



A TALK WITH WIRELESS WEEKLY.

Were the restrictions placed by the authorities on amateur radio in Australia justified?

There are very few amateurs who will tell you that they were, but a little calm reflection cannot but show that the authorities were right.

From all appearances the restrictions are now about to be eased somewhat, and the task of controlling the experimental work that is bound to result should be an easy job. That is because the Australian amateur has been disciplined and made to feel his position.

America, they will tell you, is a paradise for the amateur. But to the untransformed man just come from the United States says that there is absolute pandemonium in the ether there, and any serious experimenting, in most places, has to be carried out at odd moments when there is a lull.

The kind of apparatus seems to be straining the ether in the oceans. The small boy with the spark coil is no numerous and energetic as the more advanced enthusiasts with telephony and C. W. apparatus. In many cases the tuning is as broad as the Atlantic, and the operating can only be described as deplorable. It may be that the state of affairs has been brought about by the minority but the fact remains that the authorities could have prevented the chaos. Why there have been occasions when important commercial stations suffered continued interference from the amateurs.

Great Britain adopted the right policy and kept a tight rein on amateur activities, and now there has been a generous relaxation of restrictions there, and everybody seems satisfied.

It is understood that the Australian Authorities will soon be relaxing the restrictions, and one can only hope that the experimenters will assist in maintaining some kind of order.

It may be presumed that an amateur will have to pass a certain examination before being granted a transmitting license. The authorities should see that this is such that no irresponsible with but scanty knowledge can pass it.

But here is a hint for the powers that be: don't penalise the little fellow with the crystal set, he can do no harm. Just charge him a nominal fee to cover the cost of issuing him a license.

It is up to every amateur to assist his Government, at the same time thanking his stars that we have avoided America's awful example.

DIFFERENCES.

Do you know that it is the difference between currents flowing through your crystal detector which determines how well or how poorly the crystal operates.

The operation of all crystal detectors is based on uni-directional, or one-way conductivity. If the contact wire be touching an appropriate spot on the surface of the crystal, currents will pass in one direction far more easily than in the reverse direction.

If the spot be not an appropriate one, it may be found that the current flowing, may be as large or larger than before, but that it flows at about the same value in either direction. There is very little difference, and therefore very poor results. Thus the crystal rectifies the current, by allowing it to flow mainly in one direction.

WIRELESS IN PERSIA

Wireless has proved a great boon to Persia, a country which is greatly isolated on account of its geographical position, it being hemmed in by mountains and possessing so few good roads.

Persian roads are mostly mere caravan tracks, and the means of communication with the outside world are scanty.

The operator in the Marsoni station put up a remarkable record recently by covering a distance of 6,249 miles (nautical), and getting a clear message to the "Mantua," which was just off Melbourne.

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August 18th, 1922

WIRELESS WEEKLY

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**5430 MILES.**

**TAHITI'S GOOD WORK.**

Mr. E. M. Bain, Senior Wireless Officer of the steamer "Tahiti," reports that during the trip just completed, the installation, which has given consistently excellent results, broke all records for working with San Francisco Radio.

The following list shows that the high efficiency of the installation was proved night after night, by the "Tahiti," sending radio-grams back over thousands of miles to the Coastal Wireless Station at the port she had left a fortnight before:—

- 21st July—3546 miles.
- 23rd July—4260 miles.
- 24th July—4519 Miles.
- 26th July—4785 miles.
- 28th July—5430 miles.

The "Tahiti" carries a 1½ K.W. installation supplied by Amalgamated Wireless (Australia) Limited, and the equipment includes valve receiving sets of the panel type recently designed and manufactured in the company's works, Sydney. This type of receiver has been fitted in ships going to all parts of the world, and has given wonderful results in every direction.

**ATMOSPHERICS.**

Atmospheric disturbances are due to static discharges from clouds or moisture in the air through the aerials to earth, and are most troublesome in summer.

As the particles of moisture in the atmosphere are moved about by currents of air, they pick up free charges of electricity. Under certain conditions a cloud may gather enough of these charges to produce a flash of lightning.

A group of charged moisture particles passing the aerials cause a momentary current to flow by attracting opposite charges from the ground, and this passing current gives rise to the familiar crackling sound in the telephones.

**THOUGHTS OF A CHILD.**

Oh little crystal set, you are to me,  
A living fairy thing—a power to bring,  
The world unto my side, that I may be,  
Apart, yet in the midst of one great entity.

