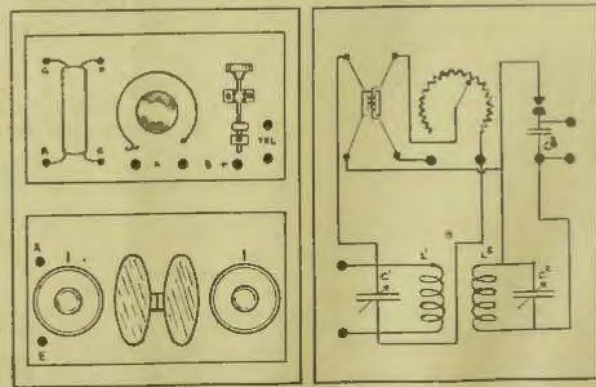
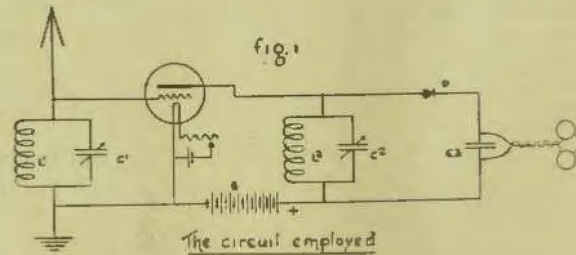


Fig 2
General arrangement

Fig 3
Actual wiring

REvmo

holder of any good pattern, and the necessary terminals.

Behind this panel, which is held upon four small spacing pieces, or *legs*, is fixed the wiring. Wire up with stiff bare copper wire of about 15 gauge in accordance with the scheme of connections shown in Fig. 3, carefully soldering all joints. No grid condenser is required.

The tuning section of the receiver consists of two coils of the "Burndip" pattern, and two variable condensers, similar in design to those described in a recent issue of this magazine. As a matter of fact, any variable condenser you might happen to have can be used.

The coils are made as follows: From 1/4 inch sheet ebonite cut two discs 4 inches in diameter, and run five radial saw cuts at equidistant points on their circumference, towards the centres for a length of 1 1/2 inch. Wind both these discs with 28 gauge DSC wire, by starting the wire in one of the slots and continuing around the former until filled to within 1/4 inch of circumference. It will be noticed that the winding presents a staggered appearance due to the odd number of slots. From a wireless point of view, this is an advantage, as it reduces the self-capacity of the coil.

Mount the two coils on brass brackets, and pivot them so that one or both can swing to and from the other, in order to vary the degree of reaction. The condensers can be mounted one on each side of the coils on the same panel which should be of 1/4 inch sheet ebonite.

To operate the set, first select a good piece of crystal, silicon, pyrites or galena, and, after securing it in the crystal holder, test for a sensitive spot by means of a buzzer. Now switch on the filament current, and adjust to the correct brilliancy, then tune both the aerial circuit L1C1 and the anode circuit L2C2 to the wavelength it is desired to receive.

Finally adjust the degree of reaction by moving one or both the coils, until the music comes in clear, and without distortion.

WHY?

"St. Dunstons,"
Riverdale Avenue,
Marrickville.

Dear Brother Amateurs,
Why is there no official broadcasting? They say that when the Wireless Company starts broadcasting we will be able to hear on a crystal set.

I have a crystal set, and get plenty of signals, and am beginning to read some of the ship stations, but "I want to hear some music" and speech. I don't know what you chaps think of it, but I think it's rotten. Can't we crystal set-ites band together and do something?

I am sending this letter to the Editor of "Wireless Weekly," and asking him to publish it.

Yours, etc.,

"Crystal."

[We will be pleased to publish replies, and assist "Crystallites" in gaining their objective.—Ed. "W.W."]

