

The Queensland Radio News

"Your Own Wireless Journal"

6⁰



Vol. III.

Monday, 2nd JANUARY, 1928

No. 1

Registered at the G.P.O., Brisbane for transmission by Post as a Newspaper.

Use

The

AMPLION

PUBLIC and SPEECH

BAND REPEATER EQUIPMENT

for all outdoor and indoor functions

Every day adds to the number of organising secretaries who consider the Amplion Equipment essential to the success of the function.

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ROTOFOR RADIO

**SINGLE
DIAL
CONTROL
FOR
EASY
TUNING**



**NEUTRALIS-
ED
CIRCUIT
FOR
SMOOTH,
EFFICIENT
OPERATION**

ROTOFOR TWENTY

Rotofor Twenty Table Model (5 valves) has a rubbed antique finish and is built of selected Mahogany. Size: Height, 11in., top 27½in. wide by 13½in. deep. Ample battery space provided. PRICE, complete with guaranteed first-class accessories £30

In the photos you see all the operating parts of the ROTOFOR receiving set. Absolutely no other adjustment is required than turning the knob!

Only one dial is used. This dial is a complete circle (360 degrees) and is divided into 100 units of sufficient size to prevent eye strain.

A slight turn—less than the distance between two points—is often enough to tune a broadcasting station out or in.

The small lever under the tuning knob serves both as a switch and volume control.



ROTOFOR FIVE

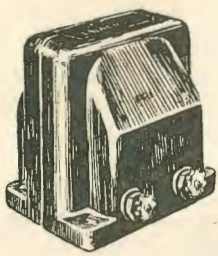
Rotofor Five Table Model, built of selected Mahogany, rubbed antique finish. Height 8in., top 16in. wide by 13in. deep. PRICE, complete with guaranteed first-class accessories £27/10/

WHILE the most advanced principles of radio are incorporated in Rotofor 5 - tube receiving sets—an entirely new principle has also been developed which is hailed as the outstanding accomplishment of recent years in radio engineering. This is the invention of "ROTOFORMERS," which automatically synchronise all tuning apparatus so that absolute control of the instrument is centered in one dial. This principle abolishes all the complicated dials and tedious tuning which characterise old-style receiving sets. Nothing could be more simple than the operation of the ROTOFOR.

Distributors:

RADIO PRODUCTS LTD.

1st Floor Ewing House Adelaide Street BRISBANE



CAVALIER TRANSFORMER. Bakelite case. Ratios: 2-1, 3½-1 and 5-1. PRICE 21/

Here are parts made famous by consistently good performance over a long period. Make them your choice when next you buy.



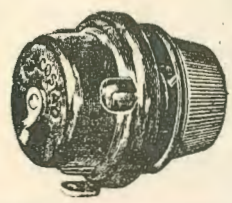
EMMCO METAL CASE TRANSFORMER. Ratios 2-1, 3½-1, 5-1, and 7½-1. PRICE 17/6



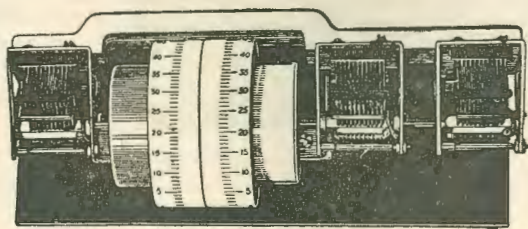
Single Dial Control.



Two-Dial Control.



EMMCOSTAD, a universal Variable Resistor. All resistances. PRICE 7/6

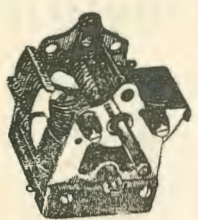


EMMCO DRUM CONTROL CHASSES—latest products for latest receivers. PRICES:—

For Chassis complete, mounted with Three Condensers and Bakelite front or Single Control, complete £4/10/
For Double Control, including above, complete, £4/10/



EMMCO BALANCED SOCKET. PRICE 3/6
Sub-Panel Socket, PRICE 2/9



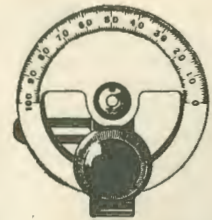
EMMCO SUPER STRATHELYNE CONDENSER. Price —.0005, 12/6; .00025 and .00035, 12/.



EMMCO SUPER POWER "B" ELIMINATORS, for multi-valve sets. PRICE £12/12/



EMMCO "B" BATTERY ELIMINATOR, for sets up to five valves. PRICE £10/10/



EMMCO BACK PANEL DIAL, attractive bezel. PRICE 5/6

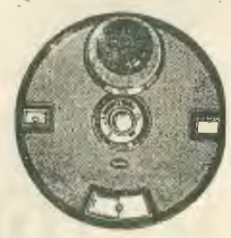


EMMCO BATTERY CHARGER, made in two capacities for charging either 4 or 6 volt batteries. Prices:—
2½ Amp. £4/15/
5 Amp. £7/7/

AT ALL DEALERS

Made by

ELECTRICITY METER MANUFACTURING CO. LTD.



EMMCO VERNIER DIAL, black or mahogany. PRICE 7/6

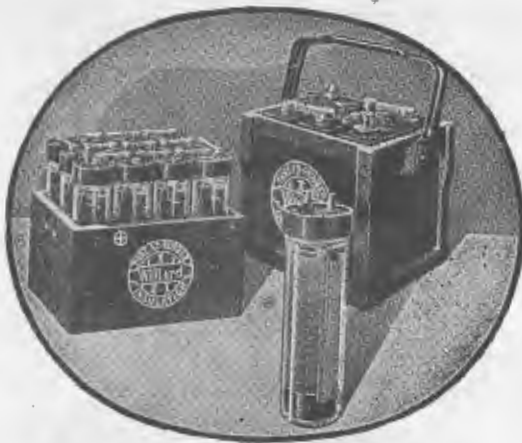
The Queensland Cricket Team Interested in the Control Room of 3LO Melbourne



During the visit of the Queensland cricket team to Melbourne, where they played Victoria in a Sheffield Shield match, the members of the team availed themselves of the opportunity to visit Station 3LO at their new and luxurious quarters in Russell Street.

Our photograph shows the studio manager (Mr. T. W. Bearup, M.I. R.E.) describing the modern switch-board.

Those of our readers who are enthusiastic followers of big cricket may recognise some of the team shown in the picture.



Made in both "A" and "B" Types to suit every
Wireless Requirement.

Ahead in Design and Construction

You can get a WILLARD "A" or "B" Battery at such a low price that there is no reason for taking chances on any battery less reliable than a WILLARD. WILLARD Radio Batteries are the farthest advance in battery design and construction for radio work. Connect up your "set" with—

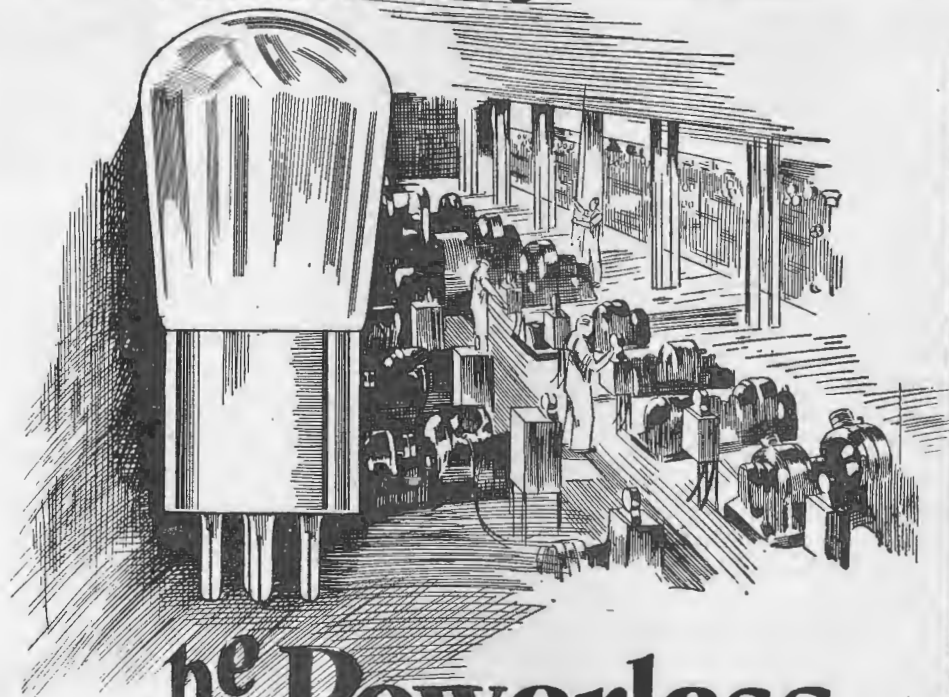
WILLARD RADIO BATTERIES

MOTOR SUPPLIES LIMITED

PERRY STREET off Boundary Street

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The most efficient Broadcasting Station



can be Powerless

—If the Valves on your set show the slightest signs of inefficiency.

Ask for "Condor Lamps" for your house or your car when buying your "Condors Valves"

Be sure of continued, uninterrupted, undistorted radio enjoyment. Increase the clarity and selectivity of your set—fit CONDOR VALVES.

Condor VALVES

CONDOR LAMPS [Australasia] LTD.

SYDNEY, MELBOURNE,
ADELAIDE, BRISBANE,
WELLINGTON, [N.Z.]

When replying to Advertisers, kindly mention this Paper.

ACCESSORIES

Reliable Quality—Keen Prices

Here is a brief list of needed accessories that should interest all keen radio fans. In Radio, as in everything else at "The Home of Sport," only quality accessories are sold. "Junk Stock" does not find a place on our shelves. Study the values offered below, and send or call for your requirements.

FIXED and VARIABLE CONDENSERS

Mansbridge 1 mfd. Condenser	6/3
Mansbridge 2 mfd. Condenser	8/
Advance .0005 S.L.F. Condenser	10/6
Advance .00035 S.L.F. Condenser	10/
Advance .00025 S.L.F. Condenser	9/
Pilot .00015 S.L.F. Condenser	11/3
Emmco .00015 Centralign Condenser	12/
Muter .00025 Grid Condenser with clips ...	2/6

RHEOSTATS

Electrad 30 ohm. Rheostat	3/9
Bradley Stat	12/6
Muter Fixed Rheostat for 201A Valves ...	3/

CRYSTALS

Copper Pyrites	} All 9d.	Neutron	1/6
Ethercite		Synthite	1/6
Galena		Wavelength ...	1/
Silicon		Idealit B.	2/3
Iron Pyrites ..		Tungstelite	1/6
		United Crystals .	1/6

MISCELLANEOUS

Carborundum Crystal Detector	11/
Lion Micro Crystal Detector	6/6
Beede Battery Meter, 0-50 v., 0-50 amps. ..	7/6
Yankee Voltmeter, 0-50 v.	3/6
Pilot Art Dials	7/6
Accuratune	6/9
Glo-Dial (illuminated)	12/6
Ebro 2-Coil Holders	9/6
Lewcos Frame Aerial Wire, per box 100ft.	4/9
3/20 Bare Copper Wire, per 100ft.	2/6
7/22 Enamelled Aerial Wire, per 100ft.	5/6
Talking Tape, per 100ft.	7/6
Pilot Toggle Switch	3/6
No. 40 Pilot Light	3/9
S.P.D.T. Switches	2/
Grodan Lo-Loss Formers	2/6
Testrite Hydrometers	4/
Glass-enclosed Crystal Detector	1/6
Edison Bell Twin Detector	3/6
Maclurcan Tone Purifier	21/
Centralab 500,000 ohm Modulator	14/3

Mick Simmons Ltd.

"The Home of Sport"

Queen Street (Opp. Town Hall) BRISBANE



“Just Around the Corner—”

THE dawn of another year bursts upon us, rich with promise—yet full of mystery as to what the future holds. Most of us are given to prophecy. We prophesy that by the end of this year daily aeroplane passenger services will link up the capital cities and important inland centres of the Commonwealth.

We stroke our chins and gaze thoughtfully into the future, and tell our wives that before the year closes, Science will have found a way to rid humanity of the dread cancer scourge.

We are by nature fond of peering into the future and foretelling what lies beyond the present. Sometimes these assumptions are based upon closely studied fact; more often than not they are mere wild speculations.

But in whatever form our prophecies may be, they are as but fools' answers to a wise man's riddle. None can tell—none can hope to guess.

Of all the branches of Science that hides its future in a shroud of mystery, surely there is none greater than Radio.

Who is there among us who would prophesy the exact stage of development and the wonderful accomplishments to which Radio will extend itself within the next twelve months?

Empire Broadcasting, Television, Batteryless Radio, and the problems of Static and Fading are now engaging the intellect of many of the world's cleverest scientists.

Success seems assured, but who can tell how and when the goal will be reached? Our ignorance is largely our salvation, for our interest in the Science is sustained only by wondering what lies “around the corner.”

4QG LISTENERS THINK THAT—

—It would be a capital idea for this journal to pass candid comments upon people in 4QG's programmes. Our Editor is only a young man with his future before him, but he is prepared to take the risk, so here goes—!!

* * * *

—Since Director Robinson decided to take a "grand stand seat" at the Brisbane Speedway—broadcasts from that quarter have lost much of their thrill. A Speedway announcer of all persons must be capable of keeping up a "running fire" of descriptive announcing. At present there are many dull moments.

* * * *

—Mr. George Williamson is one of 4QG's most gifted vocalists—but like good seasoning, his voice should not be used to excess. Two and more appearances in one week has the tendency to lessen the public's appreciation of this artist's very enjoyable renderings.

* * * *

—4QG is the best broadcasting station in the Commonwealth, and some think that it is the worst. Perhaps it is just as well that we do not all think alike—life would be rather dreary, wouldn't it?

* * * *

—It would be a good idea if Mr. Erich John relieved his excellent pianoforte recitals with a few vocal numbers.

* * * *

—4QG is not making proper use of its musical director. In Mr. Harold Scott MacCallum Queensland has one of the Commonwealth's really good violinists. Why are his appearances so few and far between?

* * * *

—Mr. Michael Croger's last radio play, "Winds in the Sands," was not as entertaining as previous attempts. Lengthy orations are not desirable features in radio plays.

* * * *

—The Empire Theatre Orchestra is "different" from other orchestral combinations heard from the studio. Their numbers were much appreciated when they played on the night of December 23rd.

* * * *

—The lack of good jazz music from 4QG appears to have been overcome by the advent of Alf Featherstone's Syncopators. This band comprises the Studio Orchestra augmented with additional instrumentalists. At the time of writing they have made but one appearance and performed very creditably. The only defect on this occasion was the tendency to hasten the tempo, but doubtless this fault will be overcome.

* * * *

—It was a mistake for Uncle Ben to take a gun with him when he told the bedtime stories at Southport. (You don't know Southport people as well as Uncle Ben does—Editor.)

—Brass band music is at a premium at 4QG. Anyway, Queensland always has suffered from droughts!

* * * *

—The Mahoney Duo put a little too much "kick" into their "ten minutes of humour" on 19th December last. We all like fun—clean fun—but this breezy couple should remember that 4QG's microphone is a delicate piece of apparatus.

* * * *

—Uncle Ben's bedtime stories are "above the kiddies." What about running a bedtime session for the grown-ups, Uncle Ben?

* * * *

—They are "missing something" now that the broadcasts from the Hall of the Muses have ceased—but the majority of people who have suffered in silence for so long feel that their patience has at last been rewarded.

* * * *

—The night from Yeronga should NOT be repeated—at any cost. Was the microphone up to pranks that night, or did the choir really sing like that?

* * * *

—The "Old Time Night" and the radio interlude "All Aboard" were the two star turns of 4QG's December programmes.

* * * *

—A big effort should be made by 4QG to improve its organ recital broadcasts. Southern station broadcast such transmissions perfectly. We have the organist and we have the organ. Why isn't the music coming through?

* * * *

—"Grandfather" never was a kiddie, or if he was it must have been a long, long time ago. Don't take life too seriously, Grandfather; you'll never get out of it alive!

* * * *

—The recent tests carried out by 4QG with the new pick-up device for broadcasting gramophone records should remove the prejudice for this type of music. It is well nigh impossible to detect gramophone numbers from those rendered in the studio, so perfect is the reproduction.

* * * *

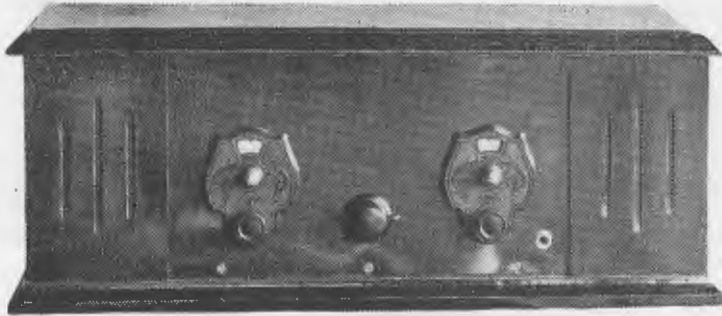
—In Miss Mabel Malouf 4QG has a very rare find. We notice with pleasure her stage appearance at city theatres and would urge her to aspire for still greater laurels.

* * * *

—If 4QG could broadcast a few more smiles in their programmes, listeners would be glad indeed. After all, it is a rather dreary business to listen-in for three hours on end without raising a chuckle.

A Modified Reinartz 3

An Old Favourite with New Modifications



The modified Reinartz described herein is an exceptionally sensitive receiver—easy to handle—smooth in operation—and a great distance-getter. The Reinartz circuit is one of the few that have gripped and held public popularity. It has stood the test of time against all the newcomers, and is widely used in amateur circles.

For sensitivity this modified Reinartz would be hard to equal. A short aerial is best suited to this circuit, and excellent results are obtained on an indoor wire, thus making the set an ideal summertime receiver.

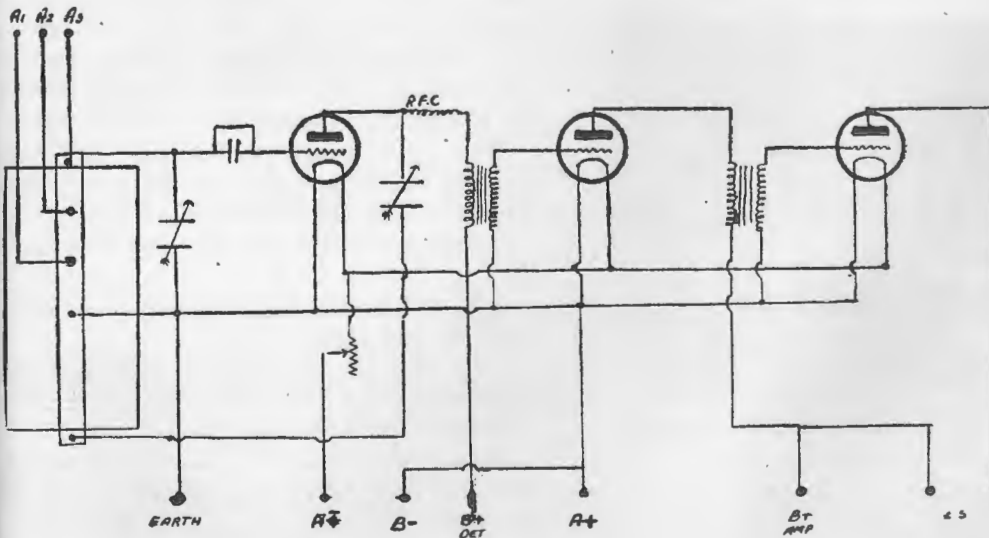
No great claims of selectivity can be made for this 3-valver, although it is as selective as the

average three. Used in conjunction with the Q.R.N. wavetrap (see July 1927 issue) the local station was tuned out and all southern stations brought in with ease.