Though oft I pause, and nervous pulses fret,  
And breaths come thick and fast,  
—until at last,  
The oft-repeated call is answered, yet

I love you, though you torture, little set,

And when you whisper words and music mild,

My heart will scarce contain,—the joy, the pain,

The aching, longing wish to know the wild,

Ungoverned exultation of a child.



The speed of transmitting the two daily weather messages sent out by the Air Ministry (England), has been reduced to enable wireless amateurs stationed in the remote rural localities to accurately copy them. These reports are proving of great benefit to farmers.

**UNIQUE MENU.**

Among the most cherished possessions of Mr. Phil. Renshaw, is a menu card of a farewell dinner tendered on November 20, 1911, by the Wireless Institute of New South Wales, to Messrs W. H. Hannan and C. Scandell, prior to their departure with the wireless section to the South Pole and Macquarie Island.

The card reads:—

**Menu.**

**No Relays Allowed.**

1. Hors D'Oeuvres (look out for 'pherics).
2. Crouste au Caviare, Olive in transformer oil.
4. Macquarie Island Trout (caught with 1½ inch guy rope).
3. Suva Soup (so far only got by two members).
5. Tournedo de Boeuf Richellon (C.Q., I.M.L., R.U.)
6. De Forest Turkey (Really Roast Penguin).
7. High Potential Ham.
8. Shellaced Asparagus.
3. Converter Jellies Polar (Bamboo), Trifle and Cream.
10. 5 K.W. Cheese.
11. Singing Spark Cigarettes.
12. Electrolytic Wines—Helix, Hoek, Condenser Claret Silicon Chablis, Battery Beer, Aerial Waters, Terminal Coffee—in Leyden Jars.

To balance capacities.

Members must not overcharge their jars, otherwise they will get out of tune.

**AMATEURS!**

Let us show you how to make your own set, and economise. We stock all parts and will give you every assistance. Country and Interstate amateurs, take advantage of our

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George Street, Sydney.



## END-TURNS. CUT THEM OUT

(By Static)

End-turns in an inductance are those in the unused portion which play no useful part in the working of a set.

For example, supposing, you have a coil which can tune to 50,000 metres, and are using only sufficient turns to tune to 600 metres, the remainder of the coil—between the 600 and the 5000 metre positions—would not be in use, and would constitute end turns.

These unused turns are directly coupled to the circuit, and, by having currents induced in them by the signal current, absorb energy from the circuit. This energy, which should help to increase the signal strength, is wasted. In addition the induced currents oppose the signal impulses, tending to damp them out and to weaken them.

In crystal reception these effects are noticed in a reduced strength of signal, while in valve reception there is also a difficulty in making the valve oscillate owing to the high damping.

### CORRECT VALUES.

Obviously the best way to overcome these undesirable effects is to have only the correct value of induction in the circuit, and this is the process adopted notably in the case of honeycomb and basket wound coils.

Honeycomb coils are made in sizes from 25 to 1,500 turns covering a range of wave-lengths from 150 to 25,000 metres, each coil tuning over a small band of wave-lengths. They usually have a plug attachment to facilitate the changing of coils when it is desired to change the band of wave-lengths received. Tuning is by means of variable condensers.

It is not always desirable or convenient to substitute coils, so some other method must be adopted.

### DEAD ENDING.

The most usual is to disconnect the end turns—a process known as dead-ending—by means of a

## FOR MISSION WORK

Radio broadcasting as an aid to the dissemination of the Gospel is now being considered by missionary bodies, says a London Journal. By means of a single transmitting station one missionary would be able to reach remote sections of his field frequently and give encouragement to native converts. Prominent missionary workers are watching the development of radio in the expectation that the time is not far off when it will be practical for their work in distant lands.

A single wire aerial is just as good for reception as a multi-wire aerial, and does not bring in so much spark interference. It is not a fact that the bigger the aerial the better the reception. The bigger aerial is only useful for long wave signals. A long aerial can be used for short wave work, but it means that a large condenser will have to be put in series with it to cut its capacity down, and that is not so efficient.

## ONE FOR BRAZIL.

There is to be an inter-national radio central at Rio de Janeiro, Brazil, which will be modelled upon the plans of the big American radio station on Long Island.

The station will be constructed by the International Radio Company, and a sub-station is to be built at Para.

dead-end switch. Where only one dead-ending point is needed, this may be merely a two point switch, but where it is necessary to dead-end successive valves of the inductance, a more complicated form, such as a fan-type switch or a plug and jack arrangement is necessary.

This method of dead-ending largely minimises the trouble as losses are now inductive only.