Mr. R. WILKINS,

Lewisham, writes:—

"The advisability of an aerial switch was brought home to me last Sunday week, during the violent thunderstorm which we had. My aerial is only a temporary one, being 35 feet high at one end, and 15 feet at the other. It is screened by the house and trees, and is only single wire 60 feet long. I had disconnected it from my partly-finished set, and was about to connect the lead-in to a tap, when a flash of lightning, at least a mile away, caused a spark about 1/2 inch long to jump from the lead-in to the tap. Even then, whilst not actually going through my body, I got an extremely unpleasant shock, which resulted in the swelling up of my little finger. This ought to be a warning to all those with a larger aerial, who have not got an aerial switch"



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900033	10/-	14/-
1700061	12/3	17/-
250008	15/6	21/-
350012	18/6	25/-
670022	30/-	45/-

OUR
RADIO
YARN

THE RESCUE.

BY
C.O.

Fire !

Everybody in the building seemed to form the word simultaneously. A loud explosion had been followed by the strident clanging of the alarm bell, and an acrid smell seemed to permeate every corner of the building.

There had been an accident of some kind, that was evident, and the manager of each department hastily instructed his clerks to gather together the most important documents and leave the building immediately. The building was a huge, old-fashioned wooden structure, right on the water's edge, and was used as shipping and delivery offices. In fact, there was one room on the ground floor which was partly supported by piles, and the sluggish river flowed steadily beneath it.

As the clerks hurried to the main—the only—staircase, they were startled to see great volumes of smoke already pouring down it, and to hear the fierce crackling of timbers above. The top floors were used as storerooms, and there was not likely to be anyone left up there, as the three storemen were already gathered excitedly on the ground floor, except the new wireless operator, who had been only that week installed in a wireless room at the very top of the building. Everyone was very proud of the new wireless room, and they had all managed to have a peep into it during the last few days.

The slight, fair-complexioned operator, Edgar James, was already a favourite, and through his services the shipping company was kept in daily touch with their large fleet of vessels.

Crash! What was that? The hurrying crowd stopped an instant and looked back. It was the staircase on one of the upper floors giving way, and just at that moment the fire engines dashed up to the front of the building, and the chief officer sprang into the large entrance hall. The general manager was there to tell him briefly the few facts that were known, and one

of the clerks stepped forward and communicated his fears about James.

The manager immediately stepped outside, and asked if anyone had seen James, and a shout went up, as James himself came forward shamefacedly.

"Well, did you have a narrow escape?" asked the manager kindly. "No, sir," said the operator; "I happened to be on the ground floor when the explosion occurred, and was not able to get up to the room to save anything."

"Oh, never mind that," replied the manager, and everyone hurried away, well clear of the building as the hoses commenced their hopeless task.

James looked up at the building, and saw that the whole of the upper floors seemed to be well alight, and, knowing that he could do nothing, walked up the street to see a friend of his, who had an amateur wireless station, of which he was very proud.

He found his friend in a great state of excitement.

"Why, Edgar, old son," he said, "I have just been howling execrations upon your head, thinking that your wireless rig up there was making such a horrible disturbance. Just listen in here for a while and see what you can make of it. It has got me fairly puzzled. It sounds like your set, all right!"

James listened in, and suddenly it came, B-z-z-z-z, nearly deafening him. Then silence, and again that irregular and almost deafening buzz which had puzzled and annoyed his friend.

"Wally," said Edgar, his face blanching, "our building is on fire, and there must be someone caught in the operating room like a rat in a trap. The stairs are burnt away, and the whole of the front of the building is in flames. They are evidently pressing the key occasionally to attract attention."

"Come on," said Wally, "let us slip down the river in the little boat, and take a coil of rope with us. This is a chance I have longed for ever since I was a kid!"

The two friends climbed down the ladderway into the small rowing boat tied up alongside the piles, and soon rowed the few hundred yards which separated them from the burning building. Stray sparks were falling on them, and Edgar, pointing up to the window of his room, saw that smoke was already issuing from it. They both shouted together to the occupant of the room to come to the window, but no one appeared.

"Why, the fellow could take a header into the river from that window, and not suffer and harm," said Wally. "Perhaps he has been overcome by the smoke."