The receiver is not a difficult one to build, and the constructor should find no difficulty in following the instructions detailed in the various diagrams and illustrations.

General Layout.

As will be seen from the diagram, the layout is very attractive, and apart from appearance, every instrument is in its most efficient working position, as is very essential.



It will be noted that vernier dials are used, and this is strongly recommended, as they are invaluable in tuning in distant stations. The small knob in the centre is a rheostat. This is quite sufficient with modern valves having low filament consumption.

Wiring.

The easiest way to go about constructing the set is to follow the photographs and wiring diagram as closely as possible, the layout of both panel and baseboard can be taken from the photographs, and the wiring from the diagram.

The parts should all be mounted in their respective positions before any wiring is attempted, and the baseboard wiring should be completed before the panel is screwed to it. Glazite or some similar insulated wire is recommended for the wiring, as this gives little chance of accidental short circuits, but it is a matter for the constructor to decide for himself. Wherever possible, joints should be soldered, otherwise it is only courting trouble when the wire becomes tarnished and dusty.

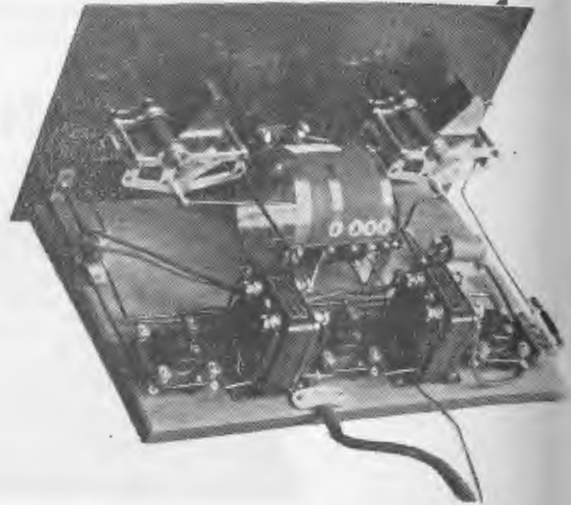
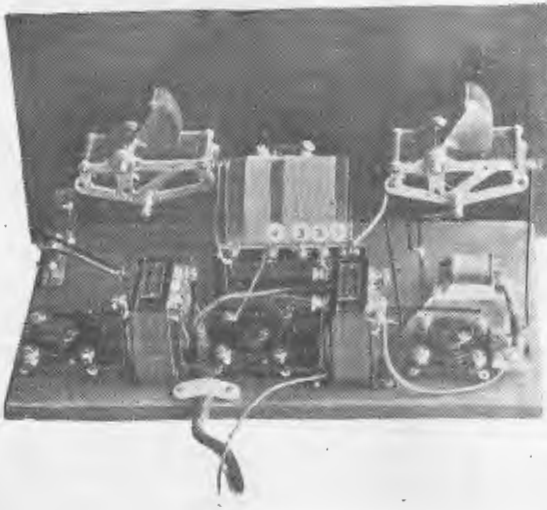
On the completion of the wiring carefully study the diagram and make sure that no wires have been misplaced, and that all soldered joints are firm and all nuts are screwed tightly down.

Controls.

The left-hand vernier dial is the main tuning control, while the similar dial on the right is the reaction control, the remaining knob being a rheostat, which is not in the least critical. The absence of a filament switch is explained by the use of a filament lighting jack which automatically switches the filament current on when the speaker plug is inserted.

Valves.

Philips valves were used—two A.-609 and one B-605, the latter being used in the last stage. Three of the former also work very well.



A View clearly showing the Arrangement of the Material.

Batteries.

If the above valves are used the "A" battery can be either a six-volt accumulator or four dry cells in series, the consumption is very small and dry cells would give quite a long service.

The "B" battery should be about 60 volts, but as much as 90 volts may be used if extra volume is required.

Transformers.

It is imperative that good transformers be used for best results. Buying inferior transformers is false economy; they never give satisfactory service.

There are three aerial terminals on the set, which should be mounted on a small bakelite strip as shown in the wiring diagram; the best one to use can only be ascertained by test.

The battery connections are made by a five-wire battery cable, which is clamped down to the baseboard by means of a small brass strip.

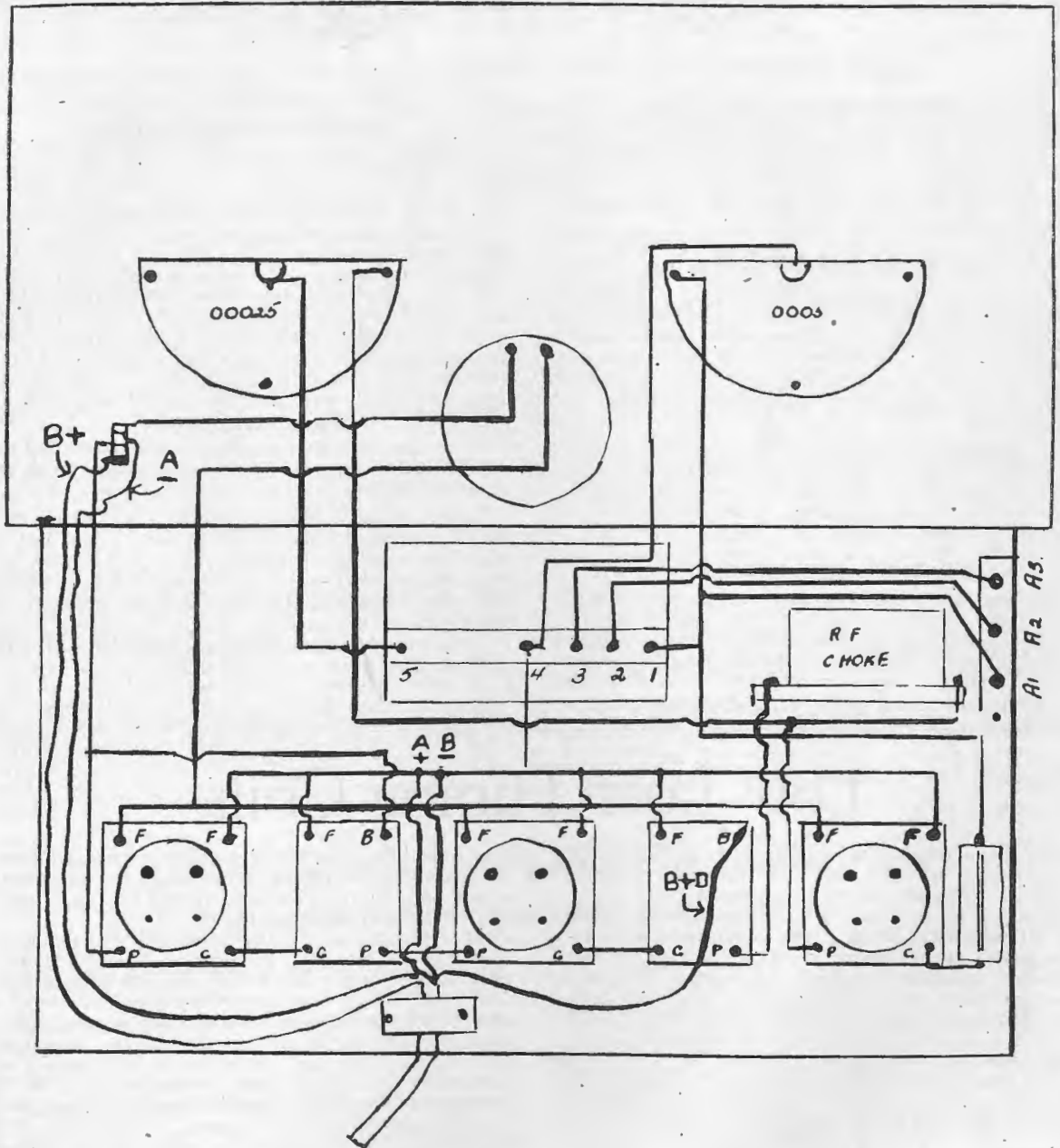
The "A" battery positive and "B" battery negative connections run on the same place, as will be seen in the diagram.

The "B" battery detector tap wire runs on the "B" battery mark on the first transformer.

The "B" battery amplifier wire goes on to the body of the jack.

The "A" battery negative wire goes on the third connection from the body of the jack or the second from the top.

These cable connections are coloured and no difficulty will be experienced in tracing them through.



List of Parts Required.

- | | |
|--------------------------------|---|
| 1 Colo Modified Reinartz Coil | 2 Pilot Vernier Dials |
| 1 Colo Radio-Frequency Choke | 1 Pilot 30-ohm Rheostat |
| 3 Pilot Balanced Valve Sockets | 2 Audio Transformers |
| 1 Panel 14 x 7 x 1/8th. | 1 .00025 Grid Condenser |
| 1 Baseboard, 13 x 8 x 1/2 | 1 2-Meg. Grid Leak |
| 1 Pilot Filament Lighting Jack | 20 Feet Wiring Wire |
| 1 Pilot .0005 Condenser | 1 5-Wire Battery Cable |
| 1 Pilot .00025 Condenser | 1 Small Strip of Bakelite with three terminals mtd. |

Notes from 4QG

RACE RESULTS.

Running descriptions of football, motor cycling, swimming and cycling, have been broadcast by 4QG in the past. Recently, however, the station added two new features to the already very satisfactory sporting repertoire, when running descriptions of both the Queensland Cup and the Aero Derby and Pageant were broadcast.

STRIVING FOR EFFICIENCY.

In business the maximum of efficiency is never attained, and an organisation that is continually seeking better methods of working will steadily march along the pathway of progress.

Hardly a day passes but 4QG makes some improvements to the technical or administrative sections of broadcasting.

At the time of writing, the main studio is being dismantled for renovation and refurnishing purposes, and when finished should have the effect of improving the transmission as well as adding to the artistic side of the station's appointments.

WEATHER AND WIRELESS.

On the night of Thursday, 1st December last, Mr. Inigo Jones commenced the first of a series of weather talks from 4QG. Many of those engaged in agricultural and pastoral pursuits pin their faith on the weather forecasts of Mr. Jones, and to these people, as well as the public generally, a little know-

ledge regarding the sun spot theory, of which Mr. Jones is a disciple, should be highly interesting.

4QG GOES TO THE RACES.

4QG has received many congratulatory messages on the decision to broadcast descriptions of race meetings. The first of these took place on the opening day of the Queensland Turf Club's summer meeting, when each race was described from barrier to box by Mr. Deady—handicapper for the B.A.T.C. and Tattersall's Club and a well-known sporting writer. Besides the actual race description, particulars re starters, jockeys, barrier positions, and betting were given over the air before each event. Probably before next meeting 4QG will have lines installed so that the band numbers, the roar of the ring, and other incidentals associated with a race meeting may be broadcast.

STAGE WHISPERS.

It is not often that anything not intended for the microphone creeps into the transmission from the studio of 4QG.

Quite recently, however, during the course of a choral concert, a hurried "You'll have to get further back" in a voice unmistakably like that of the announcer, gave evidence of the fact that, for a moment, that official had forgotten that the studio was still "on the air."

It is to be hoped that listeners operating valve sets did not take these words as an instruction to move away from their sets to receive a "double forte" passage by the choir which rendered the succeeding item.

Low Loss Tuning Coils

The high-frequency resistance of a tuning coil is the resistance set up in the coil to the high frequency electrical oscillatory currents received by the aerial. High frequency resistance is more than ordinary direct current resistance, for it is the direct current resistance added to the extra resistance caused by the currents oscillating at a high frequency. The fact that high frequency oscillatory currents are being dealt with introduces numerous complications which would not exist if the currents were of a low frequency, since other losses are introduced.

The reader will readily appreciate the importance of reducing these losses, for the currents received in the aerial are very minute, and if the losses are extensive, insufficient current will be passed on to actuate the detector, making a high-frequency amplifying valve necessary where otherwise it would not be required. Resistance in the coil also broadens the tuning, thus decreasing selectivity.

It is found that by spacing the wires a little that dielectric losses are reduced, since air is the best dielectric known. The dielectric is the name given to the insulation between the turns of the coil or between the plates of a condenser. Unless this insulation is of a high quality certain losses are incurred, due to absorption of energy by the dielectric. There

is a limit here also, for if spacing is excessive more turns are required on the coil to retain the wavelength of the same figure. This increases the resistance again due to the extra length of wire.

It is found also that the width of a coil should be less than its diameter, in order to keep its inductance as high as possible for the amount of wire used. The solid insulation between the pin and socket of a plug-in coil should be reduced as much as possible, for as pointed out above, air provides the best insulation.

The losses in a coil can be made considerably increased by the cotton or silk covering of the wire becoming damp, and this source of loss can become serious unless care is taken to keep the coil dry. The accumulation of grease on the coil from the fingers—due to handling—will have the same effect.

An interesting example which is designed on correct principles is the "Xilos" coil, made by the Igranit Electric Co., Ltd., who have built up an excellent reputation for the manufacture of coils. This coil is enclosed in a bakelite case, thus making impossible the source of loss referred to in the last paragraph. This case also gives a very attractive finish to the appearance and has marked on it the number of the coil, its inductance and also its wavelength range when tuned with a .0005 mfd. condenser.

Thoughts for the New Year

(By Erich John.)

We listeners are often privileged to tune-in to Mr. Erich John's excellent classical entertainments from 4QG, but it is not often that Mr. John makes an appeal to us through his pen. Here is a little New Year Greeting—and a Message—from Mr. John to his thousands of radio admirers.

Once again we have completed a twelve month's journey, and the question we are apt to ask ourselves is: "Have we accomplished anything which would be of benefit to others?"

Well, let us hope so!

With 1928 we are to do new work and greater work than before. It is a popular poetic idea to picture the New Year as a babe. Yet as this newcomer, at its very entrance, faces more of the practically prosaic of life and less of the poetical, would it not seem more appropriate and be more to the point to paint 1928 as a man in full panoply of strength—virile, militant, and clothed in fighting uniform, ready to do big work which is to be of lasting benefit?

In these days of the card index and loose-leaf ledgers, the time-honoured yearly custom of mankind to "turn over" a new leaf is largely in the discard; yet even so, we can insert a clean blank page in our life's ledger with the firm determination to avoid the use of ink erasers and eradicators.

All hail, 1928! The year is dead! Let live the year! After the unrest of the past twelve months we all should look forward to brighter prospects, to better resolutions with comfort and contentment in our

great country. One ounce of optimism outweighs a pound of pessimism, and under the law of gravity, weight counts big when we are trying to stay solidly down on this good old earth. If things do not come quite as we want them, let us try to want them as they come, and not "go up in the air" merely because of a vague and vain "wanting." "Life is serious," cries the pessimist. It most assuredly is serious, and so are also births and weddings, but the latter are not funerals, and never are faced with funeral attitude, so let us all greet the birth of 1928 and its wedding into our lives with joy and gladness—sidestepping it funeral for 366 glorious days of solid living, and doing real good work.

Here is to 1928! May it prove to be a banner year, full of happiness and contentment. May we make renewed and greater efforts to spread sunshine, do at least one good turn each day for some one else, curb our tempers and cultivate a smile. Let us acknowledge our mistakes, strive for better results, be tolerant with our fellow men, and the New Year will surely be a happy one.

In the spirit of optimism I must heartily wish every reader, and every radio fan, a Bright New Year with Peace, Progress and Plenty!

Australian Concerts in London

How the Sydney Broadcasts Were Received

Mr. Mirfin, Dental Surgeon, of Toowong, recently received a very interesting letter from Mr. Simmons, of Hammersmith, London, in which he described the reception of 2FC's programme in London re-broadcast by the B.B.C.

The letter referred to the second concert broadcast by 2FC, and in view of the conflicting reports circulated about the manner with which the concert was received on the other side. This independent report may be of interest to our readers. Mr. Mirfin kindly passed the letter on to us and we publish hereunder a few extracts:—

"No doubt you are all fast asleep, but we have had two hours of absolute wonder listening in to Sydney. It has been a huge success this time, so

I'm writing at once to say how we enjoyed it. During tea we all wore the phones, but afterwards a neighbour call us to listen to their loud speaker. . . . We all thoroughly enjoyed the concert, especially the Gilbert and Sullivan music and several solos—quite familiar songs, all of them. We also heard Sydney's Big Ben strike 4 and 5 o'clock, and the laughing jack-ass, and several times they gave the coo-ee to homesick Australians in England, America and Canada.

"Only a fortnight ago we listened to Australia, and it was a fearful jumble, so what tremendous strides have been made. We heard practically every word this time, and when they finished up they wished us "Good Morning" and said they were then going to breakfast and there were 35 in the studio. We wouldn't have missed this transmission for anything, although it was not expected to be so good."



HEAT

—the Destroyer

WITHIN every valve lurks the grim spectre of heat. Sometimes—as in the case of a bright emitter—completes his deadly work speedily. The frequent stretching and contracting when the current is turned on. The crystallisation of the metal due to the filament being incandescent. These are his two favourite avenues of attack. But even Dull Emitters are not free from his insidious onslaughts. Quite a number work at a comparative high temperature and the fragile filaments fall easy victims. There is one valve however which bids him do his worst. The Cossor with its Kalanised filament. Because not even a suspicion of a glow is visible when the new Cossor Point One is working, you have direct evidence that the harmful effect of heat has at last been count-

J. B. CHANDLER & CO.
Adelaide Street.

Cossor bids him do his worst

ered. After 2000 hours of continuous use the Cossor Kalanised filament is as supple and as pliable as on the day it was first made. This is equivalent to two years of ordinary wear and tear.

Small wonder that tens of thousands of wireless enthusiasts are turning to this long-life valve as a means of cutting down the cost of radio. For the Cossor Point One in addition to giving an exceptionally long service—consumes only one-tenth of an ampere. Seven of them take less current than one bright emitter. While its electron emission is so intense and the user obtains such a wonderful wealth of power and richness of tone that broadcasting takes on a new standard of performance.

See your dealer about these new valves without delay—they will improve any receiver.

UNITED DISTRIBUTORS LTD.
Queen Street.

The Valve with the Kalanised Filament

"UX" BASES."

2 Volt 0.1 amp.	13/6
4 Volt 0.1 amp.	13/6
6 Volt 0.1 amp.	13/6

COSSOR

~the British Valve which serves you longest

Why and How the Milliammeter Increases The Efficiency of Your Set

To keep you advised of the drain on your "B" batteries, to show you whether there is distortion in your audio-frequency amplifier and to act as a warning signal in case any other circuits in the receiver go wrong—these are the functions of the milliammeter.

(By Maurice M. Osborne.)

A direct-current milliammeter is an electrical measuring instrument which looks and is built like a voltmeter, but which measures rate of current flow or consumption instead of its voltage or pressure. It makes this measurement in milliamperes (thousandths of an ampere) and is used in radio for indicating the rate of current flowing from the "B" battery through the plates of the vacuum tubes.

Few set owners or builders have not at some time or other been appalled by the unexpectedly rapid running-down of their "B" batteries through excessive drain. This is particularly so in the case of sets that employ high "B" voltage on the audio-frequency amplifiers and without grid-biasing means ("C" batteries).

The "B" battery current can flow only when the filament of a tube is lighted. Turning the "A" current on the tube-filament heats it. As soon as it has sufficient voltage impression upon it and the temperature has risen to a critical point, the heated filament begins to emit electrons or tiny negative charges of electricity. These electrons start to flow to the tube plate, which is charged positively from the "B" battery, and therefore attracts them. The grid of the tube may be disconnected and there will still be this flow of "B" current, as long as filament and plate are properly wired to the "A" and "B" batteries.