Isolating end turns by short circuiting the first few of them is sometimes adopted but this is of very doubtful value, while short circuiting the whole of the end-turns should never be done, as this causes large energy losses.

## IN THE ARCTIC.

A radio station has been established on Jan Mayen Island, in the Arctic Ocean.

It is operated by Norwegians and communicates with English, Norwegian and Swedish meteorological stations. As the island is visited by sealing and whaling vessels, this communication should be of great value to them.



## Note these Ear Pieces

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MAKE YOUR OWN.

A SIMPLE RECEIVING SET.

It is not generally recognised with what ease and simplicity a set may be made for the reception of wireless signals, and in this article is described one which, requiring very little constructional ability, is quite efficient in operation.

The cost, too, is extremely low. The tuning apparatus is known as a single-slide tuner and is constructed as follows:—

Obtain a cylinder of wood or cardboard, 3½ inches in diameter and 6 inches long. Make sure that this is thoroughly dry, and

with which the insulation may be removed where necessary, although silk or cotton covered wire is also suitable.

This winding is well shellaced to keep it in position.

Coil ends to support the coil and slider are now cut from ½ inch wood, 1½ inches high and 4 inches wide. They are shellaced, and are screwed to the coil as shown in fig. 1

The construction of the slider presents most difficulty and as this is sold at a reasonable price—the slider and brass rod to carry it

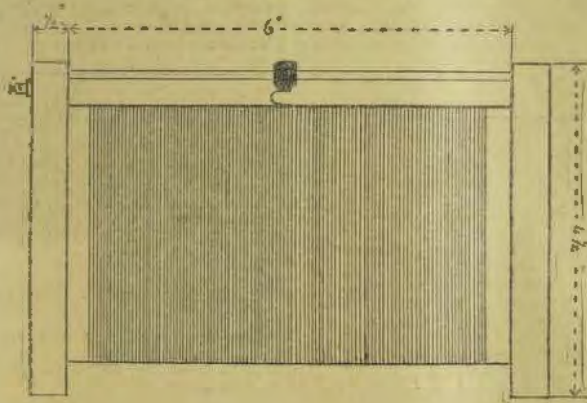


Fig. 1

give it several good coats of shellac varnish. If a tube is used, cut two circular pieces from ½ inch wood to fit tightly in the ends of the tube, and fasten them there with glue, or by driving small tacks through the tube.

The cylinder is now wound full with 22 or 24 gauges enamelled wire, commencing and finishing about ½ an inch from the ends. At one end allow about 6 inches of wire over for connections. About 3 ozs. of wire will be required, and enamelled wire is preferred because of the ease

costing about 2/—it is usually better to purchase it. A strip of spring brass soldered to the base of a terminal and bent as shown in fig. 1 may be used, the size of the brass contact rod being determined by the hole in the terminal. Circular rod is not advised owing to the difficulty in making the slider run truly.

Two terminals are mounted on one of the coil ends as shown, one being connected to the rod carrying the slider, and the other to one end of the coil. The other end of the coil is free.

The detector consists of a crystal contained in a cup or holder, with a wire or "catwhisker" making a light contact with it.

The crystal holder is made from a piece of spring brass 17/8 inches long and ½ inch wide. Three 1/8 inch holes are drilled in it as shown in fig. 2, the centre one to allow the holder to be fastened to a base.

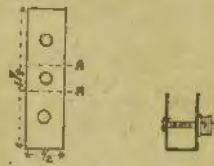


Fig. 2

tended to a base, the others to permit of a small bolt and nut being passed through to clamp the crystal. The brass is bent at right angles along the lines A, (fig. 2), the wings being about 3/8 inch apart, and the bolt and nut is put in position as shown.

The "catwhisker" is a piece of bare copper wire about 24 gauge, and is bent as shown in fig. 3, a small insulating handle of hard rubber being fastened at one end. It is moved through a telephone terminal as shown, and this permits the contact point to be moved over the face of the crystal at will, being clamped in any desired position by means of the set screw on the terminal.

The holder and terminal are mounted about 2 inches apart on shellaced wood or, preferably, ebonite, and connections are brought from them to terminals mounted on this base. For crystals, iron pyrites or magnetite

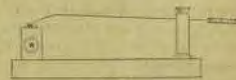


Fig. 3

give best general results. These may be purchased from any dealer in wireless apparatus, a good piece coating about 1/6.

The range of this set is largely determined by the phones used

(Continued on page 6)



and it is strongly advised that the best possible be used, as with good phones better results may be obtained, than on a more elaborate and expensive set with inferior phones. These wound to a resistance of 2,000 ohms, or over, are suitable and may be bought at prices varying from 35/- and upwards a pair.