"I think that I could scale up to the window with that rope without much trouble," said Edgar, "and if I soak my clothes well in the river before going up, there will not be much fear from stray sparks or flames breaking through."

"No, let me go," said Wally determinedly, and, finally, it was his wet fibre which made the precarious ascent.

Edgar held his breath, and when Wally at last reached the window and disappeared over the sill, it seemed an interminable time before he appeared again with a struggling burden in his arms.

It was the stray dog which had been running about the building for some days, and had been trapped upstairs when the fire occurred. He had been jumping madly about the room as the smoke filtered in, and the flames crept nearer, and had occasionally pressed the sending key accidentally, thus causing the loud buzz which led to his discovery.

Wally shouted down some laughing remark to his friend, and, after tying the dog loosely in a table cover, began to lower him on the end of the rope. When about half way, the dog struggled free and fell with a splash into the river, immediately swimming off down the stream, and scrambling up the bank further on. Edgar and Wally laughed loudly, but their laughter was frozen on their lips, for at that moment a loud crash again re-

sounded, and the roof of the building collapsed, falling right through the flame-eaten floors to the ground, and leaving only a tottering wall on the side next to the river.

At the first crack Wally, guessing what had happened, made a wild leap from the sill, and disappeared beneath the water amid a shower of sparks and debris of all kinds.

Edgar, also, seeing the deluge coming, dived straight into the water, and remained below as long as his breath would hold out. When he came to the surface again he struck out down the stream, and saw his friend some little distance away bobbing about on the surface. Edgar helped him ashore, and the two crept up to Wally's room to remove their clothes, and all traces of the wild adventure. Then, after mutually swearing an oath of eternal silence with regard to the events of the last hour, they separated, and each went his way, cherishing a memory in which tragedy and comedy had been so closely associated.

CRYSTAL RECEIVING RECORD.

Mr. Maclurcan has received the following letter from Mr. H. Hinks, Mount View, Mulgoa:—

"Dear Sir,
I am writing to tell you that I heard your concert last night on a home-made crystal set, using a pair of Brown's 'phones, the lady's voice coming in very clear, and also the steel guitar, of which I never missed a note.

I have an aerial 600 feet long, and about 80 feet at the highest point, single wire only 7/20 g.

I do not think it a bad performance for a crystal set, as the distance is about forty miles.

I would be very much obliged if you would let me know what power you were using last night, 26/11/22. I may add that my call number is 2 I S."

Mr. Maclurcan informs us that this is, as far as he is aware, the furthest distance at which his concerts have been received on a crystal, and that he considers Mr. Hinks' performance a very excellent one. Even at five miles very skilful tuning is necessary with a crystal set, for there is no "carrier-wave" to help the adjustment.

WAKING UP.

The authorities in Australia are beginning to wake up to the value of wireless, according to the following account, which appeared in the Sydney "Daily Telegraph," from its Melbourne correspondent:—

"Tests of a most interesting nature have been made with the radio sets, with which the Commissioner of Police has decided to equip the police, as a means of facilitating them in their work of hunting down criminals. Each set will occupy only a small space on the floor of a motor car.

"On a night recently, when the official test was made, Superintendent Potter, Chief of the Detective Staff, was driven in a car fitted with wireless to various suburbs some distance from headquarters. It had been arranged that messages should be sent out from the radio station. Messages such as in actual work the officials in the car would act upon, were sent to the wireless station from the detective office.

"The wireless station sent out three messages, and by the wireless apparatus on the car they were immediately picked up as plainly as the plainest telephone conversation could have been heard. The officials in the car sat on the back seat, with ordinary receivers clasped to their ears by metal head-pieces, while the car proceeded along the road, yet the only apparatus in the car was a small box, not two feet square, with an aerial cunningly concealed in an oblong frame inside the hood."

MAGNAVOX RADIO.

The Rolls-Royce of Reproducers.

The one loud speaker which will reproduce music and signals in any volume without distortion and without injury to the apparatus.