Now the grid acts like a shutter on the flow of electrons, being wide open and permitting a large flow when it is charged positively and more and more closed to the electron flow as it becomes charged more and more negatively. The "B" current flow may

be increased by connecting the positive side of a grid battery to the grid, and it may be decreased by the opposite means.

This is why the use of grid biasing or "C" battery economises "B" battery current.

The most generally useful position of the milliammeter in the radio set is on the minus "B" lead, between the set and the battery. To connect, attach the binding post of the meter marked (+) to the "B" negative post on the set, with a short insulated wire. Attach the "B" negative lead from the battery to the other post on the meter. The meter will now show the total amount of "B" battery current that is being used at any time. To safeguard the meter from excessive current, from accidental short circuits caused by dropping a screwdriver into the set, or making an incorrect connection, a 10 watt, 110 volt lamp may be connected in series with the meter.

The meter should show no reading when the "A" battery is turned off. If it does, there is a short-circuit somewhere. This is the first useful purpose of the milliammeter—it detects even very minute short-circuits in the radio set. If such a reading appears, with the "A" battery switched off, the position of the short-circuit should be tested for with a voltmeter, keeping one side of the meter attached to the "B" negative lead and exploring with the other lead from the meter.

It is far safer to remove all of the tubes when this is being done, to obviate the risk of blown tubes.

The milliammeter will immediately show a reading, which, for a five-tube set, may be as high as 20 to 40 milliamperes, if there are no "C" batteries used and the "B" voltage is high on the audio-frequency tube plates. But such a high "B" battery current is entirely unnecessary and may be at least halved by the proper use of "C" or grid-biasing batteries, with an improvement in faithfulness of reproduction at the same time.

If the set does not use "C" batteries, they may be installed as follows:

All the battery-cable leads should be disconnected at the batteries, to avoid danger of short-circuits, when working around the set. Then the wiring should be disconnected from the binding post marked "filament" or "—" of each of the audio-frequency transformers.

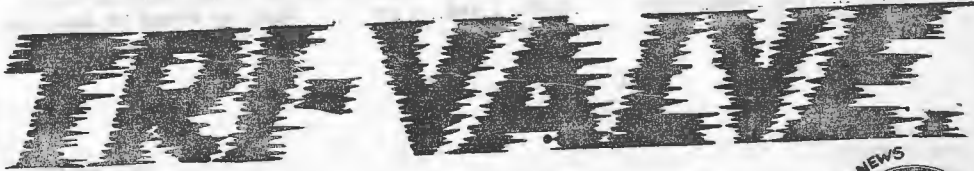


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(Continued on Page 16.)

PHENOMENAL VALUE

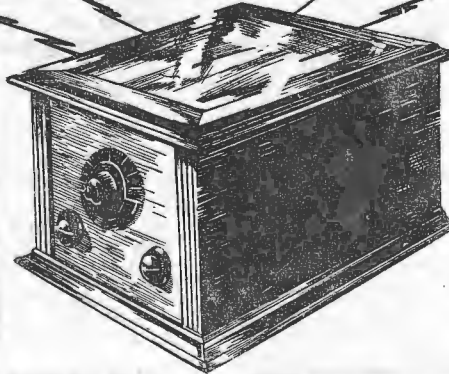


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ONE-DIAL CONTROL



THE TRI-VALVE gives the utmost loud speaker strength that can be obtained with 3 valves. It gives all the local stations.

Under favourable conditions, inter - State stations also.

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Now comes the most notable announcement on the Udisco Programme. The famous Udisco Four—employing the wonderful super Neut. circuit—has now been built in portable form—making it easily the most compact and efficient four-valve portable ever built.



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SOCKETS**

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Weight (with batteries): 25lbs. Size, 11½in. wide, 8in. deep, 15in. high. Although the case is small, the battery compartment is very roomy.

£27-10-0

The case is stoutly made and handsomely finished in black fabricoid and fitted with heavily nickel-plated fittings.

Complete with VALVES and BATTERIES

IDEAL FOR HOME USE AND FOR TRAVELLING

Call or write for further details

UNITED DISTRIBUTORS LIMITED

343 QUEEN ST. BRISBANE

And at All States and New Zealand.

(Continued from Page 13.)

Assuming that there are two audio-frequency amplifying tubes, each with a transformer and each with about 90 volts of "B" battery on the plate, the set should have one or two 4½-volt "C" batteries. The negative side of one each of these "C" batteries should be connected with a short wire to the transformer binding post marked "filament" and the wire which was taken off the transformer should be connected to the positive binding post of the "C" battery, thus connecting the "C" positive to the "A" negative. Flexible leads with suitable clips should be used and the "C" batteries should be placed in the back of the cabinet behind the tubes.

Then the batteries may be connected and the set tuned.

The experimenter will note an immediate reduction in the reading in the milliammeter and an improvement in quality of reproduction.

For still greater improvement, four 45-volt batteries may be used instead of two 45-volt "B" batteries. A voltage of 90, or two "B" batteries may be put on the plate of the first audio tube (first after the detector), and a voltage of 180, or four full "B" batteries, on the plate of the last tube. A grid battery of 4½ volts may be used on the first tube grid and a small 22½ volt "B" battery with taps at 16½, 18½, 21 volts for the second tube grid-battery. The experimenter may try different grid biases on this last tube; probably about 18 volts will be good, but the best bias is determined by ear.

Still further improvement will result from the use of another tube in parallel with the last tube. This may be done by installing a new socket beside the last tube—and connecting grid to grid, plate to plate, "A" positive to "A" positive and "A" negative to "A" negative with short leads of insulated wire.

Although the ear is the final judge of perfection of reception, it is a condition of distortionless amplification that the needle of a milliammeter in the "B" negative line will show no movement whatever while the set is operating. With insufficient voltage on the plates of the tubes in a transformer-coupled audio-frequency amplifier, the milliammeter reading will increase with a loud signal. If there is not enough "C" battery voltage, the reading will decrease on loud notes. Increasing the grid bias will correct this condition. If the milliammeter needle varies its position continually and over a wide range when signals are being received, there is sure to be distortion. The grid biases and "B" battery voltages should be adjusted so that the milliammeter needle remains absolutely still at all times that signals are being received.

The milliammeter will show with the above recommended high plate voltages, not one bit more current used than with the lower and less satisfactory voltages. The grid-batteries have reduced the current used.

If a "C" battery or grid connection breaks, abnormal current flow shows up the defect. If tubes go dead, a drop in the reading immediately points to the trouble. A leaky tube with a poor vacuum will be indicated by its abnormal draw of "B" current.

The experimenter should make a friend and adviser of his milliammeter. He will never regret it and will find it to pay in added enjoyment of programmes. —"Popular Radio."

Free Trip to Tasmania

The drawing for the 3LO Free Trip to Tasmania was made at the studio on Saturday, December 10th, by Cr. Fleix Lloyd. There were over 23,000 entries, and the lucky winner was Mr. Ben Bottomley of Clifton Grove, Coburg.

In an interview Mr. Bottomley, who is a foreman at the Lincoln Mills, Coburg, said that he could scarcely believe that he would have the luck to be drawn out of such a large number of entries. Ever since he came to Australia from England over seven years ago he had cherished the hope of sometime making a trip to Tasmania, and now that the hope is to be realised so suddenly he found it difficult to believe it. Mr. Bottomley's wife, who is a blonde Englishwoman, is naturally overjoyed at the prospect of the trip to the beautiful Southern State.

As a matter of fact, it was through her that Mr. Bottomley sent in an entry. He said, "What's the use—we will have no hope" but she said, "Someone has to win and we will have the same chance as anyone else." And so, after a lot of persuasion, he sent in an entry—and won.

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"Happy to Meet You"

~ says JACK CANNOT ~ new
2BL Announcer and Bedtime
Story Uncle



Mr. JACK CANNOT.

Perhaps one of the most interesting appointments made since the inception of wireless in New South Wales was the signing of a contract recently with Mr. Jack Cannot, the world-famed comedian, and Broadcasters' Limited, known on the air as Station 2BL.

For the past fifteen months Jack Cannot has held the unique position of "Fun Doctor" on the staff of "Smith's Weekly", visiting hospitals and institutions, prescribing and administering his "mirth medicine" to cheer up the patients.

Mr. Cannot had fully intended to return to the stage. In fact, negotiations were pending with a certain firm when a vacancy caused through the retirement of Mr. George Saunders from 2BL's staff, caused the management to cast their eyes about for a worthy successor.

Just by chance the comedian happened to go to Broadcasters' office in Bligh Street on business. The manager saw him coming. "Here's our man" he said for he was thinking not only of the announcer's duties, but also of the bedtime stories session, and the weekly Saturday morning concerts at Anthony Horden's.

Soon the contract was signed. Jack Cannot had forsaken the footlights for the microphone and everybody at 2BL was happy in the knowledge of the appointment.

Jack Cannot knows how to handle and amuse children perhaps better than anybody in Australia today. He is by birth an Englishman, coming to Australia 16 years ago to appear in the J. C. W. pantomime "Jack in the Beanstalk." Since then he has

appeared in numerous pantomines, musical comedies revues etc., touring all Australian Capital cities and endearing himself to the hearts of the Australian public.

The comedian, who married an Australian girl, is 43 years of age. He has two children, his boy attending Scots College, while his daughter is at "Claremont," Randwick. The girl hopes to one day shine in the footsteps of her daddy. She is at present studying dancing with Miss Winnie Hooper, the well-known ballet mistress.

On the air Jack Cannot is known as "Uncle Jack" and thousands of Australian children have already learned to love their new radio uncle.

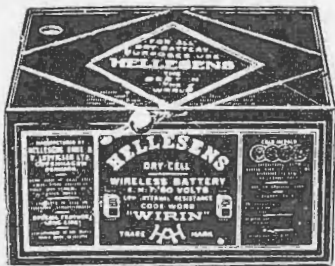
Jack's humour is infectious. His presence permeates the whole station and one cannot help but feel happy when within range of his cheery voice and hearty laugh. "Fun's the best medicine in the world" says Jack. "It keeps one young and healthy—and it the new photograph of the genial comedian we print at the head of this article is any indication, we are inclined to believe in his doctrine of "laugh and keep well."

Chatting to a representative of the "Queensland Radio News," Mr. Cannot said: "I was greatly tempted to return to the footlights, but the charm of being able to delight so many young Australians won the toss. Of course it may take me a week or two to get into the swing of things, but I am most enthusiastic and determined to make good. It's up to me to make good—and if I don't—well there's no such word as don't."

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The world's oldest battery company introduces the century's latest dry cell improvement—the wonderful

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This exclusive feature is to be found in no other dry cell. It ensures longer life and full value for every penny spent.

See for yourself how superior the New HELLESENS are. Connect one up to your set and take regular voltmeter readings. You'll be surprised.

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At All Good Radio Dealers
or 'Direct from—

BRISBANE ELECTRICAL CO.

(T. Tonks)

ELIZABETH STREET (Next to 4QG),
BRISBANE.

New AC Valves

A shipment of new Radiotron AC operated valves has now been received by Amalgamated Wireless (A'sia) Ltd., Wireless House, King House, Queen Street, Brisbane. They are termed Radiotron UX-226 and the Radiotron UY-227.

RADIOTRON UX-226.

Radiotron UX-226 is an amplifier tube, the AC filament of which is operated from alternating current. Its characteristics are otherwise somewhat similar to those of the popular UX-201 A as it can be used for radio or transformer coupled audio frequency amplification. It is not, however, ordinarily suited for detection, nor is it equal to a power tube in the last stage.

Radiotron UX-226 contains a plate, a grid and a heavy filament of the oxide coated type, designed to operate at a relatively low voltage. Attention is called to the relatively low filament current which is one of the outstanding features of this tube. The chief objection to high filament current of some types of tubes is the introduction of AC hum due to the electromagnetic effect on the electron stream. In Radiotron UX-226 values of filament current and voltage have been so chosen as to minimize AC hum.

The large Standard UX base with which this Radiotron is equipped fits both the new Push Type and Old Navy Type sockets.

AC Filament Voltage	1.5 volts.
AC Filament Current	1.05 amperes.
DC Plate Voltage	90-180 volts maximum.

RADIOTRON UY-227.

Radiotron UX-227 is a detector tube containing a Heater element which permits operation from alternating current. It is especially recommended for detection in sets using Radiotron UX-226 in the radio and first audio stages of amplification.

The UY-227 contains four elements; a plate, a grid, a heater, and an oxide coated cathode electrically insulated from but heated by the heater element. Connections are made to those elements through a special five through base. Using the face of a watch as a guide the socket connections for this Radiotron are as follows:—Grid, 12 o'clock; Plate, 3 o'clock; heater, 5 and 7 o'clock; Cathode, 9 o'clock. The centres of all prongs are on a circle $\frac{3}{4}$ of an inch in diameter.

Grid Leak Detection is recommended for the average receiver. A plate voltage of 45, with a 5-9 megohm grid leak is recommended for quality volume where the input to the detector is great.

Grid Bias Detection, though not usually as sensitive as Grid Leak Detection, gives extremely fine quality of reproduction if high-grade transformer of high input impedance are used.

AC Heater Voltage	2.5 volts
AC Heater Current	1.75 amperes.
DC Plate Voltage	49-90 volts.

A Further Chat on Circuits

THE SUPERSONIC HETERODYNE.

It is significant that when radio engineers require a super-selective receiver for experimental or commercial work their choice almost invariably falls on the supersonic heterodyne in preference to all others. These are the men who know, and their choice is not governed by prejudice or mere hearsay, and those who require the best possible in receivers cannot do better than follow their lead.

This receiver has the advantage that, in spite of there being a number of high frequency amplifying stages, no more than two tuning controls are necessary, so here we have the essentials of the ideal home receiver.

In the ordinary receiver employing a number of high-frequency stages, it is necessary to tune each stage, if any degree of efficiency is to be obtained, but the super-heterodyne works on the well-known beat method of frequency changing, by which the received wavelength is changed to a constant wavelength fixed for the particular receiver, and then amplified up by two or three stages of amplification. Of course, as the wavelength in the amplifying stages is fixed, there is no need to provide variable tuning except for the aerial and frequency changer or oscillator.

The beat wavelength known as the intermediate wavelength is of the order of 6000 metres, so that there is no difficulty in amplifying it up. It is well known that it is extremely difficult to obtain reasonable amplification on the broadcast band owing to the high-frequencies handled, causing instability.

Super-heterodyne receivers are so sensitive that a frame aerial is all that is necessary in order to receive everything worth receiving. The advantage of this will be obvious, for the receiver can easily be made self-contained and portable and, further, the directional properties of the frame can be used to cut out a strong local transmission and generally improve the receiver's selective properties.

At least six valves are generally required for this type of receiver, and so the cost will be fairly high, but it must be remembered that this receiver is in the "de luxe" class, and the results are in accordance with the outlay. One firm, in an endeavour to reduce the cost to the purchaser, markets a super-heterodyne in kit form which, by the aid of very complete instructions contained in a booklet, enables an exceptionally efficient six-valve receiver to be built. The kit referred to is made by the Igranic Electric Co.

A special feature of this particular receiver is the design of the intermediate frequency coupling units. They are stabilised by a special method of capacity neutralisation, whereby perfect stability is obtained without any loss of efficiency.

NON-RADIATING CIRCUITS.

Much has been heard since the advent of broadcasting of the "oscillation nuisance," and anybody who has listened in a crowded community knows what that means. You have just tuned in an interesting transmission and are enjoying the programme, when re-

ception is suddenly spoilt by sundry squeals or becomes distorted and, do what you will, you are unable to stop it.

This interference is caused by the careless use of reaction by owners of receivers provided with reaction on the aerial. Reaction is extremely useful when properly employed, but when an excessive amount is used, the receiver falls into self-oscillation and is converted into a small transmitter, usually transmitting howls and squeals which spoil the reception of other listeners for miles around.

If you possess such a receiver you will find that as you increase the amount of reaction the signal strength is also increased, until a point is reached where in some cases the receiver begins to squeal, and in others the reception is merely badly distorted. This point is known as the oscillation point. Volume is loudest at the point immediately preceding the oscillation point, but quality is very poor.

It is in endeavouring to work at this point that the operator of a receiver interferes, for the receiver will be constantly falling into oscillation unless very carefully controlled, and it is for this reason that a smooth control of reaction should be provided. Sometimes people purposely oscillate in order to pick up the carrier-wave of a distant station, but such practice during broadcasting hours is to be condemned.

There have been many attempts at producing a circuit which employs a detector valve only with reaction, but there is only one circuit which met with any success, and this is the "N" circuit invented by Sir Oliver Lodge. By reducing the amount of coupling to the aerial to the minimum, he prevents oscillations from energising it.

Where high-frequency amplifying valves are employed, there is not excuse for introducing reaction on to the aerial, as the best place to apply reaction is the detector valve, where it can be made to compensate for the grid current damping. It is possible with an ordinary high-frequency circuit to interfere slightly, even when reaction is on the detector, as energy will be fed back through the valve capacity, but if the valve capacity is properly neutralised, as in the neutrodyne circuit, no feed back will occur.

It is worth while employing a high-frequency amplifying valve if it was only for this reason, but of course such a valve also increases in range and the selectivity. If anode bend rectification is employed, the damping in the circuit is so small that any reaction is unnecessary, and if an efficient high-frequency transformer such as the Igranic is used the amplification will benefit from the reduced damping. It would be impossible to radiate with such a circuit once the high-frequency amplifying valve has been balanced.

Those who do not want to invest in a receiver with high-frequency stages are advised to employ a regenerative detector with capacity reaction, such as the Reinartz or Hartley, which, when properly adjusted, go smoothly into oscillation and not with a "pop." Such a receiver gives sufficient warning and latitude to the operator to have no excuse for accidentally oscillating.

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for the Millions, introduces the Six Valve

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Absolute Balance.

Accumulators, giving the set dial accuracy.

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The Ultra Musicone

The Super Musicone

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can have our catalogue—it's free.

WRITE US. Everybody

Factory Representatives:

INTERNATIONAL RADIO CO. LTD.

299 Castlereagh Street, SYDNEY

At the Club

(By W. S. Hogg.)

"This confounded syphon must carry about a million pounds' pressure to the square inch," remarked Bob Stringem, looking at that useful article in pained surprise. "It has absolutely drowned that spot of whisky. However (reaching for the bottle) it can be brought up to strength again. I don't want to get a sulphated liver through drinking weak spirits—might bring on hydrophobia—that a positive fact. Talking of spirits and listening to you fellows gassing about radio circuits, brings to my mind my dear old friend Sparks. Circuits were just 'pie' to him. He would suck a pencil for a few seconds and then make a lot of funny marks on the wall. 'There you are, Stringem, my boy, he would say. 'There's a circuit which has both reach and punch; it will tune in Kalamazoo as easy as it will 4QG—just thought of it.'"

"What have spirits to do with circuits? Is your old friend Sparks a spirit—or only addicted to spirits?" asked Dickie Litenut, glancing slyly at Stringem's well filled glass.

"Dickie, my child, I will narrate to you and the other boneheads here assembled, the story of Sparks' great Electro Spiritual Experiment."

At the mention of a spiritual experiment, a young man, of distinctly owlish appearance, hitched his chair a little closer and opened his mouth a little wider.