The set is connected as shown in fig. 4. One terminal of the tuner is connected to the aerial, the other to earth. One terminal of the detector also connects to one terminal of the tuner. The other detector terminal is connected to one of the phone cords, while the remaining phone cord goes to the opposite terminal of the tuner.

Tuning is controlled by moving the slider along the coil until loudest signals are heard. The detector is adjusted by moving the "catwhisker" over the face of the crystal until the most sensitive point is found, which is evidenced by the strength of the signals in the phones. This may be done in advance by placing a buzzer near the coil and adjusting to the sound of the buzzer.

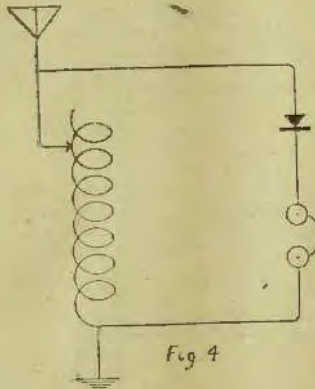
The foregoing makes a very effective set for the beginner, and has the advantage that none of it need be discarded when something elaborate is obtained. The single slide tuner is a useful piece of apparatus to the experimenter, as it can always be used as a loading coil to increase the wavelength of any other tuning coil, while a crystal detector is an essential article for experimental purposes.

HOW THEY TRAVEL.

The velocity of wireless telegraph signals is only slightly lower than the speed of light, which is about, 186,000 miles per second, or the equivalent of 7½ circlings of the earth per second.

This was tested some years ago by an experiment carried on between the Navy Station at Arlington, and Eiffel Tower, by means of carefully timed photographic records of signals sent across the Atlantic.

The circuit given is, with slight modifications, used in many of the American home sets, and is suitable for the reception of spark signals and telephony.



THE GOAL.

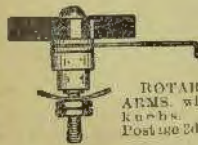
"It would be fitting at this juncture to remind my listeners that Australia, in common with most of the enlightened portions of the world, possesses a very large body of tireless wireless experimenters. Scientists all whatever their daily avocation, they possess the qualities which lead them to tangible, while yet in their mind's eye they see their goal.

"Yes, the research being carried on, largely unheeded, in the quiet seclusion of thousands of private laboratories, variously equipped, would astonish the world were it generally known to-day." Portion of an address by Mr. Phil. Renshaw, hon. sec. of the Wireless Institute, given by radio-phonograph, recently, from the premises of Amalgamated Wireless Ltd., Clarence Street, Sydney.

TREES & AERIALS.

"You may be interested to know the way I solved my trouble from trees whipping in the wind and breaking my wire," writes a radio enthusiast to a London contemporary. "On the end of each aerial beginning at the insulator I attached about fifty feet of clothes line and ran same through a pulley on each tree and down to a heavy weight. This allows the tree to whip in the wind and the rope and the weight keeps the antenna tight at all times and I have no more broken wires."

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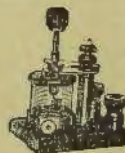
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### THE BEACON : A Radio Story.

The rain pattered noisily down on the galvanised iron roof, as Jim Darrow sat gazing gloomily into a fire of crackling logs that hissed and spluttered, as stray rain drops found their way down the wide chimney.

Jim was a big strongly-built fellow, who, ordinarily was not troubled with fancies. But to-night he shivered and looked furtively around the bare little hut as a gust of wind made the structure creak and strain.

He stooped to replace a log that had fallen on the hearth, and as he straightened up, some unseen force made him turn his head till his eyes became focussed on the uncurtained window.

Jim had never before realised the loneliness of his lot, and he could not repress a violent start when a face set with wild, almost despairing, eyes appeared against the window pane.

Jim did not hesitate, but stepped quickly forward and with hand on the latch, and shoulder braced against the door, shouted; "who's there!"

A hoarse voice gave an unintelligible reply, and Jim threw back the door to admit the rain sodden figure that stumbled over the threshold. But for the assistance of a strong arm the stranger would have fallen forward.

After being assisted to a chair in front of the fire the stranger sat dazed for a few moments, while Jim clumsily wiped the dripping hair with a towel, and

tried to remove some of the drenched garments. Suddenly the new arrival started up, and, pointing to an old wireless set and practice key, which were Jim's only hobby in this desolate place; he excitedly demanded to know if it worked.