Dispense with the Head-Phones,

AND LET EVERYONE IN THE ROOM HEAR.

A BIG DEMAND HAS BEEN CREATED.

BE SURE OF GETTING ONE.

Call, write, or 'phone,
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HAVE YOU READ WIRELESS REGULATION 9 (4)?

CAN YOU SATISFY THE CONTROLLER THAT YOU POSSESS THE NECESSARY TECHNICAL KNOWLEDGE TO ADJUST AND CONTROL YOUR APPARATUS, TOGETHER WITH SENDING AND RECEIVING TWELVE WORDS PER MINUTE?

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**IS THERE A LIMIT ?
Another Low Power Record
by 2 C. M.**

**200 MILES DAYLIGHT ON 1/7
WATT.**

During low power transmission tests recently conducted by Mr. C. D. Maclurcan, Strathfield, signals were received, and the test letter correctly noted by Mr. Channon, Inverell, 350 miles, and also by Mr. L. V. G. Todd, Tamworth, 200 miles. The input plate voltage was 60, and the current 6 milliamps, total power, .36 watts.

Mr. Channon in his letter says:—

"Your set seems to be in good going order to-night. The music, etc., came in better than I have ever heard it before. I am still using the single Expanse A Valve. The letters you sent were F. V. and W. There was considerable static, but I'm sure I could get your C. W. stuff with less power than the last you used to-night."

Mr. Channon little knew at the time that less than 2/5 of a watt was the lowest power used—and he wants less!!! These country radio bugs can show us a lot in the receiving line, but they are certainly hard to please.

Following on this, another test was arranged with Mr. Todd in daylight, with the astonishing result that signals sent in with a power of 1/7 watt were clearly received. Mr. Maclurcan's log shows the following particulars of the powers used:—

		Volts			
		5.45	7.15 in amp.		
		p.m.	p.m.	power.	
J	L	500	35	16.5	Watts
L	P	320	21	6.4	"
Q	X	120	11	1.21	"
K	C	90	8	.72	"
X	K	65	6	.39	"
M	M	50	5	.25	"
W	W	40	5	.2	"
O	O	35	4	.14	"

Continuous wave telegraphy can be heard on a crystal detector if some method of breaking up the continuous waves into radio frequency groups is used.



**CANTERBURY INTER-MEDIATE HIGH SCHOOL
RADIO CLUB.**

At a recent meeting of the students it was unanimously decided to form a radio club. Officers have been elected, and a commencement has been made in the way of lectures and construction. A loose coupler crystal set is in course of construction, and a receiving license applied for.

At the last meeting of the club a lecture on "The Receiving Apparatus" was given by Mr. C. O. Mann. The members are anxious to receive the interest and co-operation of members of senior clubs. This they feel could be shown by lectures and exhibitions of apparatus. The secretary is Master Jack Quirk, and a letter to Canterbury School will find him.

**THE NORTH SYDNEY
RADIO CLUB.**

At the last meeting of the above club, held on Tuesday, the 28th ult., the activities of the members were confined, for the most part, to code practice, and the finishing touches were put upon the club's receiving set.

This set, which is of the panel type, combined valve and crystal, was designed by the members and built by Mr. T. Hill, of the club, and is a particularly fine example of this class of set.

It is hoped, very shortly, to have the transmitting set completed, when regular broadcasting will be commenced.

Visitors desiring to inspect the above set are invited to do so at the next meeting, to be held on Tuesday night, the 12th inst.