"Hitherto my lips have been sealed, but the time has come when I feel that I can no longer keep it locked within me, so I'm going to turn it loose. I will spill a line of talk which is something more than a mere bunch of hot air; such as you feeble-minded stiffies are in the habit of shooting off to beguile the tedium of a social evening."

"Sparks was a distant relation of mine, and although a good deal older than I, we were always the best of pals and saw much of one another—until I got the wanderlust and journeyed to distant lands. While I drifted about the world expecting to bump into a fortune at any moment, a fortune bumped into him, and gently shoved him into a world where everyone, including bank managers, smiled on him and where alarm clocks were not. He had always been of a scientific turn of mind, and now, having time on his hands and money to burn, instead of getting married and settling down to spend all his money on drink and raceshorses—as you chaps would have done—he began messing about with the ether, electromagnetism, and all that sort of tripe, with spiritualism as a side line.

"At this time I was on the other side of the world studying 'High Finance,' and when I returned, old Sparks was the very first to welcome me back and lend me a fiver. I soon found that he held, to me at anyrate, astonishing views on the subject of life and death. Life, he claimed, was electromagnetic, and death did not exist. Our bodies were merely pieces of machinery controlled by our personalities. When the machine 'conked out' we just left the darned thing in disgust; thus the essential part of us—our personality—continued. Well, I did not kick at that—a very good arrangement, I thought. All matter

according to his theory, was just a bunch of ether with electrons dotted about in it, like the stars in the sky. These electrons were held in their places by magnetic force—matter then was mostly ether. Well, that didn't jar me, until I thought how all whisky must be adulterated with this darned ether. It may be foolish, but I just hate to think of a drink being mostly open spaces.

"Sparks, having got to the root of things as it were, and being so dead sure that instead of dying we merely changed and continued on our way rejoicing, he said to himself, 'Why not build a machine to "tune" these disembodied personalities. These same personalities being electrons, it ought to be as easy as falling down a well.' To get an idea was to get busy, and old Sparks got as busy as a hen mosquito at a baby show.

"I used to drop into his workroom pretty often to have a drink and a chat, and if he or his assistant, Cuthbert, did not happen to be there, I would help myself to a drink and wait till he turned up. He was never long away. I had made myself comfortable, on one occasion during his absence, and had fallen into a day dream, wherein I made my first million and had started on the second, when in came Cuthbert with a book under his arm. He did not see me at first—I was sitting in the shadow, half behind a piece of apparatus. When he spotted me he gave me a nod and sat down at the work-bench and was soon engrossed in his book. He was an unnatural, studious sort of a cuss with a fishy eye and a manner of looking at one as if he knew all about you and did not think much of you anyway—I didn't like Cuthbert. I am a man of world-wide experience, and to have a little sawn-off, hammered-down son of a rabbit look at me in a half-contemptuous way made my blood boil. I would have severely slapped Cuthbert if he had said less than half of what he looked. However, I went on with my day-dreaming and had got well into my second million when Sparks came quietly in. He evidently did not notice me, but stood for a few moments looking at Cuthbert, who was so engrossed in his book that he did not see or hear anything.

"Sudnedly a queer look came into Sparks' face; he tip-toed across the room and quietly removed his coat. I quit my imaginary money spinning, and sat watching him curiously as he unfastened his cuff links and rolled up his sleeves. He then carefully unlocked a cupboard from behind which he took what appeared to be a croquet mallet with the handle sawn off short. Grasping the mallet, he started to creep up behind the unsuspecting Cuthbert. I have seen more than one knock-down and drag-out during my chequered career and flatter myself that I'm pretty broadminded, but somehow I couldn't help making a movement as though to stop him.

"He saw me just in time and hastily retreated to the cupboard, in which he replaced the mallet. He didn't speak a word, but jerked his head in the direction of the door. I understood, and followed him out to another room.



"Well!" he said, looking at me queerly.

"Well!" said I.

"Well, what about it, Bob?"

"Why," said I, "it looked to me as though you were going to 'conk' Cuthbert on the cocoanut."

"Well," said Sparks, "what are you going to do about it?"

"Do about it!" said I indignantly. "Why what do you think I'm going to do? You are my friend, and whatever you do looks good to me—besides I know your intentions are good. No doubt, you have your reasons for knocking Cuthbert's personality loose from his bit of machinery."

"Bob," said poor old Sparks speaking with emotion, "you are one of nature's noblemen and a good friend—it is a thousand pities that there are not more like you. You see, Bob, the machine is complete and ready for a trial. I have worked up to this stage several times before, but the trials have never been successful. This time I'm sure to succeed. The machine has many new features and Cuthbert is far and away the most intelligent assistant I have yet had—I'm banking on Cuthbert. I tell you, Bob, I must succeed."

"A light suddenly dawned on me. 'Sparks, old chap,' I said, 'were you going to bump Cuthbert off and then try to "tune" him in?'

"Exactly, Bob."

"Um, I see!" said I, "but tell me, old chap, why do you use a mallet?"

"Why, Bob, I find it better."

"A whole flood of light broke on me. 'Sparks,' I said, 'do you bump off an assistant every time you have a "try out"?'"

"Pretty well, Bob. Oh, yes, generally!"

"Suffering cats!" I gasped. "You must run through a tidy few assistants?"

"Yes, yes," said poor old Sparks ruefully, "a fair amount. They have all been wasted up till now, too. A scientific investigation has a lot of disappointments, Bob; it is a hard life, old chap."

"Well, I am a man of the world, and as I said before, pretty broadminded, but I must confess I was rather staggered. It was the first time I had been in touch with a sure enough dyed-in-the-wool experimenter, and I went away deep in thought."

"Of course," I argued to myself, "you can't make an omelet without breaking eggs, and besides a man's personality does not die—his body is only a machine—maybe he is better off without the old machine. Take a man with a motor car, for instance, he is everlastingly washing it down and polishing it up; feeding it benzine and forgetting the lubrication; filling the radiator and letting the battery go dry. Wouldn't he be better off without the darned thing? Why, of course he would." I let it go at that and went and had a drink.

"I didn't drop in to see Sparks the next day. I felt I might butt in at the wrong moment, and cramp his style, as it were, but I thought of him and his work a good deal.

"Suddenly I saw the whole thing in a new light. Why not commercialise it. I could take care of the financial end—Sparks putting up the money, of course—and place the whole works on a sound business basis. We would have an absolute monopoly—a lead-pipe cinch. I could see the whole scheme as clear as daylight:—

THE SPIRIT OF COMMUNICATION SERVICE,

Head Office, Brisbane (Australia),

Branches throughout the Civilised World.

Our Slogan: "Don't Comiserate—Communicate,"

"Great! We would clean up on this, and clean up big. I dashed to the telephone and rang Sparks. 'When are you going to pull the trial off, old chap?' I asked him that snappy way I have when I'm out for business.

"Everything will be ready at ten o'clock to-night, Bob."

"Right!" I said, "I'll be there. Oh, by the way, what about—will you have—er—that is, will every little thing be in order by that time—er—bumping off, and all that sore of thing. Yes? Right?"

"Business is business, otherwise I might not have been at Sparks' place at ten o'clock that night; and I don't mind admitting that chills ran up my back as I entered the building. Everything was as silent as the grave, and a stranke weakness took possession of my legs, as I made my way to the workroom. I pulled myself together, however, and entered. You may guess what I expected to see, but what I beheld caused me to rush forward and kneel beside the man on the floor."



It was not Cuthbert, but poor old Sparks. I thought he had had some kind of seizure, and I grabbed a whisky bottle off the bench and tried to pour some spirits down his throat.

"Don't trouble about that thing," said Sparks' voice. "That is dead and done for, old man, and I might mention for your guidance, that bottle contains spirits of salts!"

"My hair stood absolutely on end. It was the machine speaking. 'In heaven's name, what has happened?' I yelled.

"It's alright, Bob," replied the machine, 'don't get nervy. Cuthbert caught me unaware and then "tuned me in"—a nasty deceitful lad, that. After all I've done for him, too. Still let him go—I'm satisfied. I have solved the riddle of the universe at last, Bob. Everything is clear to me now. The only regret I have is that you are not here, too, but I shall be here to welcome you at the right time, old Pal. Now, Bob, I want you to burn the place and everything it contains. There are things here which may do more harm than good in the world. Take my mallet, Bob, and keep it in remembrance of me. It is a good mallet and may be of use to you in your journey through life.' His voice died away and although I called to him repeatedly I never heard it again.

"Did you burn the place down?" asked the owlish young man breathlessly.

"I did," said Strigem, 'with benzine from the garage. I got her well away before the meddlesome Fire Brigade came, as usual, to interfere with other people's business.

"Ah, poor old Sparks," said Strigem suddenly becoming maudlin, 'where are you to-night, old pal. Sparks, old fruit, I feel I shall soon be with you again,' and Stringem laid his head on the table and fell into a sound sleep.

"Good gracious!" exclaimed the owlish young man. 'Is Mr. Stringem ill?'

The company laughed unfeelingly.

"No," said Dickie, 'he is not ill now, but he will be in the morning. Whisky always affects him like this, poor chap.'

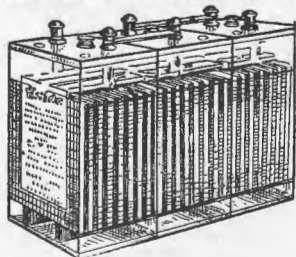
Wireless Valves

By consent of the parties in the Equity suit of Philips Lamps (Australasia) Ltd., against A. F. Price, trading as "Price's Radio Stores," Angel Place, Sydney, a decree was made by Mr. Justice Harvey, perpetually restraining the defendant, during the continuance of letters patent, covering Philips and Mullard Wireless receiving valves, from selling, or offering these goods for sale, at other than the retail price imposed and fixed by the plaintiff company.

Defendant is to pay the costs of the suit.

It was alleged that the defendant had infringed the plaintiff's letters patent by selling the valves below the fixed price.

Mr. C. D. Monahan (instructed by Messrs. A. J. M'Lachlan, Westgrath and Co.) appeared for the plaintiffs; and Messrs. Simpson and Co. for the defendant.



EXIDE Low Tension wireless Battery Type CZ

Made up and sold in separate 2-volt units in numerous capacities, the Exide Type C.Z. Low Tension Wireless Batteries are suitable for use with any type of Wireless Valve. Ask for them by name.

Remember that every EXIDE Battery sold has EXIDE SERVICE behind it!

Exide WIRELESS BATTERIES

Exide BATTERY SERVICE (Q) LTD.
PETRIE BIGHT BRISBANE

EXIDE BATTERIES are sold at all Wireless Stores and any Exide Dealers.

EXIDE Battery gives Satisfactory Service at Thursday Island—

READ what this enthusiastic user at Thursday Island has to say about EXIDE WIRELESS BATTERIES:—

"September last year I got through my employers from your house two C.Z. Type Cells, and I have been using these on a five-valve receiver since I got them, and they are still giving good service, but what I want to know is, when will I have to re-fill with new acid; would you please advise me about same.

"I must say a few words of praise with regards to the "EXIDE" Cells. I think that they are second to none after the use that they have given me. Since I received them I have had myset going this last 12 months on an average of four hours a night—the only interval was when the Battery was at the charge depot. Wishing you further success."

(Name of Writer on Request.)

Revolutionised Broadcasting in Great Britain

WITH the introduction of ELECTRON WIRE into Great Britain broadcasting entered into a new era. It brought wireless within the reach of everybody. Its simplicity and inexpensiveness enabled everybody, young and old, rich and poor, to erect an aerial in a few minutes. ELECTRON WIRE can be used without masts, insulators, and separate lead-in wires.

That is why wireless in Great Britain has gained such immense popularity and ranks amongst the best.



ELECTRON WIRE is the quality aerial—the highest possible quality. It brings envied results, and is the best and cheapest aerial in the world. Multitudes of wireless enthusiasts use it in every corner of the globe. **TRY IT**—then you will know why it is so popular.



Price
2/6

Coil of 100 feet



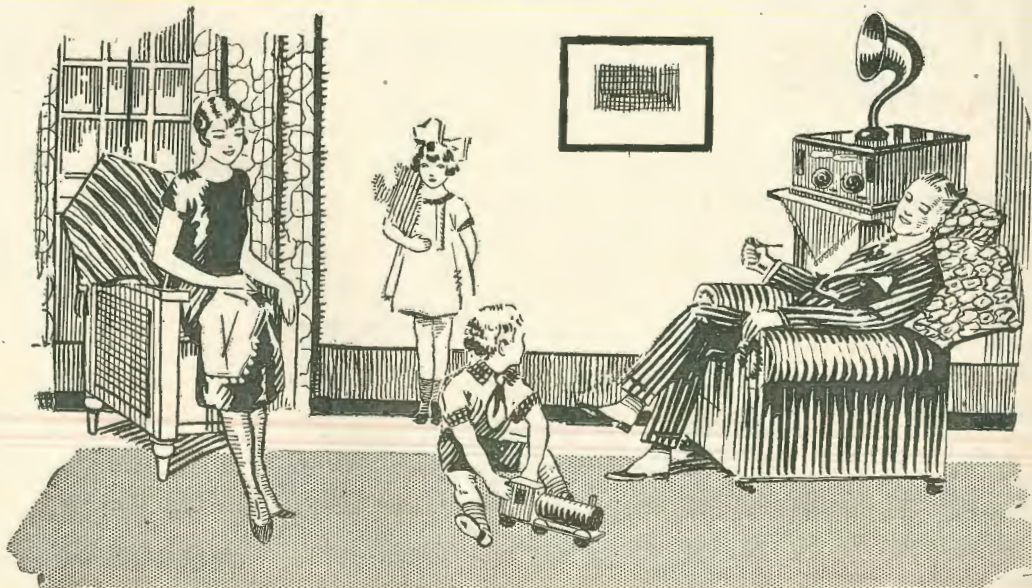
SUPERIAL—the King of Aerials—is an enormous advance on any aerials previously offered. The extra-heavy vulcanised rubbered insulation is a perfect protection against leakage. For long-distance reception we definitely claim that



SUPERIAL is absolutely superior to all. **SUPERIAL** is trouble proof, inexpensive, and can be erected by anyone, anywhere.

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CORNER CREEK and ADELAIDE STREETS, BRISBANE.

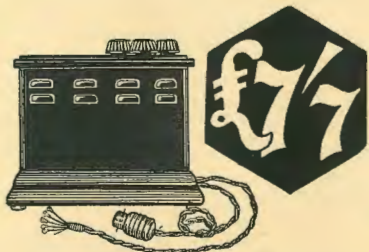


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.....CHANDLERS.....

With the use of the right Radio Parts, radio is an all-year-round source of entertainment. Make a New Year resolution to choose all your Radio Parts at CHANDLER'S. Try it out. See what the right kind of Radio Parts mean in making radio good the whole year round.



"A" & "B" BATTERY CHARGER.

This new "A" and "B" Battery Charger meets the demands of those who require a piece of apparatus which will do both duties. This charger possesses many special features which recommend it to you.



BRANDES MATCHED TONE HEADPHONES.

The lightest and most comfortable of headphones, yet undoubtedly among the very best in the world. Has great purity of tone and fidelity of reproduction.

Other Phones... 11/9, 15/, 22/6, 30/.



SPITFIRE SPEAKERS.

This wonderful little and very efficient speaker is equipped with an adjustable unit. Attractive fibre horn, with 2 1/2 in. bell. Horn and base finished in dull lacquer.

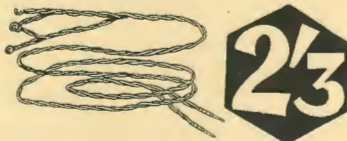
Also the Scientific at ... 30/-



"B" BATTERY ELIMINATORS.

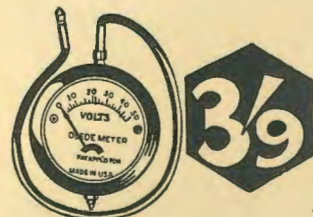
Tested for mechanical excellence, proved out for power and for use—this device means freedom from battery trouble of all kinds. Compact in size, attractive in design, and of undoubted efficiency.

Larger Size £12/12/



20ft. LOUD SPEAKER CORD.

Put your loud speaker in the coolness of your verandah on hot days and nights. These cords are strongly made and handsomely finished.



VOLTMETERS.

0-50 Volts—American—good quality, pleasing appearance. For testing "B" batteries. Also Volt-ammeters ... 4/9

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45 ADELAIDE ST. [Next Allan & Stark's] BRISBANE

Chemically Pure

IT'S not only the unbreakable, leak-proof, ebonite containers, not only the specially thick plates and unyielding wooden sparators, that make for the perfection of Clyde Batteries.

The CONSISTENT PURITY of the materials used is a vital factor in the process of manufacture. It's this consistent purity of materials that gives those well-known qualities of LONG LIFE that are recognised features of every Clyde.

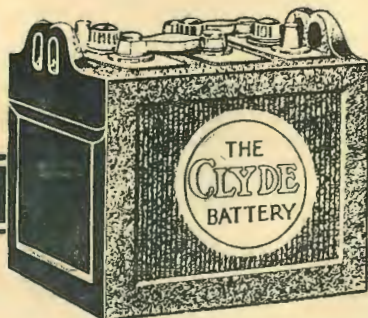
Regular daily tests in a laboratory conducted by trained chemists ensure that every particle that goes into the internal construction of Clyde Batteries is CHEMICALLY PURE.



Clyde Batteries are obtainable at all Radio Dealers and Garages.

To Country Residents. Write to the Clyde Battery Service Station, 106 Goulburn Street, Sydney, for full particulars of Clyde Home Lighting Batteries.

Advertisement of The Clyde Engineering Co. Ltd.



CARS

RADIO

The PHILIPS

THE QUEENSLAND RADIO NEWS
Monday, 2nd January, 1928.

POINT-O-SIX

Miniwatt Series

ECONOMY-DISTANCE-TONE THE OUTSTANDING FEATURES OF THIS SERIES

Australia's leading Radio Engineers use Philips "Miniwatts" almost to a man. - DO YOU?
No matter what type of set you own, there are Philips "Miniwatts" to fill every socket efficiently, and all dealers sell them.

Just cut out this list below. It will prove its worth time and time again.

<p>FOR 1 ACCUMULATOR CELL (2 volts)</p> <p>General Purpose A209 13/6 Audio B205 (.15 amp) 13/6 Power B203 (.15 amp) 15/-</p> <p>FOR 2 ACCUMULATOR CELLS (4 volts)</p> <p>General Purpose A409 13/6 Audio B405 (.1 amp) 13/6 Power B403 (.15 amp) 15/-</p>	<p>FOR 3 ACCUMULATOR CELLS (6 volts)</p> <p>General Purpose A609 13/6 Audio & Power B605 (.1 amp) 13/6</p> <p>FOR RESISTANCE COUPLING</p> <p>Two Volt A225 15/- Four Volt A425 15/- Six Volt A630 13/6</p> <p>SPECIAL 4 VOLT DETECTOR "The Four Fifteen" (A415) 20/-</p>
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Our Technical Dept. is at your service.
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Advertisement of Philips Lamps (Australasia) Ltd.,
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PHILIPS VALVES



Telling the World About Australia.

WIRELESS PLAYS A BIG PART.

One of the most interesting developments associated with broadcasting in Australia during recent months has been the recognition of the part played by the broadcasting companies in making Australia known to the world. Prior to the advent of our big stations, Australia and Australians were little more than names to tens of thousands of people in every corner of the outside world. They saw our coastline on the map; they knew, possibly, that we grew wool and that we had some gold mines; but of our national life and our national resources they knew little. But to-day they feel they know us. They have listened to our musical programmes; they have followed the descriptions of national events, such as the opening of Canberra, and they have learned, too, something of our national hopes and aspirations.