Jim modestly replied that he occasionally heard strings of dots and dashes which were too fast for him to read.

The stranger, who now appeared to have almost completely recovered, adjusted the phones on his head, and while he and Jim searched for the elusive point on the crystal, he told Jim of his plight.

He was the wireless operator from a lonely Coast Station about four miles distant, and the fierce gale had blown down his aerials and completely wrecked the station. He had just been able to crawl from under the debris as the ruins started to smoulder and then burst into flames, caused, probably, by the overturning of an emergency oil lamp, which had been on his table.

The worst of it was that he had just received a message from a small coastal vessel in great danger, off his station.

The wireless operator had rushed blindly through the night hoping to reach the nearest township, about six miles away, and had been on the verge of collapse when he saw the reflection of Jim's fire on the window panes.

But what was that! He reached for Jim's pencil and paper, and

Jim read over his shoulder the message that was slowly written out:—

"We are now making good headway, your warning beacon saved us from the rocks."

The two men silently gripped hands, and Jim felt that many of his lonely hours would now be filled with wonderful dreams, and that he had found a life-long friend.

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**WHAT THEY DO**

**Another Aspect.**

(By C. H. T. SQUIRE).

Here is an aspect of radio experimenting that seems to have escaped most of those interested.

What do experimenters do with the fruits of their labours?

A man of considerable experience in the science told the writer that some of the apparatus, made and used by amateurs, was little short of wonderful. They would, he said, get signals on gear that would send many experts crazy.

**HOME MADE**

Many of the more skilled experimenters had splendid apparatus made mostly by themselves. In a lot of cases the gear was a deal more compact than that used in commercial work, and at the same time equally, or more efficient in working. Of course such sets would not stand the knocking about that is required of the commercial apparatus.

During their research work amateurs often drop across improvements, and find ways of simplifying existing gear, but the most remarkable thing is that one seldom hears about these facts.

**AFTER PERFECTION.**

The amateur is a curious person. He will work far into the night on his set and succeed in getting it to a high state of efficiency. He then tells a few of his fellow enthusiasts of his success, and probably pulls the set to pieces, with the object of setting out afresh on the wearying search for perfection.

Now what is wanted is a live body of technical experts to investigate these improvements and inventions, and, if they are any good, see that the person who originated them gets the benefit of his work.

The amateur, by the way, should keep careful record of anything he does. It might be worth his while.

**SQUEALING.**

**A VALVE TROUBLE.**

When the regenerative effect is too strong, it is sometimes noticed in an oscillating receiver that "squeals," "rattles" or "clicks," are heard in the telephone receiver.

This only occurs when a grid condenser is used, and is caused by the periodic starting and stopping of the oscillation.

When the oscillation starts, the grid acquires a negative charge, and as the grid grows more negative, the regenerative effect is weakened, and the oscillation finally dies out. The grid and the grid condenser then discharge through the grid leak, and when the potential of the grid rises sufficiently to restore the regenerative effect of the valve, the oscillation builds up again.

When this action occurs slowly and repeatedly a click in the telephone receiver is heard. When the occurrence is more rapid, the click becomes a rattle; if more rapid still, a musical pitch is reached and the familiar "squeal" is heard; and finally the oscillations may occur so frequently as to cause an effect above the limit of audibility.

High capacity value in the grid condenser and resistance in the grid leak, slow down these oscillations.

To overcome these disturbing effects, the regeneration should be reduced, as by loosening the tickler coupling. When this leaves the circuit in too critical a state, the resistance of the grid leak should be reduced to establish stability.

In operating a radio-telephone receiver with an oscillation detector valve, a whistling note will be heard, if the local oscillation is somewhat out of tune with the received oscillation, in spite of the voice modulation of the transmitter. If the tuning is gradually varied from one side of synchronism to the other, a very high note will at first appear; this will fall in pitch until it suddenly disappears and the music or speech can be heard in its place.

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The whistling note then replaces the music and it rises again to a high pitch, until the limit of audibility is passed. The sudden appearance and disappearance of the music or speech correspond to the pulling in and dropping out of synchronism of the local oscillation with the receiving oscillation.

A cheap and fairly efficient insulator for a receiving aerial may be made from a large wooden spool or reel. First bake the spool in an oven to drive off all moisture, and then soak in melted paraffin. Bake again, and, finally give a good coat of shellac. Two such spools in series, make quite a good insulation.



August 18th, 1922

WIRELESS WEEKLY

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## STAR RADIO BATTERIES

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### THE BUSY PEN.

"Wimmera,"  
Alfred St.,  
N. Sydney,  
Aug. 13th, 1922.