NOT PLEASED

"Radiotitis" (Eastwood) writes:—
I have been anxiously waiting week

by week for the New Regulations. And to me they do not appear to be all that can be desired, from an amateur's standpoint. I take it that if an amateur wants a license he must get an experimental license. To get this it appears from your report in to-day's weekly he must be an instructor or a scientific investigator, not just a "listener in," and if he applies for a license on the grounds that he wants it for scientific investigation, he must convince the controller that he be capable of scientific investigation. What is to be done for all our Aussie lads, and men, too, who have been getting their sets ready for use when the regulations come to hand. Some of these may be the nuclei of Australian Flemings Lodges or Marconi's. If you would allow me to make a suggestion I would advise you publishing an informative article to amateurs telling them how to go about getting licenses. Does the loose coupler set described in "W. W." No. 4, comply with the regulations? I know of dozens who are making this set, and as I am somewhat of an advisor to them, I am anxious of their welfare. I am convinced your journal is out to help the amateurs, and would welcome the news of an Australian inventing a system of efficient secret wireless telegraphy, as suggested on page 13 of your current issue. Hoping to hear from you reassuring news.

NEW CLUB.

The formation of a local amateur wireless club is something that must come and will be appreciated. It is through repeated requests that I take the liberty of informing all interested to communicate with me, so that the prospects of forming the club or society will be gone on with immediately.

I anticipate many inquiries. It is open to both sexes and forms (as in many other districts) a means whereby those interested in RADIO or those who would like to become so, can avail themselves of the privileges and advantages that a club or society only can do.

Meeting at rear of 14 Park Road, Marrickville, Monday next, December 11th, at 7.30 p.m.

DON'T DELAY.

ARMIDALE RADIO CLUB.

The Club was formed on the 10th October last, with an attendance of twenty to twenty-five interested local residents. The designation of the Club is known as the Armidale Radio Club, and the following are its officers:—

Patron: Mr. A. Purkiss; President: Rev. H. S. Buntine; Vice-Presidents: Messrs. T. Flynn, Rev. Canon Rilly, P. C. Hipgrave, and H. A. Marshall; Hon. Secretary: Mr. E. Barlow; Hon. Treasurer: Mr. P. Knight; Committees: Rules Committee, Messrs. T. Flynn, P. Knight, N. R. Cottrell, and W. Mallam; Technical Committee, Messrs. T. Flynn, N. R. Cottrell, W. Scott, and B. Haynes; Financial Committee, Messrs. McLeod, Knight, Hipgrave, and Bigg.

The subscriptions are as follows: Full members, 10/6; Associate members, 5/-. Associate members are eligible up to 20 years of age.

The Club year commences as from 1/3/23. Persons paying the above fees before that date are classed as foundation members, and are financial up to the 1/3/24. After 1/3/23, an entrance fee of 5/- all round is being charged, in addition to the ordinary subscriptions.

At our last meeting, held on 29/11/22, practical instructional work was commenced, both on the club's set (which is going to be a crystal set and also a valve set), and buzzer practice.

The membership is at present upwards of twenty-five, and there is every reason to expect this number to increase up to thirty within a very short time. At a later date it is the intention of the club to instal a transmitting set.

The club will meet every fortnight from 6/12/22. Buzzer practice every Wednesday evening, also constructional work. All intending members should communicate with the Hon. Secretary, either at 149 Faulkner Street, Armidale, or c/o Commonwealth Electoral Office, P.O. Buildings, Armidale.

LEICHHARDT AND DISTRICT RADIO SOCIETY.

The Society's Eighth General Meeting was held at the Club Room, 3 Annesley St., Leichhardt, on Tuesday, November 28. The attendance was one of the best to date, and members spent the evening at Morse practice. As this is looked upon as a very important matter, it has been decided to set aside a separate night for buzzer practice, and the Club Room will, in future, be available for members for that purpose from 8 p.m. to 10 p.m. on Thursday nights. It is expected that the fullest possible advantage will be taken of this opportunity for members to improve their knowledge of the code.

The syllabus of elementary lectures has been draughted, and the second of them, under the heading of "Ohm's Law, and Simple Calculations," will be delivered next Tuesday night, commencing at 8 p.m.

Local interest in the Society's activities continues to grow, and the Hon. Secretary, Mr. W. J.

Zech, of 145 Booth Street, Annandale, will be pleased to reply to any inquiries.

ANTHONY HORDERN'S RADIO DEPT.