The efficiency of stations such as 3LO Melbourne has made such a result possible, and the benefit to Australia as a whole should be unbounded. New evidence of the growing interest in our country is contained in almost every overseas mail received by 3LO Melbourne. From Alaska, from the Continent, from America, from Canada, from England, from China, and from almost every other corner of the world, come letters of appreciation of the programmes received. In such letters, too, it is not infrequently mentioned that 3LO Melbourne has interested the writer in Australia, and in Australians.

In an outpost on the edge of civilisation, for instance, on the furthest border of Alaska, one lonely listener frequently tunes in to 3LO Melbourne, and his letters to the station are illustrative of the great majority of messages: "I have never seen Australia," he once wrote, "but I think I know something about you. 3LO Melbourne has shown me that you must have a great country, and some day, when the opportunity offers, I am coming 'down under' to see for myself. I feel that I will not be disappointed."

Broadcasting, under such circumstances, carries with it a large measure of national responsibility, and for that reason alone, no effort should be spared to maintain the high level of efficiency reached by 3LO, 2FC, 2BL, 4QG and the other big stations.

World-Wide Tests.

The world-wide short-wave tests now being conducted every Monday morning by 3LO Melbourne have brought in a new range of appreciative listeners, and the tests also have served to further emphasise the national aspect of the whole realm of broadcasting in Australia. Dutchmen in Holland and in Java, tea planters in Ceylon and India, Japanese radio operators and experimenters, Englishmen and Australians in the Strait Settlements and in Malaya, missionaries in the Pacific outposts, listeners in almost every State in America, and Canada, all have joined with Englishmen in England, and radio men in almost every other corner of the world, in wishing 3LO well, and in showing interest in Australia.

Slowly, but surely, Australia and Australians are being made known to the world. This is an age of publicity and national advertisement, and if we have been lacking in that direction in the past, the broadcasting companies now are filling the much-felt need.

Special Announcement

SHORT WAVE TESTS BY 3LO MELBOURNE.

In connection with the short wave tests being carried out regularly by 3LO Melbourne, it should be noted by listeners generally that the wavelength has been reduced from 36 to 32 metres. The original wavelength was decided on by our engineers as a result of certain short wave tests made between Australia and England last year, when it was found that the 36 metre gave the longest period of steady reception in London. Although other wavelengths gave greater volume over a short period, it was decided to use the steadier band.

The tests referred to were on telegraph signals, but for telephony it would appear that the volume was not quite sufficient.

In a letter received recently by 3LO Melbourne from the British Broadcasting Corporation, it was stated that the best results with reception from Australia had been obtained on a wavelength of 32 metres. In view of this fact, arrangements were made to alter the wavelength of the short wave apparatus to 32 metres. This involved considerable modification in the aerial system and tuning arrangements of the transmitter, but everything was quickly put in order.

It is anticipated that when detailed reports are received from distant parts, much valuable information will be gleaned regarding the practicability of Empire broadcasting.

Mike's Melancholy Admirer

Who breathed life into the microphone at 2FC Studio? Who is responsible for the sibilant whisper of "Old Bill," the studio microphone? We do not know, but that it is a power to be reckoned with is evident, from the following letter which the management of 2FC took the liberty of opening, even though the address was "unknown."

"Dear Mike,—I am thoroughly depressed—the worst form. I have lost my sense of humour. Life is no longer a joke or two. The radio set of ours has gone phut. Filament on the plate; or something. Not another valve in New Zealand to replace the dud one in the eliminator, until some arrive from America. It is disgusting. The long weary nights drag on—no mike—no Win and Windle—no Mr. Halbert, no Mr. Lumsdaine, no Miss Maxwell. Oh, death, where is thy sting?"

"Now you know how sad I am. I am sure I'll be an old maid all my life. Don't waste words on me—its no use. Just feel sorry and save up a whole heap of humour and the answers to my last letters till I write and smile again.—'ANITA.'"

And the microphone sits there, his marble face inscrutable, taking it all in and saying nothing—apparently.

Station 2GB Now Re-organised

As stated by the Managing Director of the Theosophical Broadcasting Station Ltd., Mr. A. E. Bennett, when on a visit to Brisbane recently, the activities and organisation of his company have been extended. 2GB has just been 14 months in existence, and is undoubtedly the premier "B" class station of Australia. With its recent extensions it will equal many "A" class stations, both in regard to length and number of daily sessions, and in quality of programmes. The salient features of the reorganisation are:—

New Announcer.

2GB has secured the services of Mr. George Saunders, late of Broadcasters Ltd., Sydney. Mr. Saunders, as "Uncle George" of 2BL, has built up a reputation as the most popular announcer in Australia, and it is to him that a great deal of 2BL's success is due. Mr. Saunders, who is acknowledged as one of the few prominent announcers of Australia, as well as fulfilling the office of announcer-in-chief at 2GB, will also act as studio manager.

Increased Sessions.

2GB will now be on the air every day of the week, with morning and afternoon as well as evening sessions. The evening session will commence at 5.30 p.m. with the children's hour, 6.30 music, 7.0 news and market reports, talks interspersed with music until 8.0, and then regular programmes until 10.0 p.m. Programmes will be increased in variety, but the same high standard of quality will be maintained.

Sub-Stations.

A small station will, in the near future, be established at Perth, to be followed at some date later by further relay stations in the other capitals. Experiments are to be shortly commenced with short-wave transmissions by 2GB, in order that the re-broadcasting of same, by the proposed relay stations, may be tested.

New Musical Director.

Mr. Clement Hosking, the popular baritone and teacher of singing, has been appointed Musical Director of the Theosophical station, and is at present busily engaged compiling programmes and interviewing artists. Owing to this quite recent reorganisation of programmes, the published programmes of 2GB have not yet been brought into line with the new arrangements. This matter will be rectified very shortly.

Other Innovations.

A new idea introduced into 2GB's programme is that a serial story will be broadcast nightly—Saturday and Sunday excepted—at 9.37 p.m. for ten minutes. The serial story selected is "Forty Years in the Pacific," by Frank Coffee. It is an adventure story of Mr. Coffee's experiences.

A further appointment to 2GB's staff is that of Miss Helen Jean Beegling. Miss Beegling, who has had considerable experience in broadcasting work in many parts of the world, has taken charge of the women's session of 2GB.



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DIAMOND Radio Batteries

Ask your dealer for Diamond

Diamond Radio Batteries are powerful, silent, and outlast any other make of Dry Cell. More than a million are manufactured in Australia annually. Every cell is guaranteed, and should a fault be found in any Diamond Dry



Cell it will immediately be replaced. Remember, a Radio Set is no better than its battery, therefore it is most essential to choose a battery that will give long and honest service. Such are Diamond Dry Cells.

RETAIL PRICE LIST

"A" Buzzer Cells, 1.5 volt
2/9 each.
"B" 60 volt Super B. Battery, 27/6 each.
45 volt Super B. Battery, 22/6 each.

60 volt Standard B. Battery, 18/ each.
45 volt Standard B. Battery, 15/ each.
"C" 4.5 volt "Biaison"
C. Battery, 3/3 each.

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WIDDIS DIAMOND DRY
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SUPPLIED TO
ALL GOVERNMENT
DEPARTMENTS



Needs of the Radio Industry

By Hugo Gernsback in the American "Radio News."

It is sad but true, that of late the radio industry as a whole has exhibited little originality. There is entirely too much of imitation in practically all lines of the industry; and this state of affairs, as a rule, leads to stagnation.

Only the very large radio concerns in U.S.A. maintain research laboratories in which original work is done; smaller concerns as a rule concentrate their engineering talent on the solution of their manufacturing problems. If a new invention does make its appearance, in a majority of cases it does not originate in the big research laboratories, but rather comes from independent outsiders. The Armstrong regenerative circuit, for instance, was invented in a college laboratory. One of the most important inventions of recent years, the television system of Baird, the Scotchman, was evolved in an attic; although in America, the American Telegraph & Telephone Company contributed its share to the American side of television progress. Jenkins, one of the pioneers in television experiments in America, is not connected with any commercial organisation. It will be noted, that in a number of these cases, the radio industry, as a whole, had nothing to do with the inventions. The list might be extended indefinitely with many examples, tending to show that the radio industry does little, if anything, towards its own advancement. As in everything else, there are exceptions, but they are not numerous.

It is certain that, if this trend continues indefinitely, the lead that America still maintains in radio will sooner or later be wrested from us.

Take, for instance, the case of the double-grid tube. For two years I have emphasised, editorially and otherwise, the importance of this tube. I explained its high efficiency for radio work, and went to great pains to point out that in Europe it was well established and had even been incorporated in manufactured radio sets. I entered into correspondence with a number of American tube manufacturers, urging them to manufacture such a tube. Very little response, if any, was obtained.

Yet, witness the sad spectacle that arose immediately after a very large radio corporation announced a new double-grid tube. Over night it became important and created a sensation in the radio trade. During the Chicago Radio Show, held in the middle of October, 1927, crazed manufacturers were actually bidding 1000 dollars apiece for samples of this tube, which will soon sell in the open market for only a few dollars. Every first, and second and third rate independent tube manufacturer simply went insane, trying to get one of the new tubes in order to imitate it quickly. This in itself is a huge joke; for practically the same tubes have been manufactured and sold in England and Holland for over two years and can be freely obtained there. The chances are that the European tubes are every bit as good as the American one.

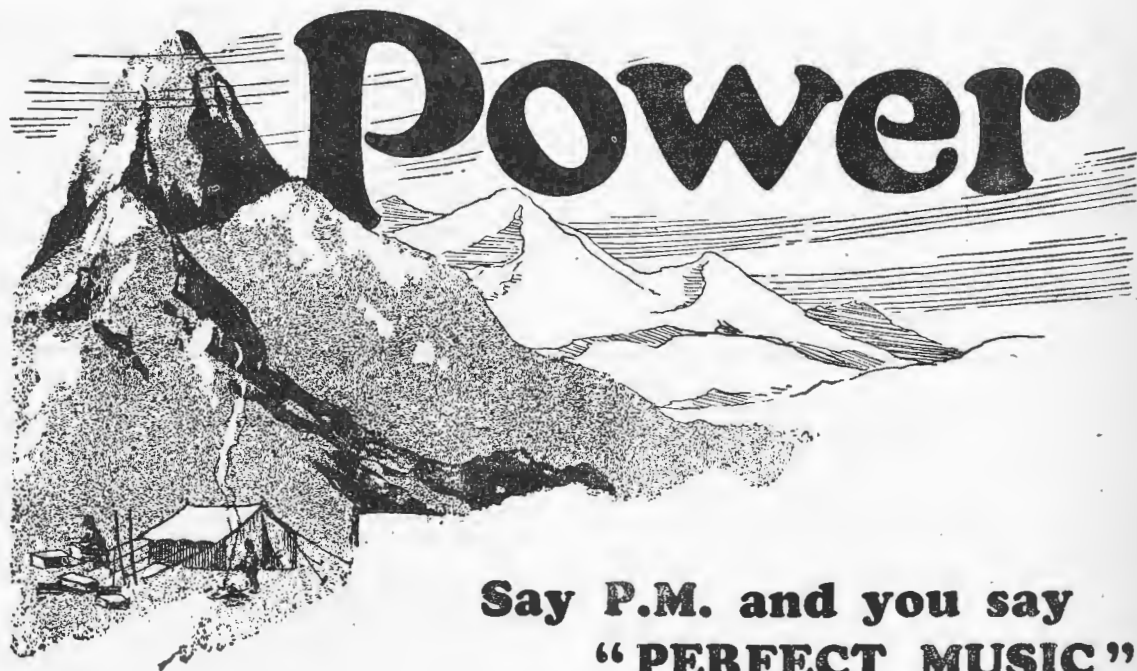
Of course, this state of affairs is nothing new. The radio industry is in the habit of doing just this sort of thing. Bring out a new socket that is a meritorious one and the whole industry will soon be making one exactly like it. Bring out a condenser, of some new straight-line variety, and immediately we have imitations regardless of the merits of the first condenser. Someone markets a five-tube radio-frequency receiver, and 99 per cent. of the sets manufactured within six months will be patterned after the first one, simply because the first one was commercial successful. If someone brings out a power tube, immediately every tube manufacturer will have one exactly like it.

These imitators have not as yet learned the lesson that the radio manufacturer who pioneers and brings out something new on his own account is always the one who is most likely to benefit; whereas the imitators are usually too late anyhow, because, by the time they get into production, the chances are that the original manufacturer already has something better.

If the imitators would only appreciate the lesson that there has been more grief, more failures and more money lost in these "Chinese" copies than for any other reasons, they would not be so free in imitating a new and successful product. Outside of that, even if they are sometimes fairly successful in their imitations, they probably will sooner or later be enmeshed in patent suits. Witness the recent scramble for protection by the many manufacturers of tuned-radio-frequency receivers. A little reflection will show that, if they had maintained capable research laboratories, the chances are that they would have evolved circuits and designs that did not infringe upon existing patents. **For the amount of money that these same manufacturers have paid and will pay in royalties, they could have hired some of the best radio engineering talent in the world.**

And let me say here that it is possible to have circuits just as good, if not better, than existing ones, but which do not infringe upon existing patents. But it seems that it is not the radio industry which fosters research work along original lines, but rather outsiders. For instance, a new circuit which not only approaches but exceeds in effectiveness the tuned-radio-frequency system has described recently. A young Southern radio engineer set himself to develop a circuit that did not infringe on any existing patents, and he was successful in so doing. Incidentally he will be paid over 200,000 dollars for his invention, and it will be cheap for the buyer.

Right now, the radio industry has its great chance. I refer to television. Inside of the next two years, broadcast stations will be sending out television impulses, and a number of radio manufacturers will literally coin money by supplying television attachments to be attached to existing radio sets. What has the radio industry done towards developing this tremendous potential demand? Nothing. Yet the field is wide open and, even to-day a workable television apparatus without wheels and moving parts can be con-



Say P.M. and you say "PERFECT MUSIC"

A loud speaker which is controlled by a Mullard P.M. valve with the wonderful P.M. Filament deals a fair hand all round. Justice is done to the set, to the artist before the microphone and, most important of all, to the listener in who pays the piper. If you are situated near a broadcasting station or if you are using several stages of L.F. amplification the Mullard Super-power valves with the wonderful P.M. Filament are the valves for your last holder. They can handle powerful signals without the slightest distortion; those high, crisp soprano notes and the mellow bass notes are perfectly reproduced.

P.M. 254	4 volts	0.25 amps.	15/-
P.M. 256	6 volts	0.25 amps.	15/-

Obtainable from every Radio Dealer in Australia.



All Mullard Valves are manufactured at Mullard Works, London, England.

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ARKS 3. A.

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THE · MASTER · VALVE

Mullard P.M. Valves are British Made—BUY BRITISH

structed from components that can be secured on the open market.

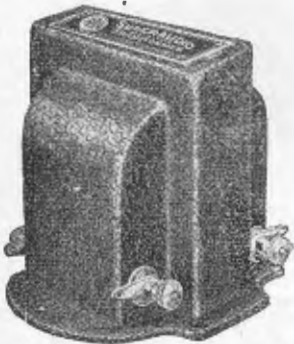
When I say television apparatus without wheels and moving parts, I refer, of course, to the receiving end. It will probably be necessary to use moving parts, which may be of the preent movable-disc type. At the receiving end, this should not be necessary in the final apparatus.

It may be said that the final television receiver must be as simple to operate as the present day radio receiver. As a matter of fact, it must be even simpler. It may even be unnecessary to have a dial on the television receiver; for the simple reason that the dial on the radio receiver is all the tuning control necessary. It is most probable that the television impulses will be broadcast on the same wavelength that a broadcast station uses, the television impulses being of a frequency above audibility. By a step-down arrangement, the television apparatus will make it possible to translate the received radio television impulses back into the light rays, which will finally become visible on a small screen built into the television attachment. I, personally, foresee the final television receiver, which will have incorporated in it some sort of a vacuum tube, such as the Braun. The Braun tube, instead of using discs or wheels, employs a cathode discharge. This latter, having no inertia, throws upon the screen a moving beam of light which responds to magnetic impulses. There should not be any difficulty in getting this beam to work at any required speed.

Furthermore, many of these parts, including circuits, are not patented and the market is open to practically all.

If the radio industry would employ a few good research men at this time and invest a little money in experiment, possibly enough new television principles could be brought out to create a bonanza for someone for the next two decades.

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New Wireless Agreement

What Does it Mean to Listeners?

(By "Ray Dio.")

When the Wireless Commission's report was published a few months ago, many speculations were made as to the ultimate outcome of the searching and Commonwealth-wide investigation. In the early stages of the Commission's meetings the average "man in the street" did not quite understand what the Commission was appointed for. Gradually however he learned from press reports of the evidence that there was some real need for the investigation and for the improvement of the broadcasting services. This improvement apparently was not possible in some instances owing to the uncertainty and difficulty of one aspect in particular of the broadcasting business—namely, the payment of patent royalties. The Commission made certain recommendations, and after several weeks the Government announced its solution of the problem. An agreement has been made with Amalgamated Wireless, referring to many things, but the thing that interests listeners mostly is the portion of the agreement dealing with royalty payments.

New System of Royalty Payments.

Under the old scheme the company was entitled to large sums of money for royalty payments, which they claimed from the broadcasting stations, from the wireless traders and from listeners. The broadcasting companies had been paying the Wireless Company at the rate of 5s. per license per annum. Basing this payment on the present number of licenses—about 250,000—the handsome sum of £62,500 was payable by the broadcasting companies from their revenue derived from listeners' fees. The Wireless Company also claimed royalty payments from the traders, but apparently not many of the traders agreed to pay, with the result that litigation had been contemplated or actually entered into against the Traders. The basis of charging the traders for royalties was a payment of 12s. 6d. per valve socket on every valve receiver. The Royal Commission report shows that on an estimated number of 25,000 valve sets every year and charging 12/6 per valve for these receivers, the company would receive £62,500. Thus, the company apparently intended to obtain about £125,000 per annum.

The Royal Commission thought this amount too much, and recommended that the valve socket payment should be reduced to 5s., and the 5s. per license item reduced to 2s. This would make a return to the company of £75,000 per annum.

Reduced Revenue to Amalgamated Wireless Coy.

The Government, however, has reduced the amount further. Under the agreement, the broadcasting companies and the traders are not required to pay anything to Amalgamated Wireless; at all events, for a period of five years; but the company is to receive 3s. per annum from each listener, and basing this amount

on the number of licenses now existing, the total amount of royalty to the company is £37,500.

It is interesting to note in this connection that the patents owned by Amalgamated Wireless, not all of which are included in broadcasting, were obtained by the company at a cost of £93,000. The return of £37,000 is therefore a rather handsome one.

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Radio as a Life Work

Where the opportunities lie for the experimenter who wants to earn his living in this new field of science and industry

(By Pierre Boucheron.)

Although this article is not written by an Australian, it is interesting by the fact that it shows what fields the radio industry is opening to the young men in America. While quite a lot of the avenues mentioned by the author exist in Australia, there are many (particularly in the manufacturing field) that do not as yet exist. But doubtless the day will come when Australia, as well as America, will become a radio manufacturing country, and these opportunities for employment will present themselves.

There are at present some excellent opportunities in both the commercial and engineering fields of radio—with perhaps a slight preference for the first.

The engineer who spends a lifetime in research, designing and experimental work is likely to follow a very ethical pathway. In many instances the lure of money or profit in his profession is somewhat distasteful, and, providing his income is sufficient to take care of his immediate needs, he is usually satisfied with his lot.