The Editor  
Wireless Weekly  
Sydney.

Dear Sir,

I would be obliged if you would give publication to the following statement.

At the meeting held by the delegates from the various Wireless Clubs of N.S.W. at the Wireless Institute's Rooms on Friday last, reference was made to the fact that delegates from my Club were absent.

In answer to that reference, my Club wish me to make the following facts known:

"The reason for our non-attendance at the meeting was that no invitation was tendered to our Club to send delegates, yet the

Illawarra Club was represented, and they have only been in existence about a fortnight, according to reports.

In our opinion the Institute was not justified in making such a statement about our absence, and if there is any reason, or reasons why we as a Club should not have been invited to the meeting, which I believe, was supposed to have represented the Clubs of the State, we would like to hear of them, as we do not know of any ourselves."

Yours faithfully,  
M. RICH,  
Hon. Sec.,  
N. Sydney Radio Club

The impedance of an intervalve coupling should at least equal the impedance of the tube itself.

### LIGHTNING SERVICE

What is known as "Lightning Wireless service" was inaugurated recently between Berlin and Hamburg.

The dispatches are to take precedence at a tenfold rate over all other wireless traffic, and the personnel has orders to speed up the lightning service.

The first message was filed in the main telegraph office at Berlin at 9 o'clock in the morning, transmitted at 9.03, receipt acknowledged at 0.95, and telephoned to addressee at 9.10.

When the New York State Association of Electrical Contractors and Dealers held its annual banquet, the after-dinner speeches consisted of a half-hour of musical entertainment by the radio-phonograph.



**MUSIC IN THE AIR**

**CONCERT PROGRAMME.**

For next Sunday, August 20th, the following Pathe records will be played for Mr. Maclurcan's concert, starting at 7.30 p.m.:-

- Fox-Trot: "Ho."
- Hawaiian Guitar: "My Land of Memory."
- Soprano: "Madam Butterfly," Claudia Muzlo.
- Piano: "Fifth Mazurka in A" (Godard).
- Xylophone: "Snowdrops."
- 8 p.m. Code Practice in C.W. and Buzzer.
- Fox-Trot: "Canadian Capers."
- Tenor: "La Boheme," Constantino.
- Hawaiian Guitar: "Hawaiian Nights" Waltz.
- Cello: "Romance Sans Paroles," Joseph Hoffman.
- God Save the King!

**Another Low Power Record.**

**MR. MACLURCAN AGAIN.**

In reading some of the latest American Wireless Magazines, one is struck with the interest taken in the tremendous distances covered by amateur low power transmitting stations. As viewed from the point of view of two years ago, to-day's achievements are impossible, yet once again the impossible has been accomplished by the rapid advance of science.

Mr. Charles Maclurcan, of Strathfield, has been breaking records with his low power transmitter for some time past, but his latest achievement is so very remarkable that it makes us wonder if the day is so very far off when we can transmit our thoughts one to another at will.

A few weeks ago Mr. Maclurcan conducted some experiments with Mr. Tuson, the operator on the s.s. Timarua, while this boat was proceeding from Sydney to Auckland. The power used by Mr. Maclurcan was 8.75 watts, and he was heard and read by Mr. Tuson at the wharf at Auckland. Further, we have just learnt that his speech was heard by a New Zealand station.

This result in itself places Mr. Maclurcan amongst the very front rank of the army of wireless enthusiasts in the world, but his lat-

est record makes even the New Zealand tests ancient history.

By courtesy of the Amalgamated Wireless (Aust.) Ltd., Mr. Maclurcan has been conducting a test with Mr. Dixon, wireless operator on the s.s. Montoro. During this week Mr. Dixon wired Mr. Maclurcan that he was leaving Thursday Island for Darwin, and to send as per arrangement. Accordingly, Mr. Maclurcan did so, and has just received a wire stating that the C.W. signals were heard at Darwin, a distance approximately of 2,100 miles. Mr. Dixon was using a single expense B valve with the ship's standard equipment. The message was unreadable on account of severe static disturbances, but was sufficiently strong to enable Mr. Dixon to be assured that he heard Mr. Maclurcan, and could have read him had the atmospheric conditions been more normal.

It should be borne in mind that this distance of 2,100 miles is wholly overland, which fact makes the result all the more satisfactory.

If instead of using a single valve, amplification was employed, there is little doubt that anyone with a wireless receiving station could be reasonably assured of hearing Mr. Maclurcan almost any time he is sending.