A few minutes spent on the second floor (Pitt Street entrance) will not be misspent. A very fine display of radio equipment is on view. Wireless experts are in attendance to give information.

A large aerial is now in course of construction.

Mr. Colville, of Colville-Moore, informs us that he intends transmitting lectures, etc., early in the New Year. His aerial of the cage type, sixty feet high, is now in course of construction.

2,400 OHMS
Double Ear Pieces
KELL OG PHONES
FIFTY-FIVE SHILLINGS
 The very best Set on the Market.
 ONLY A FEW LEFT.
 ALL OTHERS ARE LEFT STANDING
 AFTER YOU HAVE TRIED THESE.

O'Sullivan's Electric Shop
 296 Pitt St., Opp. W. & S. Board.

AMATEUR CALLS

NEW SOUTH WALES.

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

Call Signal.	Name.	Address.	Nature of Licence.
2 C J	R. D. Charlesworth	173 Parramatta Rd., Haberfield	R.
2 C J	F. L. H. Sewell	12 Dillon St., Paddington	R.
2 C K	W. T. Monohan	"Pine Wood," Corowa	R.
2 C L	G. Caletti	27 Pleasant Ave., Leichhardt	R.
2 C Y	P. S. Parker	Weldon St., Burwood	R.
2 C N	A. H. Brewer	165 Bondi Rd., Bondi	R.
2 C O	L. G. Job	153 Wolfram St., Broken Hill	R.
2 C P	F. H. Fraser	11 Grafton St., West Woollahra	R.
2 C Q	H. M. Planner	62 O'Brien St., Bondi	R.
2 C R	L. V. G. Todd	Dennison St., West Tamworth	T.
2 C S	L. T. Swain	135 Beaumont St., Hamilton	R.
2 C T	W. M. Allworth	Roma Flats, McMahon's Point	R.
2 C U	R. S. Martin	Roma Flats, McMahon's Point	R.
2 C V	L. R. Hewett	352 Railway Pde., Kogarah	R.
2 C W	J. Beer	42 Thomas St., Ashfield	R.
2 C X	H. A. Stowe	"Rawene," Royal St., Chatswood	R.
2 C M	C. D. Maclurcan	"Namanula," Agnes St., Strathfield	T.
2 C Z	G. W. Exton	Lismore	T.
2 D A	A. A. B. Slight	Moreton St., Parramatta	R.
2 D R	G. R. B. Deer	"Quondong," La Mascotte Av., Concord	R.
2 D C	E. Lee	37 Collins St., Sydney	R.
2 D D	W. G. R. Snellgrove	"Koorin," Shirley Rd., Wollstonecraft	R.
2 D E	W. P. Renshaw	"Waimea," Lord St., Roseville	R.
2 D F	J. H. A. Pike	Rawson St., Epping	R.
2 D G	M. F. C. Perry	Frederick St., Randwick	R.
2 D H	E. R. Mawson	"Daisydale," Wonga St., Campsie	T.
2 D I	G. C. Haminton	152 Ocean St., Edgecliff	R.
2 D J	E. Gardiner	45 Kingston St., Haberfield	R.
2 D K	B. P. Whitburn	7 Hathern St., Leichhardt	R.
2 D L	W. J. Zech	145 Booth St., Annandale	R.
2 D M	J. F. Wilson	66 Spit Road, Mosman	R.
2 D N	G. E. H. Blanchard	60 Bligh St., Newtown	T.
2 D O	H. C. Melville	c/o J. T. Easterbrook, Bower St., Manly	R.
2 D P	L. F. Collett	"Warilda," Duntroon St., Hurlstone Pk.	R.
2 D Q	G. M. Colton	Grosvenor Crescent and Liverpool Rd., Summer Hill	R.
2 D R	J. J. Tobin	Tabberatong, Limekilns, Bathurst	R.
2 D S	E. R. Davis	"Aiscourt," Black St., Vaucluse, Sydney	R.
		"Edgeware," Chesterfield Par., Waverley	R.
2 D T	E. Bowman	44 North St., Leichhardt	R.
2 D U	P. J. Harrington	"Belper," Cavendish St., Stanmore	R.
2 D V	W. T. Godbehere	1 Chapman St., Summer Hill	R.
2 D W	T. J. Ladd	Rosa St., Oatley	R.
2 D X	T. F. Rollason	Poictiers St., Deniliquin	R.
2 D Y	J. L. Skinner	Farm 24, Leeton	R.
2 D Z	M. B. Brock	"Woodburn," Yiddah, via Barmedman	R.
2 X A	F. J. Brooks	"Thalassa," Pittswater Road, Collaroy, via Manly	R.
2 E D	F. M. Basden	"Belmont," West Botany St., Arncliffe	R.
2 E C	C. A. Gorman	"Cerrobbar," Walton Crescent, Abbotsford	R.
2 K D	H. R. Gregory	55 Bradley St., Goulburn	R.
2 E E	C. K. Macdonald	"Montrose," Connemara St., Bexley	R.
2 E F	J. Sullivan	Ariah Park	R.
2 E G	C. McMabon	4 Muston St., Mosman	R.
2 F H	R. B. Typer	Barbam	R.
2 E I	R. M. Firminger	High St., Epping	R.
2 E J	W. M. Southwell		R.