The commercial man, on the other hand, is apt to view things in a different light. His training and qualifications are concerned with chasing the almighty dollar. It is his job to make sales for his company; for that reason, the viewpoint of the commercial man is closely associated with money-making, and he is apt to apply the same principle to the matter of salaries and commissions. The commercial side of any industry is consequently often more profitable than the engineering end.

This article is not concerned with the commercial radio man.

Whether or not a man chooses the engineering side of radio as a profession is, after all, a matter of individual temperament and disposition.

As a matter of fact, there are many engineers who have branched into the commercial end of radio, and there are likewise men starting in commercial capacities, who later find engineering more suited to their individual ambitions.

Radio engineering does not require very many men, but the few who are required must be good. There is, however, a growing need for operating men, particularly at high-powered land stations. By "operating men," is meant not so much telegraph operators as men who are well versed in the fundamentals of radio and who have a fair technical training as well as a practical one—transmitting and receiving engineers for example, and men who are trained in the installation, operation and care of high-power transmitting and receiving apparatus, and who are telegraphists as well.

Radio as it is to-day has branched out considerably into many sub-divisions. An important development of recent years has been trans-oceanic radio tele-

graphy. America has made active progress in trans-oceanic communication and a number of radio stations have been erected on both the Atlantic and Pacific coasts, which are designed for high-powered long-distance transmission and reception. In this field, therefore, there is need, and probably always will be, of men capable of handling the operating details of these high-power equipments.

What are the duties of transmitting and receiving engineers at high-power stations?

The transmitting engineer at a high-power station may aptly be called a shift engineer. His duties correspond somewhat to those of an engineer at a central power plant, and the experience he gains here may come to him in good stead should he later engage in regular power-station work.

In addition to this, he has the advantage of being in close touch with the latest applications resulting from modern scientific discoveries in engineering practice. Of late, radio has struck a new cord; and its principles are rapidly finding uses in all manner of allied engineering such as telephony and telegraphy.

It is the duty of a shift engineer to keep the apparatus moving. He must see to it that the power supply is constant, that the cooling system connected with the efficient operation of the high-frequency alternators is in working order, that the remote control system is operating at such speed that 50 or more words a minute may be possible at any moment. Incidentally, the speed control of high-frequency alternators must be very accurate, and the methods which have been devised to accomplish this are novel and instructive from an engineering point of view.

The problems of the receiving engineer are somewhat similar, but on a smaller scale. The battery supply must be kept quiet and constant and the receiving equipment must ever be in a highly effective working order. These factors are of great importance in reception.

The receiving engineer is perhaps more in touch with the immediate development of radio than anyone else, as it is necessary for him to secure the facilities for handling as great an amount of traffic as possible with the apparatus available. The work, therefore, calls for considerable ingenuity.

The man who has a good electrical engineering training and who has devoted a certain amount of time to amateur radio experimentation naturally has the advantage in such work. There are many electrical students who are amateurs, with such training and as electrical engineering has been foremost in their minds, radio has occurred to them as a possible career.

There is a good future for competent radio engineers; men who have considerable experience and who understand the problems involved in making radio fool-proof. In fact, there are to-day many serious difficulties to be overcome. Here are some of them:

As many tropics-bound ship operators know, we have in radio a strong negative factor in the masterful and ever-present "static" which also bears the less popular name of "strays." These atmospheric electrical disturbances cause objectionable noises in the receiving telephones of the operator. For this reason, parts of messages are often mutilated. In fact, when static is very severe (as during heavy electrical storms), radio reception often has to be abandoned for lengthy and costly periods. This problem is probably the most important one that requires solution to-day. It was discovered a short time ago that static waves seem to travel largely from a particular direction which is frequently different to the incoming radio signals. The final elimination of static is a problem that is not going to be solved overnight; it will rather be a gradual process. It will probably be a long chain of personal achievements of many engineers when finally static will be entirely controlled or eliminated.

A scheme to overcome static has been employed which may aptly be termed the "dodging" method. In this case there are possibly three separate transoceanic receiving stations located at various points along the coast each separated by a distance of 400 or 500 miles. The plan is for each of these stations to receive the incoming signals and simultaneously transmit them over a land line to a central receiving point, such as New York. The method of reception at the central point may be any recording method which will permanently register the signals on paper tape. The central receiving operator thus has three tapes passing his line of vision which record the same message. As in most cases static is of local origin, it is assumed that only one of the stations will be affected at one time and that the other two will receive the signals without mutilation. Thus, if one of the tapes shows static interference, there remain two others for checking purposes.

Another problem which requires solution is that of making radio communication secret so that transmitted signals cannot be intercepted by either competing organizations or by foreign governments, who may, by following the simple expedient of setting up receiving installations, "listen-in" and copy what is going on in the ether.


Another problem in radio is that of perfecting a reliable calling system for use primarily on board vessels. At present it is necessary for an operator to be constantly "listening-in" in order to know whether anyone is calling him. Some interesting developments in this direction have been made by our



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English colleagues, but they have plenty of room for perfection.

High speed radio telegraphy has been receiving attention and several systems are known to work satisfactorily. But these are practically useless when static is very severe. For that reason, there is need of a certain amount of development in high speed transmission and reception, so that the transmission and reception of international messages can be made a profitable one for those engaged in it.

A recent development has been the so-called "wired-wireless" experiments in which radio is made use of in long distance wire telephony and telegraphy. Effective multiplexing is made possible by the use of radio waves which are guided by wires. In fact from six to ten simultaneous channels of communication are sometimes available on a single wire line. These experiments indicate that we may reasonably look forward to transoceanic cable telephony.

Radio direction finding is proving invaluable in maritime circles, but it has not reached perfection by any means. Here too there will specialize in direction-finding work exclusively.

An appliance which has well night revolutionised the radio world, with special emphasis on radio telephone broadcasting, is the vacuum tube. The vacuum tube to-day is truly the "heart of radio." It has the unique characteristic of performing all the essential functions of generating and modulating the high-frequency power of the transmitting station, and it may also be used to receive, rectify, and amplify the re-

ceived power at the receiving station. Not only does it prove excellent in radio telegraphy, but is exceptionally well adapted for radio telephony.

We have, therefore, in the vacuum tube, another angle of radio which will require specialised attention by competent electrical engineers of the future. The vacuum tube is not only used in radio, but it has found its way to advantage in ordinary wire telephony and other electrical uses which makes us realise that electrical engineering is closely associated with radio engineering.

In fact, one cannot be a good radio engineer without being well founded in electrical principles.

As an illustration of how closely radio is associated with wire telephony and telegraphy, it may be recalled that the American Telephone and Telegraph Company gave a demonstration before the International Communication Conference, who were able to listen to conversation going on between a ship in the Atlantic and a small island in the Pacific. In this instance, radio was linked with the regular land telephone lines and necessitated the combined co-operation of radio, electrical and communication engineers.

Another illustration was the duplex radio telephone feat between the s.s. America and the Deal Beach radio telephone station, accomplished by the combined engineering skill of the Radio Corporation of America, the American Telephone and Telegraph Company, the Western Electric Company and the General Electric Company.

But perhaps the most important and far-reaching opportunity in radio is radio broadcasting.

The ether in and near large cities that are served by broadcasting stations is literally packed with music, lectures, news, children stories, market and weather reports, and what not. Radio telephone development is responsible for this tremendous interest. Recent estimates of the number of radio broadcast enthusiasts place this figure at over three millions!

Men and boys who a few months ago did not know a vacuum tube from an electric lamp are to-day holding neighbours spellbound with their glib radio vernacular. Parents are beginning to look upon their radio amateur sons in a new light—as future Edisons and De Forests and Marconis. A great many youths are naturally gravitating toward radio as a profession; they need help and timely advice.

Meanwhile, however, man, woman and child want to hear "the voices from the air." They need apparatus for this—apparatus that is effective. Already the radio public is beginning to discriminate. There is, therefore, an excellent chance for the conscientious engineer who wishes to see broadcasting and amateur radio a part of everyday activity. As radio progresses, there will be need of more exact methods in the designing and manufacture of apparatus. Moreover, these factors will necessitate careful consideration by future radio engineers.

The broadcasting and amateur side of radio is one which to-day plays a very important part in general radio development. In fact, amateur radio has contributed in a great degree to the general progress of the science.

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A leading radio engineer recently emphasised the need of good radio men. He thought that radio as a commercial and professional possibility had been given altogether too much publicity and that its future had been painted in too glowing colours. For that reason he thought there were too many men attracted to it who were not especially equipped either by inclination or education to take up radio as a profession, and would ultimately retard rather than advance the art.

The engineer carefully gleans every patent which is directly or indirectly connected with radio that is issued by the United States Patent Office. His conclusions are that there is probably only one out of every 1000 patents issued which is really of any value to the development of radio. The 999 remaining patents are so called "paper patents" and are practically worthless. Incidentally, they reflect the lack of knowledge and experience which these would-be inventors hold. Many of these documents have been prepared by men who have a vague and hazy idea of radio fundamentals. In short, there is too much negative activity connected with radio and there is need of some real constructive and really worth while work along these lines.

It would seem, therefore, that if any competent electrical engineer is contemplating specialising in radio, the field is open to him for recognition, providing that he is willing to keep his feet on the ground and "lay off" on radio dreams and impossibilities. There is, of course, nothing to stop an electrical man from pursuing a strictly electrical career and at the same time resort to radio as a hobby whereupon he may by due process of experimentation and reaserch, strike something of real importance and benefit to the art.

There is a growing number of universities and colleges in this country that have recognised the value of radio by making it part of their regular engineering courses. Some of these are Columbia University, Cornell, Rensselaer Polytechnic Institute, Yale, Harvard, Massachusetts Institute of Technology, Pennsylvania State College, Polytechnic Institute of Brooklyn, and several other education institutions.

The most practical way to learn radio properly is to become first an electrical engineer or at least to become well-grounded in electrical principles through amateur experimentation or intensive training at a good radio institute. In this way the student may acquire enough radio knowledge to enter the service of one of the several large radio companies in one of their branches, such as designing, construction work, manufacturing, operation or maintenance.

The men who are to-day well known in radio circles and who have fared well are those who have followed these or similar lines. —"Popular Radio."

READERS

The Editor is always pleased to receive suggestions from readers. If there is some feature you would like to see added to QRN— or something you would like taken out—write.

Jottings from 2BL

"Uncle George" was asked the question by a little girl who wrote to him. He did not know, so he consulted "Uncle Bas." "Uncle Bas" was not sure, so the advice of "Little Willie" was sought. Together they searched the pages of every book available on Natural History, but without success. Mrs. Jordan armed with correspondence relating to remedies for corns, recipes for mock-cream, mustard pickles, etc., put on her thinking cap, then had to admit that she did not know. Various other people were spoken to, but nobody could answer definitely. The enquiry which puzzled everybody was "Do ants have teeth?"

Jack Trent, who made his first appearance at 2BL recently, has a big reputation in England as a cricketer. Playing regular cricket for nineteen years, he scored 17,352 runs; playing 126 not out innings, and notched twelve centuries and 82 scores over 50 to 100. He tells an amusing story of his first broadcasting experience in Australia. It happened in a theatre in another State. The show was being broadcast. At the conclusion of his turn, the curtain came down rather quickly, hitting Mr. Trent on the face. Mr. Trent, forgetful of the fact that the microphone was in front, proceeded to abuse the stage staff in lurid terms, every word of which went out on the air—swear-words and all. This story was told before Mr. Trent had done his first session from 2BL. Consequently, the cautious announcer on duty instructed the operator to be ready to switch-off in case of accidents "Safety First" is the motto of 2BL.

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What Governs the Power Handling Capacity of an Amplifier?

(By A. R. Wilson, of the General Radio Company).

As the novelty of radio has gradually disappeared, and more interest is taken in it purely as an instrument to reproduce with fidelity both music and speech, the listener and engineer have given more and more thought to the tonal qualities of the broadcast receiver. The vast radio audience to-day is first of all concerned in how well it can hear. How far is a secondary consideration.

It would seem to the average listener inexperienced in radio experimentation that all that is necessary to increase volume is the addition of a stage or two of audio-frequency amplification to his existing equipment. This is true to a certain extent, but as we are interested only in quality volume, the design of the apparatus used in the "stage or two" of audio-frequency amplification is of great importance.

A speaker, which does the actual reproducing of sound, is an energy operated device and as the energy is derived from the last audio tube alone, the undistorted volume obtainable from a speaker is wholly dependent upon the energy output of this tube and no other. The energy is measured in milliwatts and the following tables gives the power output of the tubes now in common use, with the plate voltage necessary to obtain full output:

Tubes	Undistorted Output	Plate Voltage
U.X.-120	110	135
U.X.-226	160	180
U.X.-112	195	157
U.X.-171	700	180
U.X.-210	1500	425

In order to secure the maximum power output that a tube is capable of delivering, it is necessary that a sufficiently large voltage be placed on the grid of the tube to operate at its maximum output. At the same time certain conditions, however, must be satisfied to prevent distortion in the tube itself. First, the grid must not be allowed to become sufficiently positive to draw any appreciable amount of grid current, and second, the plate current must at no portion of the cycle be allowed to fall so low that distortion be caused by curvature of the plate current curve. The input voltage which may be applied safely to a tube without causing grid distortion is fairly well indicated by the grid bias voltage. Actually the effective grid swing permissible in volts R.M.S. is the square root of 2 divided by 2, or .707 times the grid bias.

The solution of the problem of quality volume is threefold, embracing tubes, transformers and speakers wherein distortion of various sorts and causes tends to develop. It may be well to state here that there are two apparent forms of distortion to guard against in any audio amplifier: frequency distortion and wave form distortion. Frequency distortion, which really is not distortion at all, but the relative differences in the amplification of different frequencies is caused by one of two things, either a coupling device that is

secure a maximum transfer of voltage from one circuit to another (and we are interested in this respect only in voltage and not in energy), the impedance of the transformer primary should be at least two or three times that of the tube circuit at the lowest frequency which we wish to amplify. Wave form distortion in the amplifier itself is caused by either an overloaded tube or saturation of the core of the audio transformers. With the present-day standards of transformers, however, the latter from a practical standpoint may be entirely disregarded. Obviously the remedy for an overloaded tube is the reduction of the input signal or the increase of grid bias and plate voltage, thus permitting the tube to be worked on the straight portion of its grid voltage plate current curve.

Assuming one to have an audio amplifier and tubes of the standards of two or three years ago, the most radical improvement in quality would be brought about by the replacement of the last audio tube by one of the new power tubes, such as the U.X.-171 or U.X.-210. This would increase the power handling capacity of the amplifier 50 to 100 times and this power handling capacity of an amplifier is something that is not very well understood by the average man, yet it is extremely important if faithful reproduction is to be obtained. In order to produce the same intensity to the ear, say at 60 cycles, many times as much power is required as at 1000 cycles. A somewhat disconnected yet fitting illustration would be the comparison between a tuba player and a cornet player in a brass band. The tuba player expends much more energy, but to the ear the cornet is louder. In the case of the loudspeaker far greater power is needed to supply the energy than was heretofore thought necessary to reproduce bass notes properly, and it is even very doubtful if the tubes on the market to-day are capable of supplying to the speaker enough energy to reproduce these low frequencies with the same intensity as the higher frequencies, unless a 50 or 100 watt power tube is used. This would require a type of plate supply device, which from an economic point of view, would be entirely out of the question.

While it would seem that increasing the energy output of an amplifier would result in extremely loud reproduction, this is not necessarily true. A loud sound may be doubled in intensity—that is, the energy doubled—and the ear may hardly detect the change. This fact will explain in some measure why many people are not able to note the difference in the volume produced by a U.X.-171 and U.X.-210 tube, although the maximum output of the U.X.-210 is double that of the 171. Everything else being equal, the reproduction, when using the U.X.-210, should appear much better on the lower frequencies—actually it is about the same, because the lower plate impedance of

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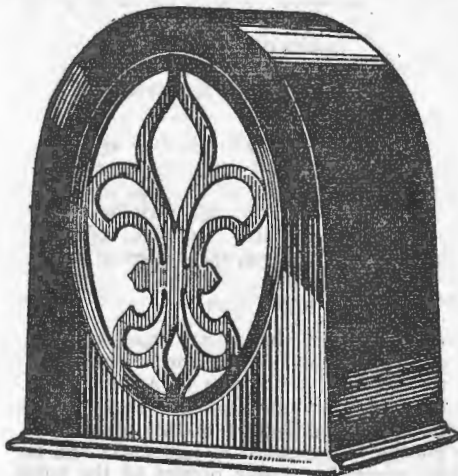
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the 171 permits a greater transfer of energy from tube to speaker at these frequencies.

The power handling capacity of an amplifier using present-day transformers is more or less limited by that of the tubes used, since the largest possible portion of the negative side of the grid voltage plate current curve is available for the actual plate voltage used. While resistance or straight impedance coupled amplifiers are better from a purely frequency standpoint, the power handling capacity is decidedly limited, as there is a certain rectifying action of a strong signal caused by the time action of the grid condenser and leak, and their purpose, even from a frequency standpoint, is often defeated by the improper use of tubes. A man will quite frequently pay from £3 to £5 for an impedance coupled amplifier only to use a 201-A tube in the last stage, and it is very doubtful if the improvement in quality in this case is even noticeable to the ear. This is only another example of insufficient power required to reproduce bass notes, although the frequency characteristic of an impedance or resistance coupled amplifier is essentially a straight line from 30 cycles upward. A very interesting laboratory experiment along these lines proved that where a pure 60 cycle note from a vacuum tube oscillator was fed directly into the grid of a U.X.-210

tube, the full output of this tube did not produce even an audible sound at this frequency. All low frequencies are not entirely lost, however, as their harmonics are reproduced, but with much less intensity, and the fundamental pitch is usually obtained by the beat note of a second and third harmonic.

In reviewing the subject of power handling capacity of an amplifier, there are many other more important phases to consider than the particular method of coupling (transformer, resistance, or impedance). It is a well-known fact that no better quality can be expected than is radiated from a broadcasting station or that can be faithfully reproduced by the loudspeaker—regardless of what coupling method or combination of methods may be used.

Bearing in mind that the frequency range of the better broadcasting stations is something like 80 cycles to 5000 cycles, and the better loudspeakers cut off at 80 cycles at the lower end and 7000 cycles at the upper end, also remembering that the better transformers in use to-day are capable of even amplification between 60 cycles and 6000 cycles, the selection of the amplifier tubes and proper operation for maximum efficiency of those tubes should receive more consideration than is generally given to amplifier tubes, particularly the last stage tube from which the loudspeaker is operated.

Why Listeners Pay Royalties

(By "Ray Dio.")

The writer was recently asked "What are these royalties we hear so much about in broadcasting circles?" It is possible that others are equally puzzled about the matter, and it will not be inopportune to discuss the subject.

A royalty of course is a payment made by the user to the owner of some device or work. The payment may be demanded in respect of the use of a book, a song or some constituent part of a wireless set. It is the last-named item that interested my friend and which we will consider for a while.

Every Listener Pays Royalty.

Although he may not be aware of it, every listener pays royalty to the owners or agents of the owners or agents of the owners of certain wireless patents. Even if the listener's set is a simple crystal set which contains no patented device or method. But it is actually the broadcasting company that pays the royalty finally; after the listeners' fees have been given to the company by the Government.

The broadcasting company is obliged to make some payment to patent owners—Amalgamated Wireless Company—for the right to broadcast. Because in the broadcasting station are some patent devices or systems, the wireless company claims tribute from the broadcasting company in the form of so much per listener every year, no matter whether the listener uses a crystal or a valve set.