The power used at the transmitting end was only 8.25 watts. To the wireless man this speaks volumes, but to the uninitiated it might be pointed out that a single 16 candle power electric light uses 20 watts, they can draw their own conclusions.

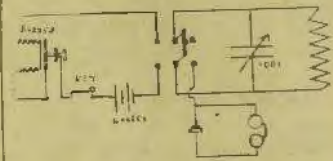
This article would not be complete if due credit was not given to Mr. Dixon for the thorough knowledge he must have of his receiver and the diligent zeal he has displayed in making possible this record.

**WAVE METER**

This is a diagram of a wave meter, which may be used to time both the transmitter and receiver.

The condenser used is either a Mesco No. 294, or Murdock No. 366. The Key and Buzzer are procurable at most radio shops.

A wave meter is an essential instrument in every amateur station



and will save the experimenter a lot of searching to pick up the wave length required. When transmitting licenses are granted in self-protection, the experimenter will have to instal a wave meter; get busy now, the time is drawing near when you will need it.

**WIRELESS BOOKS.**

- Consolidated Radio Call Book, 10s.
- Design Data for Radio-Transmitters and Receivers (by Sleeper), 4s 6d.
- Wireless Marconi Military Pact Stations. Technical Description, 2s.
- Handbook for Wireless Operators (Licensed H.M. Postmaster-General), 2s. 6d.
- Wireless Telegraphy and Telephony. Fully illustrated, 2s.
- The Maintenance of Wireless Telegraph Apparatus (Harris), 3s 9d.
- N.S.W. Bookstall Company, Ltd., 476 George Street.

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*Reports of club meetings and activities will be found under this heading. The Secretaries of the various bodies are invited to send along such reports for publication. Brevity will be appreciated. Manuscript should reach the Editor, Box 378, G.P.O., Sydney, not later than Tuesday in each week for insertion in the following Friday's issue.*

At the second meeting of the Illawarra Radio Club, at the Carlton School of Arts, a number of new members were enrolled. The main item of business was a discussion on the proposed Club Rules, as drafted by the Committee, and these, subject to some slight amendments, were passed and adopted by the members. A feature of the evening was an address by Mr. R. C. Marsden (of the M.R.C.) who touched on many matters of importance and interest to amateurs, particularly as to the probable outcome of the present negotiations with the Government. He also stressed the need for a united association of radio bodies for the control of amateur wireless. The speaker concluded by replying to various questions put by the members, and was accorded a vote of thanks for his interesting address.

The main matters of business in connection with the formation of this club having been disposed of, it is proposed at future meetings to introduce something of a more practical nature, and to this end the Technical Committee are arranging for lectures and demonstrations. Members may also avail themselves of buzzer practice from 7.30 to 8 p.m. on meeting nights.

## REACHES N.Z.

### AMATEUR'S TRIUMPH.

Full details have now come to hand regarding the test recently carried out with New Zealand by Mr. Charles Maclurean of Strathfield, Sydney.

Commencing on the night of July 1st, and for the six nights following, Mr. Maclurean transmitted speech and telegraph from Strathfield, using a plate input power varying from 8.1 watts to 8.7 watts.

#### N.Z. GETS IT.

Although considered by most radio enthusiasts to be impossible, the C. W. signals were picked up in New Zealand in good readable strength, using but one valve for reception. The operator on the S.S. Ullmaroo also received the signals whilst in Auckland Harbour. On July 4th at a distance of 1,100 miles he reported as follows:—

C.W. received strength 4.  
Tonic Train received strength

3. Speech audible at times. A single Expense "R" valve was used for reception.

On July 5, whilst in port at Auckland he received the C.W. slightly louder than the previous night.

#### LAND STATION REPORT.

The New Zealand land station reported as follows:—

July 5, 11.30 p.m. received

C.W. Strength 5.

July 6, 11.40 received C.W. Strength 5/6.

11.50 p.m. received C.W. message to Ullmaroo.

July 7, 11.33 to 58 p.m. received C.W. Strength 6.

Tonic Train strength 5, speech strength 2.

A single valve reaction circuit was used for reception.

From all accounts Mr. Maclurean achieved a world's record for low power transmission by this feat. His expert knowledge and hard and exacting work have been combined in making the Strathfield station the finest amateur one in Australasia.

He is to be heartily congratulated in the fine work.



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SHIPS STATION, GREAT BRITAIN.