SALE & EXCHANGE

FOR SALE—Crystal Set, with aerial etc. Brings in concerts well £3 10s or offer.—12 Rosemont Avenue, Summer Hill.

STATION CALLS.

SHIPS STATIONS, GREAT BRITAIN

Tabarka EWN, Tafna EOC, Tactician MWF, Tairoa GCZN, Takada MOR, Talthybius GSH.
 Talune GBVK, Tamaqua ZBG, Tamal MPG, Tamarac ZIC, Tambou ZOA, Tanfield ZNU, Tanlah EMZ, Tapli GCWX, Tapton ZUG, Tara GMQ, Taransay OCW, Tarrantia YRE, Taroba GMR, Tartar Prince ZLY, Tasmania GBPS, Teesta GMT, Tasmanian Transport ZEE, Taviuni GPYL, Taxandrier OFF, Teenkai YPF, Teesbridge YOX, Teespool YGK, Telamon ZKA, Teiresias ZJZ, Telconia MCJ, Telemachus ZAI, Telima MZD, Telesfora de Larrinaga GCZQ, Tempestuous GBFR, Tempus OCF, Tennyson GDG, Tenterden YGN, Teucer GJSJ, Teutonic MTC, Teviot ZHO, Tewkesbury XLY, Themameda BBO, Themis XEE, Themistocles MGM, Theseus ZTB, Thesis ZAG, Thessaly EMT, Thistle GDVF, Thistlemore BOQ, Thistletoe GBSR, Thongwa GMU, Thomas Crofton GDRY, Thornbury GDKK, Thorpe Grange YWP, Thurial Castle YCD, Thurso GBVZ, Thyra GDBK, Thara EYJ, Tibermede XLQ, Tiger GD-GBS, Torrent ZZX, Tosto OCQ, Tortuguero GDCZ, Trafford Hall, MSL, Transmitter GQO, Trebartha GDWP, Trecarne ZUI, Trewanda GMV, Torilla GOJ, Toronto TX, Titan GSO, Ting Sang GF-KV, Tintern Abbey, XHH, Tin-toretto ZNM, Tiverton MXZ, Tofua GPFM, Tolosa BUV, Tonacarrall GOX, Tredenham GBCE, Tredennick GDWQ, Trefusis ZTW, Tregantle GXA, Tregurion ELR, Tregarthen ZDE, Tregenna GCDX, Treglissan XEM, Tregonnell XKB, Thent GUH, Tregothnan BNA, Thehawke ZUF, Trekieve GEMV, Trelawny YIS, Trelevan GCWZ, Trelissick GNX, Treloske LSO, Trelyon GCKV, Trematon GOY, Tremayne LUJ, Tremeadow XUJ.

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