That is the point that puzzles many people; why pay on a crystal set? They can understand having to pay something for using a valve set, because valves are patented. The answer is that the listener when he tunes in any local broadcasting station, makes some use of, or receives some benefit from, the trans-

mitting equipment at the station. And the broadcasting company owning or operating the station, is required to hand over to Amalgamated Wireless Company, the owners of the patent covering transmission, a certain portion of the listener's license fee.

Wireless Traders Also Pay Royalty.

Until the new agreement between the Government and Amalgamated Wireless Company becomes law, every person or firm that sells valve receivers is liable to pay royalty to the wireless company. And, one supposes, the trader passes on the charge to the purchaser. Thus the listener who uses a valve receiver pays royalty twice.

It is not certain if the traders did pay that royalty—some of them took the stand that their sets did not include devices or system over which the wireless company had any valid patent rights. That contention is the subject of pending litigation and was the subject of much comment and evidence before the Royal Commission.

When the new agreement becomes law—this month some time one may imagine—the traders will no longer be required to pay this valve socket royalty. Amalgamated Wireless will get one payment every year only—that is from every listener. Out of the license fee an amount of 3/- will be deducted by the Government and handed to Amalgamated Wireless. And as there are over 250,000 licenses now in existence the 3/- per license amount to over £37,500 per annum. The patents owned by the company have a limited life—generally for a few years—and as some of the most vital patents are near the end of their life, presumably there will be an alteration in the amount paid by listeners in a few years' time.

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Dear Boys and Girls,—

I do not think I could say anything more appropriate to you at this time than to wish you the very happiest of New Years. I trust you have all had a wonderful Xmas, and I guess you are all mighty sorry that the school holidays are drawing to a close.

What is going to be your New Year Motto? Have you thought of one? I have, and I'm going to try to live up to it. Would you like to know what it is? Well, I will tell you—

"BE HAPPY AND BRIGHT FROM MORN TILL NIGHT."

It's a short one, but it's a sweet one, and by living up to it we can not only make ourselves happy, but also our mummies and daddies, and sisters and brothers.

So let my New Year motto be yours, too, children, and let us see how well we can live up to it.

I am asking the Editor to print a few verses from my new Book-o'-Fun, which tells of a bright little fellow called "Whistling Jim." No doubt this little chap has the same motto as you and I—"Be Happy and Bright from Morn till Night."

With best wishes and fond love from your

UNCLE BEN.

WHISTLING JIM

I know a little fellow,
He is always neat and trim;
A little boy brimful of joy—
They call him Whistling Jim.

He whistles in the morning,
Right at the break of day;
He can be heard just a bird
Upon a morn in May.

He whistles in the noonday
When the sun is high and hot;
Despite the heat you hear his "tweet,"
And it cheers you quite a lot

He whistles in the evening
When all is quiet and still,
When birdies sleep and bright stars peep
He gives you quite a thrill.

This boy is always happy;
You never hear him cry.
He never growls, he never scowls,
And, when you ask him why—

"I have no time for sorrow,"
Says little Whistling Jim,
"I can't be sad—I must be glad
If life's battle I would win."

So let us be like Whistling Jim,
With happiness we'll bristle;
If things aren't bright, they'll all come right
So pucker up and whistle.

—A.T.B.

* * * *

UNCLE BEN'S COMPETITION

Uncle Ben offers two prizes, one of 7s. 6d. and another of 4s. for the two best jokes suitable for publishing in next year's Book-o'-Fun. Children are invited to send their entries in to The Editor, "Queensland Radio News," Box 1095 N, Brisbane, on or before January 20th. The envelope should be marked "Uncle Ben's Competition."

* * * *

RESULTS OF LAST MONTH'S COMPETITION.

Last month three lines of a verse were published and the children were asked to complete the verse by filling in the fourth line.

Some good attempts were received, but it was a remarkable fact that 135 children completed the verse with practically the same line, viz.:

"We very nearly died."

Of course, that was the easiest line and the one that seemed to fit the occasion, but in our opinion the best line came from

MISS BETTY BEGRIE, of Cook St., Northgate,

whose verse read—

"Uncle Ben made an Xmas Cake,
'Twas the first he'd ever tried,
But when we tasted—goodness, me!
What pains we had inside!"

Other attempts along similar lines were received, but were either too long or two short to be correct.

The second best attempt came from

W. ANDERSON of Townsville,

who completed the verse with

"We pitied his poor bride."

Prizes will be forwarded to the winners within a few days.

Full Wave Rectification

(By J. Peberdy.)

Most people know that a crystal rectifies because it allows only half the received waves to pass it.

The energy received by the aerial has a wave formation, which is constantly varying from maximum positive potential through zero to maximum negative potential.

When this energy reaches the crystal, only one half of these waves may pass, and these waves, being of the same potential, combine into groups or pulses. If the original waves were damped (that is, their potential decreased), or are modulated, they are able to affect the phones and are converted into sound waves.

As stated above the crystal allows only one half of the energy to pass it. Where does the other half go? Obviously it is wasted.

With the object of using all the available energy, many circuits have been designed which theoretically should do this, but there are many difficulties in the way. One problem, and in the writer's opinion the worst, is that of getting the positive and negative halves to fall exactly into place, for if they do not do so, the resulting distortion is worse than an imperfectly rectifying crystal.

Another difficulty is that of maintaining all crystals in the same state of sensitivity. If this is not done distortion will again make its unpleasant presence felt.

Another thing necessary is to be able to adjust all crystals simultaneously so that they are fairly well balanced in action.

The writer has made numerous circuits and sets employing this principle but on an average the results are disappointing. On a very few occasions the writer has succeeded in getting the perfect balanced action after spending hours adjusting the detectors only to have the balance upset by static or a top powerful note of a singer. Certain instruments also upset the balance—such as a loud passage on the piano, or the organ. In fact any loud noise whether it be musical or not, affects the crystal.

When one is lucky enough to get the adjustment, the volume of sound is extraordinary. So great is the volume that the wearing of the phones is extremely uncomfortable. Figs 1, 2 and 3 illustrate the commoner circuits employing this principle—

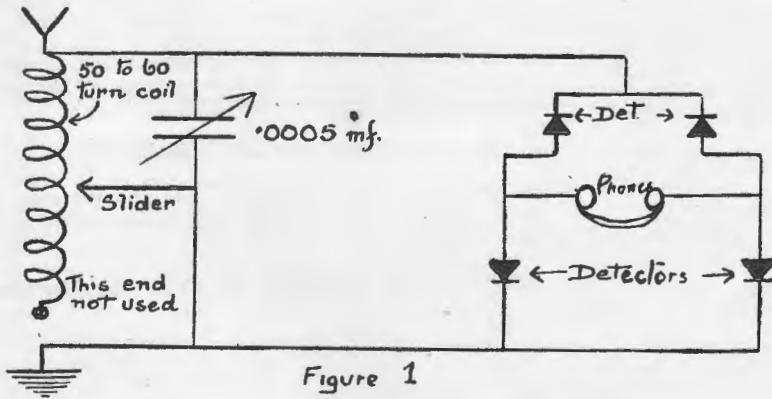


Figure 1

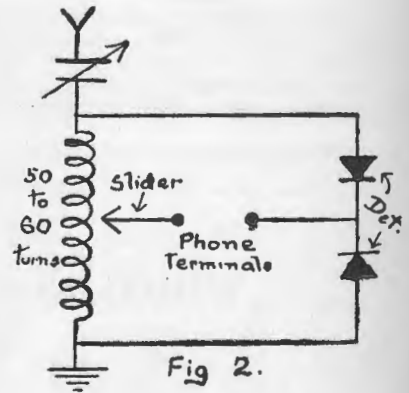


Fig 2.

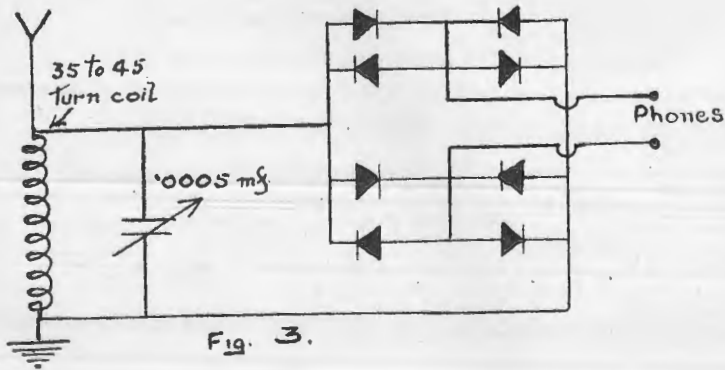


Fig. 3.

In concluding this brief treatise on Full Wave Rectification the writer would say that according to his experience Fig. 3 offers the greatest possibilities.

It is the aim of experimenters to increase the range of the crystal receiver even more so than the volume. Probably great developments will take place along these lines, and who knows that the little crystal set will, in the not-too-far-distant future, place the valve set in obscurity?

Club Activities



RADIO CLUBS OF QUEENSLAND.

AUCHENFLOWER AND DISTRICT—Secretary, L. Cribb, "Frampton," Ridley Street, Auchenflower.

CAIRNS AND DISTRICT—Secretary, Mr. Tarbit, c/o Mr. Les Fitzsimmons, Cairns.

EASTERN SUBURBS—Secretary, J. Burns, Longland Street, East Brisbane.

GRACEVILLE—Secretary, H. Carter, Cr. Molonga Terrace and Wylie Streets, Graceville.

IPSWICH—Secretary, S. J. Aspinall, Brisbane Street, Ipswich.

SOUTH BRISBANE—Secretary, W. R. Gilbert, Gordon Street, Coorparoo.

TOOMBUL—Secretary, T. Starkie, Sandgate Road, Nundah.

TOWNSVILLE—Secretary, E. J. Jefferies, Fletcher Street, West End, Townsville.

WIRELESS INSTITUTE (Queensland Division)—postal address Box 689K, G.P.O., Brisbane.

WOOLLOOWIN—Secretary, C. J. Grant, Old Sandgate Road, Woolloowin.

WYNNUM AND MANLY—Secretary, P. J. Golden, c/o Trackson Bros., Ltd., Elizabeth Street, Brisbane.

Wireless Institute of Aust. [Q'd Div]

At the last monthly meeting of the Council of the Division a discussion took place on the report of the Fourth Annual Convention of the Wireless Institute of Australia, held at the Y.M.C.A. Conference Rooms, Adelaide Street, November last.

The discussion was led by the Queensland President (Mr. W. I. Monkhouse), who stated that he had great pleasure in reporting that the Institute throughout Australia was actively engaged in the several spheres wherein it was of most benefit to the science of radio and the amateur during the year.

Those present at the convention in Adelaide were: Messrs. Bruce Hardie (delegate for Victoria and proxy for Queensland), Trevor Watkins (delegate for Tasmania), Max. Howden (proxy for West Australia), Harry Kauper (proxy for N.S.W.), Hal Austin (delegate for South Australia), Len Sawford (delegate for South Australia), and Arthur Cotton (hon. secretary).

Mr. Bruce Hardie was chairman of the convention, being elected on the motion of Mr. Kauper, seconded by Mr. Austin. The Federal President (Mr. Phil. Renshaw) was unavoidably absent from the convention.

One of the most outstanding announcements made at the convention was that the Tasmanian Division had secured recognition by the I.A.R.V., and was now the official Australian section of that organisation.

Regarding the report of the Royal Commission on Wireless, the convention noted with approval the finding of the Commission with reference to the allocation of wavebands, the question of traffic concession and a representation of the institute on the Australian Wireless Committee.

In connection with amateur transmitting stations, some idea of the useful work being done by the institute will be given by the portion of Mr. Hardie's report, which stated "That regarding 'Amateur Broadcasting and Interference,' the position in Victoria now is that we have some dozen stations which have been

broadcasting in the past. They have commenced broadcasting on Sundays and all of any wavelength that suited them, with the result that there was a good deal of interference. The solution of the trouble is the allocation of different wavelengths to all the more active stations, and with the concurrence of the department we allocated wavelengths to them with a 20 kilo-cycle difference. We had small absorption wave meters made for each station, the idea being that no station would operate without it could make the pea lamp in the meter light. These meters of course, being fixed on the wavelength allotted to that station.

"This scheme was brought into vogue at the request of the department, and at the request of thousands of listeners, who complained that after the broadcasting stations had closed down, they could not select any one station and receive its programme without another station interfering."

It was unanimously carried on the motion of Mr. Watkins, seconded by Mr. Austin, "That the Federal Executive be located in Melbourne."

In reviewing the activities of the Queensland Division for the year 1927, the council noted with pleasure the addition to its membership of several country amateurs and listeners. During the year the division established a regular broadcasting programme on Sundays between the hours of 10 and 11 a.m. Much appreciation of these programmes has been expressed by the hundreds of radio set owners within the range of 4WI.

Many cases occurred where the institute was able to give technical advice to applicants for assistance with their sets, and the council has noted with pleasure that people throughout Queensland have recognised the institute as a body willing to assist in the development of the science of radio in every way possible.

The year 1928 is looked to as being one in which the institute membership will increase rapidly, and the work of 4WI to extend to even further fields than of old.

Queensland Radio Transmitters' League

The passing of the Christmas season still finds the ranks of the league undepleted. No casualties were reported from the ether front. The 23-metre test carried out in the early part of December was a most instructive one to the members participating. Strange behaviour of signals is noticeable on the lower band, and it is a pity that it is not more popular.

Among the new members enrolled during the month were Mr. F. W. Stevens (Deputy Director of 4QG) who is also 4SP, and Mr. E. Gold (of the Gold Radio Service at Toowoomba) under the call of 4GR and 4EG.

The Christmas issue of the magazine "Q.T.C." was 17 pages, full of most interesting information and stories, and was most enthusiastically received. The little book brings its tidings of interest to all corners of the globe, being subscribed to from England, South Africa, India, China, U.S.A., Japan and New Zealand.

The members spent a very enjoyable evening at the opening of 4TC transmitter room recently, and thanks are due to the TC gang for their invitation.

All inquiries should be addressed to the secretary, Fourth Floor, Desmond Chambers, Adelaide Street, Brisbane, and subscriptions for the magazine should also be sent there.

Wooloowin Radio Club [oa-4WN]

At the time of writing these notes, most members appear to be suffering from "that Christmas feeling." Treasurer J. P. Love is down the Bay with his father's "Sweetheart" and, two being company and three a crowd, friend "Marconi" Kenna fulfils the latter important position, as well as that of official operator, having with him a portable transmitter. Kenna's call sign—4FK—is being used on, it is believed, both the 30 and 80 metre bands, and they hope to QSO quite a number of stations. On a previous voyage down the Bay on the Sweetheart—which is the fine pleasure yacht of our patron, Mr. James Love—some very excellent phone transmissions were effected. The description of a shark chasing "Nim" was far more exciting than any Speedway event ever put on the air, and the description of the underneath of Moreton Bay—though, perhaps, not so reliable as that broadcast by 4QG—was certainly more entertaining. A battle scene between a sea bird and a .303 military rifle, which took place too close to the microphone, almost permanently damaged the hearing apparatus of one of the assistant operators, who was unfortunate enough to be listening-in with the phones only a few feet away.

The Stephenson Bros. will doubtless find their way to Southport per motor-bike. Charlie told at a recent meeting how he found his way there in the dark, but judging by the time he took to get there and the road he described, one is inclined to wonder if it really was Southport he arrived at or if it may not have been Lake Eyre!

Vic. Bouchard announced that he intended motor-ing to Sydney—no, not in the Baby Austin—he, she, or it is to be packed in with the provision to be used in emergency only. President Harry Jiear did his best to cheer Vic. up—told him of every grade between here and Sydney, and how often he had nearly been killed by his wild Ford on a trip some years ago. It was really a most consoling half-hour for Vic.!

4LJ Feenaghty has returned from his motor tour of the Northern Rivers. Bangalow appears to have been his headquarters—but it didn't affect him like it did poor 'ole 4FK, who was there for some years, and Leo says that he could hardly find a trace of any of Vern's misdeeds. L.J. succeeded in working quite a number of stations with his portable transmitter, both from Coolangatta and Bangalow.

The Toombul Club's new transmitting rooms were opened before Christmas, a number of the Wooloowin Coy. being invited to attend the function. Expecting to be presented with something in the nature of a terrace of houses—a brick at a time—4WN's Acting Deputy Publicity Engineer plucked up courage to attend and arrived home safely at 12 mid-night.

The A.D.P.E. has almost persuaded Prescores to take over his job of writing "Q.R.N." notes, so if next month's notes should be worth reading, one may conclude that Prescores is once again doing his duty like the "stout fella" he is.

Though it is only a couple of months since the inside of the club-room was kalsomined, stains are again appearing on the walls, and it would appear that another working-bee will have to be held at an early date. When one receives a dab of kalsomine in the eye there would appear to be no end to the variety of ways one can tell the other fellow to please oblige one by being just a tiny bit more careful. A good samaratan recently donated a length of lino to the club, and the room looks almost respectable since this has been laid.

A new syllabus was agreed on at last meeting, a night being set aside for members to describe their Christmas adventures or misadventures. 4FK's lecture, mentioned in the last report, is to be held towards the end of January. Impromptu nights, debates and a junk sale also appear on the syllabus. Visitors are welcome at the club-room any Thursday night, the address being care of Mr. F. Thomas, Will-mington Street. Correspondence from other clubs and persons interested in radio are welcome and should be addressed to the secretary.

Toombul Radio Club

The holidays are now over, and from happenings during the last few months of 1927, it would appear as if 4TC has a busy time ahead for 1928.

Its membership has been increasing by leaps and bounds, and everyone appears to be inspired with a "do-it-now" feeling, which has every indication of continuing for some considerable time.

Several useful articles of furniture have been added to the club's collection and their makers have been thanked for the good work.

A new roster of lectures was started on December 7th, but, as the listed lecturer was indisposed, owing to overwork—a rare disease these days—lots were drawn and it fell to Mr. W. E. Vining to deliver "the goods" on the subject, which he did in quite royal style.

On Wednesday, December 14th, an impromptu debate was staged. A subject, "Should the Club Trans-mitter be Operated on the 200-metre Band or on a Lower Wavelength," was chosen, and sides as follows were picked: Messrs L. Hubner (leader), W. E. Vining and N. S. Costin for the 200-metre band, and Messrs A. E. Walz (leader), T. W. Starkie, and J. Walker for the lower wavelengths. The result was decided by a show of hands at the termination of the debate, and the result was an overwhelming victory for the 200 band exponents, due no doubt to the excellent oratory powers of the team. Ahem!

The official opening of the improved clubrooms has been arranged to take place on December 21st, the last meeting night of the year. Representatives from the Brisbane radio clubs have been invited, and all are looking forward to having a real good time. It will be remembered that the club had quite an enjoyable evening at the concluding meeting of 1926, so let us all hope that they will have had an even better evening at the conclusion of 1927.

AMONG THE AMATEURS

Well, gang, how's the old head after the Xmas imbibings not wisely but too well? It's a shame the way the Council put two lamp posts in parallel, isn't it? But, never mind, the second one gradually disappears after a real good sleep, Hi!

Does 4NW think he's a commercial with his v v v v v de 4NW??? Bpt, Tom, why not teach the old bug to spell? His not is abso-blooming-lutely FB and is quite QSA enough to get r6 from eg-5BY in Croydon (England) on 23 metres. FB, Thomas. Keep that little game up for the honour of old Queensland!