Aba G.D.S.W., Abadesa Z.A.Z., Abarin Y.J.C., Abbassieh Z.T.H., Aberdonian Z.K.S., Aberlour E.Z.K., Abinsi M.V.P., Absia O.F.A., Acajutha Z.H.G., Acardo G.F.P.E., Acasta B.Q.O., Acerington G.D.M.J., Achatina G.F.P.D., Achilles G.D.B.C., Aetor B.O.J., Adna B.P.Y., Addington X.F.K., Admiral Cochrane Y.Q.X., Admiral Codrington B.O.K., Adra Y.H.L., Admiral Hamilton G.B.Q.N., Adriatic M.H.C., Admiral Hastings G.C. D.R., Aeneas M.F.U., Afghanistan L.U.T., Agadir G.C.Q.K., Agamemnon Z.J.K., Agapenor Z.J.P., Agnes Duncan Z.V.W., Agulla E.J.P., Aidan M.F.M., Ainsdale X.L.P., Airedale O.F.T., Ajax G.U.Z., Akabo M.Z.E., Akenside G.E.W.C., Akera O.E.S., Alatrium L.U.O., Alayeno Y.H.N., Alban G.W.W., Albania G.D.V.L., Albanian Z.O.I., Alberta Y.J.T., Albany E.X.O., Albion G.D.Q.R., Albionstar G.C.B.D., Albistan Y.F.W., Albuera L.T.M., Alcinous Z.J.Q., Alconda Y.S.L., Aldworth Z.P.F., Aleppo Z.V.U., Alert Z.U.E., Alesia Z.Q.Q., Alexandra Y.Z.H., Alexandrian Z.G.M., Alfred Calvert B.T.U., Algeria G.B.P.T., Algerian Prince G.C.M.Y., Algorta Y.F.Y., Alice Marie G.D.W.X., Alicia X.F.B., Alcess G.D.T.J., Alipore G.B.C.B., Almagro G.C.K.J., Almazora Y.Z.K., Almeria G.B.F.P., Alpine Range Y.G.H., Alster G.B.D.L., Alicia G.D.F.K., Alston Y.K.H., Alvaro G.C.K.L., Amalthus C.F.P.C., Amarapoor G.B.K.P., Amarna Y.R.D., Amasis Y.M.T., Amatonga Z.P.U., Ambassador G.X.S., Amber G.C.Q.M., Amberton Z.V.E., American Transport Z.D.P., Ampullaria G.F.P.J., Amsterdam G.P.F., Anamba Z.A.V., Anatina B.P.W., Anchises M.F.W., Anchoria Y.D.E., Anchoron G.D.W.L., Ancobra Y.M.K., Ancula E.L.L., Andalusian X.I.C., Andalusier G.D.P.F., Andes M.R.Q., Andorinha M.I.U., Andree E.N.N., Anne G.C.S.X., Ankeisea B.C.R., Anglia G.C.M.K., Anglier Y.A.G., Anglo-Chilean Z.R.S., Anglo-Egyptian Y.U.M., Anglo-Mexican Y.Y.C., Anglo-Saxon G.U.B., Angora G.C.Q.R., Anhalt G.D.Y.

Anomia B.Q.M., Ansem M.D.K., Ansgir G.D.K.F., Anselma de Larrinaga E.J.R.,

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Arakaka Q.U.A., Arankola G.C.Q.T., Arawa M.W.E., Arbonne G.D.R.T., Archangel Z.C.P., Aronda M.A.Z., Archimedes Y.Q.C., Arcitect Z.H.H., Arta G.D.F.J., Ardena GDPN, Ardenya GDQY, Ascot MKL, Ardeolo GCJ, Ardgowan X.Y.M., Asian M.K.L., Ardmore G.F.C.W., Ardover G.B.X.R., Ardoyne Y.N.D., Argalia X.L.H., Arlosto X.J.B., Argonauta Y.A.A., Argyllshire G.T.J., Ariadne Alexandra L.U.A., Ariand Y.F.G., Ariadne Irene E.U.S., Arlanza G.C.Q.V., Armadale Castle M.Q.G., Armagh B.M.Z., Arneliffe G.X.X., Arracan G.W.O., Arranmead Y.I.D., Artemisia G.B.D.C., Arundel Castle G.C.Z.L.

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While lengthy replies cannot be given to complicated questions involving extensive research or computations, this department aims to be of maximum service in supplying information as to what books or other sources may contain answers to these questions.

A stamped addressed envelope must accompany each question, but the writer's name will not be published if he so requests.

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

"THE MAGNAVOX."

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Published by W. J. Maclardy, "Truro," Powell Street, Neutral Bay, at the Office of W. M. Maclardy, 248 Castlereagh Street, Sydney.