Another bug fiend is 2NS, "The Old Sock" of Rag Chewer fame. He has a YL op, so if you QSO 2NS "CS" be careless of your langwich, for that's the YL's sine. Talking of sines, what about all doing the same. Clubs particularly should do this for then one would know which particular ether-buster is on the key. The Toombul lads, for instance, should sign 4TC "AW" to show that 4AW is keying, and so on. Think that over, gang.

4LJ is collecting cobras, they tell me; at any rate, he's keeping such regular skeds with ai-2KT and 2KW in India's pearly clime that he must want something in the cobra line. Heard him shifting a message of greeting from his battalion—the 9th Moretons—to 2KT's regiment—the Worcestershires. (No; not the sauce manufacturers!) LJ has also added China and Malay to his DX scalp list, the latter on 25 metres, where he and 4NW had a three-way chat with am-3AB till the Toombul laddie shut off his receiver because the others were praising him too much, Hi! ain't it lovely to be a modest young man?

4AW and Co. have not yet had any reports on their 5-metre sigs., so far as I have heard. What about it, Art?

4FK and Nim Love were afloat again during the Xmas with xoa-4FK and kept skeds with 4MM, 4AL, 4JG and Co., on 85. Their sigs. were DC from a few hundred volts of "B" batts. How was the fishin', OM's?

Things we hate—fone fiends who say "Hello" nine million times without introducing themselves; CQ fiends who do the same; spacer spillers who have a nice sharp note on their own wave and also on nineteen other waves, too.

Portables are becoming fashionable. Guess we'll soon have sports models, cabriolets, sedans and mere roadsters. Still, it's a very good habit. 4MM-AT-HG started the ball rolling, then 4LJ, and then 4AW and 4FK. 2JY, the North Shore laddies, is going to VIA on a mo-bike soon—come on, who is next? That is the way to get inside information about receiving conditions. Also to track down the shirker skip-distance. MM reckons that Moreton Bay is his lair; LJ is equally positive he dwells in Bangalow—any more?

Once more do I raise my voice in the wilderness of signals and say why? Heard 3RB call CQ, and after

1.25 minutes decided that he wanted DX, and said so—meantime, what about the fellow who has been QRX your ending up to answer you? Don't do it!! Send 'em directional, old fellow, and be fair to the rest of the gang. You don't aim at the marker if you want to hit the bull's eye (or at least the little red book says that you shouldn't). So why aim at the world when you want U.S.A.?

The 23-band is sure alive—gee whillikins, she shore do buzz!! (Apologies to William Shakespeare and Josh Billings.) as-RAO3 is heard clg. eb, ef, oz, oa, while 4AW, 4LJ, 4MM, 4NW, 4GO, 2RX, 2DY, 3ES, 3GR, 3VP, and others nightly make the welkin ring—well, I mean to say, nearly. 3GR has a nightly sked with 4AW, while 4LJ had a sked with 3GR and ai-2KT. 4NW is on a Sunday sked with eg-5BY, and a nightly one with am-3AB.

The Q.R.T.L. recently had a 23-metre test, and it went FB. Few if any nu stations are heard, except at high noon to 3 p.m., when most of us are QRW. Another time to hear them is very early Monday, but who wants to desert Morpheus for Mercury, particularly on Monday mng.? Not I!!!

A noticeable fault of some Aussies is their "QRM forsaking" tactics by getting down below the 32 band. Well, that's very nice, gang, but what about the Chinese and Indians who are just there? Don't you think that we'd like to hear them occasionally? Get up gang and stay put!! Better get the getting-up habit, 'cause soon you'll be right up—yes, well up on 41, where the QRM and QRN is made in big lumps.

A notable "3" is Bill Macaulay 3WM, who puts out a nice smooth rac sig. from straight AC on a quarter kilo. Comes in here r6 to 8 and seems to have DX parked on his doorstep or on tap.

These nites old man Static is working double shift, and he's doubled his staff for the Xmas season. It's no darn good opening the aerial switch he gets in round it. Doesn't his generator or rock-crusher ever go hot?

4MF is on regularly now again and has a good rac note. He has a new QRA out Annerley way somewhere. They say oz is his favourite.

(Continued on Page 52.)

Let Me Teach You MORSE

If you would become proficient in Morse Sending and Receiving, let me coach you, as I coached 4RB, 4AZ, 4BO and others, including commercial operators. Sounder or Buzzer method; speed and proficiency guaranteed; terms moderate.

CHAS. RUNGE

(3 Years' Experience as a Morse Instructor; Several Years as a Commercial Operator.)
Address enquiries c/o "Queensland Radio News,"
Box 1095 N, Brisbane.

A Discussion on Ammeters

(By "A.G.B.")

An ammeter is one of the most frequently encountered electrical instruments used in radio to-day. This instrument, with its counterpart the milliammeter, permits us to see the effective magnitude of the current in our circuits, which often proves a very useful adjunct when testing a radio receiver.

An ammeter is an instrument which reads directly in amperes the standard unit of current measurement, and is defined as the current forced through a resistance of one ohm by a pressure of one volt.

The ammeter is constructed in different types, all for the same purpose, namely, current measurement, but each type is more suitable for the particular conditions for which it was originally designed. The first type under discussion is the galvanometer or moving coil type. This type depends for its action upon the mutual action of an electric current, and a magnetic field. A typical arrangement is illustrated in figure 1. It consists of a coil wound on a former which is

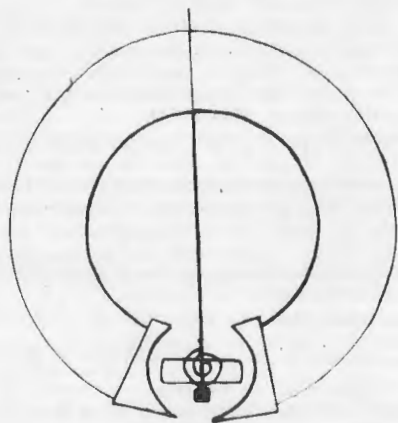


Fig. 1.

free to move a soft iron sphere. The coil is suspended by two needle-point bearings and is surrounded by two massive soft-iron pole pieces fixed to a horse-shoe permanent magnet. Upon the bearings on either side of the moving coil spiral springs are affixed which, besides serving to bring in the current to the moving coil, also damp and so make the action of the pointer more deliberate. (The pointer being attached to the moving coil bearing spindle.) These spiral springs also mechanically pull the pointer back to its zero position when the meter is released from load. When the current passes, the couple rotates the coil until the opposite couple, due to the elasticity in the spiral damping springs brings it to rest.

The soft-iron sphere around which the moving coil rotates is so placed that it keeps the field radial, and thus the moving coil in position with respect to the magnetic field.

The moving coils of ammeters do not usually carry the full current they are capable of registering, most of the current being carried by a coil of wire placed in parallel with the moving coil, and called a shunt. To illustrate the purpose of a shunt, suppose we have a meter reading up to one ampere and we desire the use of one reading up to ten amperes, we can alter our meter to suit our needs by merely changing the value of or adding a shunt to our meter. The value of the shunt to produce this desired effect may be determined as follows: say the resistance of our one-ampere meter is one ohm, and as our meter was designed to carry but one amp., our shunt must carry 9-10ths of the new current, and the coil the remaining 1-9th that of the moving coil which is one ohm, therefore the shunt value will be 1-9th ohm. Ammeters of this type may be so altered to read up to high current values.

A milliammeter is usually the above type of meter with a pointer moving over a scale calibrated to read in thousandths of an ampere.

The next type of ammeter to be discussed is the hot-wire type, which is designed to make use of the heating effect of current, and this type may be calibrated so that the numbers on the scale read in amperes direct. The main current I passes through a shunt S (figure 2) placed in parallel with a fine plat-

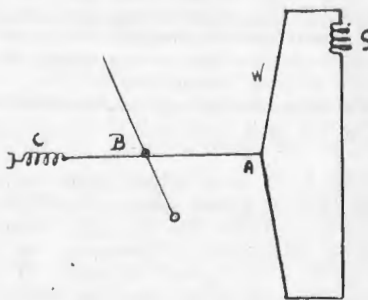


Fig. 2.

inum-iridium wire W through which a small fraction of the current passes. A fibre is attached at A , and after making a turn around the axle B of the pointer, is attached to a stretched spring heated and, therefore, expanding. Owing to its sagging, the spring C is able to pull the fibre CBA forward and in so doing rotates the axle B , thus moving the pointer over the scale. The value of the scale deflections must first be fixed by comparison with some standard ammeter, so that they will afterwards indicate amperes. When small currents are to be measured—that is, current below .25 amperes, the shunt may be dispensed with, but for higher reading instruments the shunt is necessary.

Hot-wire instruments are very liable to change of zero, due to slipping of the axle, and also to change of temperature of the frame. The latter is usually compensated as well as possible by constructing the framework which supports the wire *W* of such material or materials that its co-efficient of expansion shall be the same as that of the wire. Change of temperature of the entire instrument does not then tend to slacken or tighten the wire. For some purposes the hot-wire ammeter has this advantage, that owing to the heating of the wire being independent of the direction of the current, the instrument may give a reading when the current is alternating. Owing to the rapid reversals of direction an alternating current would not produce any deflection upon the moving coil type of ammeter, hence the frequent use of the hot-wire type of ammeter in the aerial circuit of transmitting stations, to indicate the aerial current.

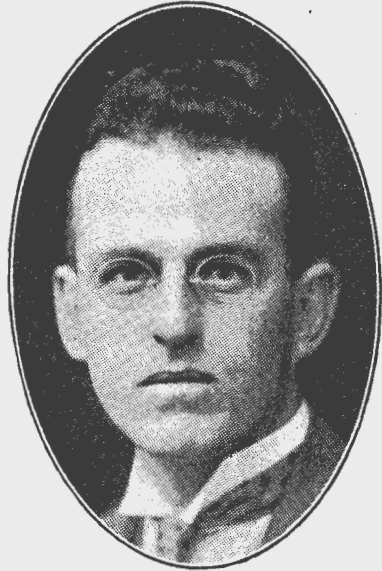
Another type of ammeter very often used is the soft iron ammeter, in which soft iron is magnetised by the current passing in a coil or solenoid. There are two forms of soft-iron ammeters. In one, two parallel soft-iron rods are magnetised by the current flowing in the solenoid to the axis of which they are parallel. Whatever may be the direction of the current in the solenoid, the poles in close proximity are so arranged that they are of like polarity, so that there is repulsion between them; therefore, at both ends of the soft-iron rods, we have a repulsive action taking place. These repulsions rotate a framework pivoted on jewelled points. The pointer which is attached to this framework then indicates the current upon a scale which has been arranged at by comparison with a standard ammeter. The control in this case is due to gravity, a small weight being affixed to the pointer and adjusted till the pointer reads zero on the scale when no current is flowing.

In another form of soft-iron instrument an oval-shaped piece of soft iron sheet is pivoted at a point to the left of the axis of the solenoid carrying the current. When the current flows the soft iron is magnetised in such a manner that the force between it and the coil tends to draw it into the coil. As the pointer is mounted eccentrically upon the iron sheet, this force causes it to rotate. The coil is of flat design with sufficient clearance only for the soft iron sheet only being allowed.

In soft iron instruments, the current passes directly through the solenoid, no shunt being used. In both the types described reversal of current does not affect the pointer, so these two types may be used for alternating current.

MUSIC EVERYWHERE.

Step into the building in Melbourne Place that houses the studio and administrative quarters of 3LO and you will find a veritable hive of industry, so to speak—walk down the long passage between the offices and you hear the everlasting click-click of dozens of typewriting machines. Then through double-glass doors you enter the big rehearsing room. Here you will always find either a brass band or a jazz orchestra, or a choir rehearsing tirelessly for their turns upstairs in the big studios. These rehearsals proceed even when broadcasting is in progress—in fact, there is music everywhere at 3LO nearly all the time.



MR. S. R. E. HAWORTH,

New Brisbane Manager of Amalgamated Wireless (Australasia) Ltd.

During the month it was our pleasure to meet Mr. S. R. E. Haworth, who recently arrived from Sydney to take up duties as manager of the Brisbane office of Amalgamated Wireless (A/sia.) Ltd.

Mr. Haworth has had a lengthy radio experience, having served for many years as operator on coastal and overseas vessels.

In 1924 he joined the sales staff of A.W.A., and since that time has been actively connected with the marketing and selling of the excellent radio apparatus produced by this well-known company.

His promotion to the position of Brisbane manager has been well earned, and we feel sure that his knowledge, combined with his cheery smile and happy style, will win for him many friends in Queensland.

LONG HAIR COMPETITION.

Arrangements are still going steadily ahead for the "Long Hair Competition," further particulars of which will be shortly announced. For the benefit of new listeners and readers, we might mention that Station 3LO, feeling that "good heads of hair" were surely but steadily on the decline—especially when the majority of us have fallen prey to the scissors of the tonorial artist—is organising a competition for the express purpose of discovering the best head of long hair in the Commonwealth. When this is run to earth the hair will be photographed and classified—and a specimen kept, against the time when a head of unshorn tresses will be decidedly a thing of the past.

Whispers from Maoriland

The advent of "daylight saving" in New Zealand will afford listeners another hour during which to seek out American stations. There are some enthusiasts in New Zealand who regularly obtain daylight loud-speaker reception from KRON, Long Beach, California, and other trans-Pacific broadcast stations.

I have it, on good authority, that another broadcasting station is likely to come on the air in Christchurch at an early date. No other details for publication are available at time of writing.

The recent return of Mr. J. E. Strachan to Canterbury should be the signal that interesting information relative to wireless conditions in the United States will be available for radio enthusiasts. Mr. Strachan has an intimate knowledge of wireless, and is a keen observer. As one of the principal operators of a transmitting station at Rangiora, it is certain that he has made a special note of methods used across the ocean.

The transmissions from 2AQ, Taihape, are being interfered with by FU9, which is apparently one of the naval boats in these waters, and is right on the North Island's wave. Any listeners who understand Morse code will know that amateurs are not responsible for the trouble.

A loud laugh was raised in the House of Representatives when the Hon. W. Nosworthy, replying to Labour suggestions that the staff of "Hansard" should be increased, intimated that he intended to take into serious consideration the abolition of "Hansard," and having the speeches of members broadcast instead.

Sporting broadcast listeners who were unable to learn the starting prices of the placed horses in the New Zealand Cup owing to the law against the publication of totalisator dividends, could have heard them announced from 3LO Melbourne. At a late hour on the day of the race, 3LO announced the result of the race and totalisator dividends.

Once again I draw attention to an act of discourtesy on the part of 2YA Wellington. A short time back the programmes at this station did not commence until after 9.30 o'clock, owing to a breakdown at the station. When transmission began no explanation or apology for the lengthy delay was offered. The Broadcasting Company has just secured a substantial loan from the Government, as previously recorded in these columns, so is not yet in a position to snap its fingers in the face of listeners.

In the near future an attempt is to be made to relay concerts from portions of the North Island through 2YA. The land lines are now being tested, and there is hope of trials being made very shortly. Palmerston North will probably be the first centre to be connected to 2YA and occasional concerts from this growing city should be interesting experiments to watch.

Just before describing the race for the New Zealand Trotting Cup, a fight between two ladies and a baldheaded man, which took place on the lawn, was described by the announcer, much to the enjoyment

of those who happened to be listening-in. The fight lasted two rounds with a K.O. for "Baldy."

The daily press here has been up in arms against the nature of the subject matter of the bedtime broadcasts. Parents, too, have been writing complaining that a Mike Flynn type of story is hardly a good sleeping draught for small boys. I heard a small youth of our household threatening to "slit" his younger brother's throat the other day, but I don't know whether he picked the idea up from some radio uncle or aunt or just overheard my dark intentions with regard to a neighbour's cat.

The adoption of twin wavelength transmission for the proposed Anglican wireless stations has been decided upon by the Committee of the Anglican Broadcasting Association. It is considered that this method will ensure clarity of reception, not only in all parts of New Zealand, but also throughout Australia and over the Pacific Ocean. It was stated at the last meeting of the committee that the Government had given a favourable reception to the association's application to erect a twin wavelength installation. Tenders would be called as soon as sufficient funds were available.

AMONG THE AMATEURS—Continued from Page 49.

"Oh where, oh where has our little Bob gone?" That's the question that is worrying the tinker and the tailor, the statesman and doctor, the sailor and the man that follows the plough. Where is Bob? Of course, we mean Bob Browne, who used to be 4RB, but is now 4DUMB!! Cumta lite, Robert the Bruce, cum-cum, daminit!

4LV and 4JB are new ones who ain't got no 'omes. What's the number of your license OM's? Please reply direct to the Radio Inspector. Another new one is 4SP who has a home—two, in fact; one near the Radio Inspector's home and the other in the chair of the Deputy Director of 4QG—yes, our old friend of Willis Island is converted to the amateur ranks and waggles a vicious key as 4SP. Welcome, FW, may your sigs. never grow QSSS.

Heard oz-2BG QSO ai-2BG t'other night. Now, ain't that just luvly?

Old 4PM has been re-christened 4PN (nasty initials—reminds me of promissory notes), and recently in the wee sma' 'oors was QSO an nu, ai, and fo. FB, Russell om, that only leaves South America and Europe to make you a WAC. That's good oh for a new comer. Say, did Pierre com along and drink your iced cider that night? Guess a little something cool would be needed to cool your fevered brow after getting three continents in the one night.

Now, little boys, its very late, so run along to bed and dream of the nice new fifty that you did (not) get in your stocking at Xmas, and write a nice letter to Santa in time for next year for he might bring you one then. Good-bye-e-e-e-e!

23.2.34
J.O.L.

A Dry Cell Audio Stage Valve



With the Output of a Storage Battery Valve
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CHARACTERISTICS:—

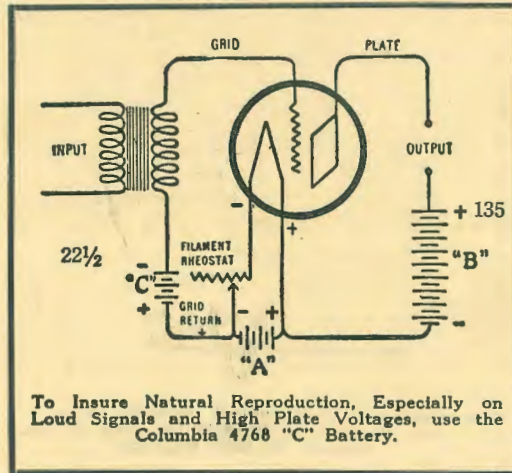
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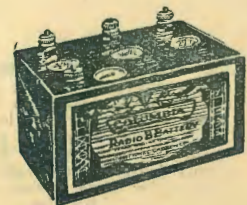
To obtain the full advantage of power valves, a higher plate voltage than is customary should be employed. This in turn calls for greater grid or "C" battery voltage for the correct operation of the valves. It is essential that a grid or "C" battery be used with power valves, otherwise their consumption of plate current is so great as to exhaust the high tension battery rapidly.



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This battery can be used as a "C" battery, or as a "B" battery in portable sets. It is especially designed for Bias work in conjunction with power valves UX-120, UX-171, and others. Provided with four screw terminals, giving negative voltage of 4½, 16½, and 22½. Of horizontal dimensions, it measures 4¼ inches long by 2¼ inches wide and 2½ inches high. Weight, 1lb. 9oz.

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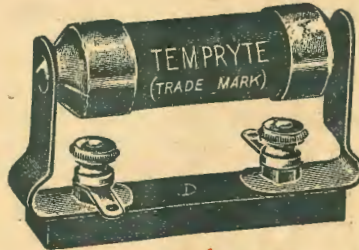
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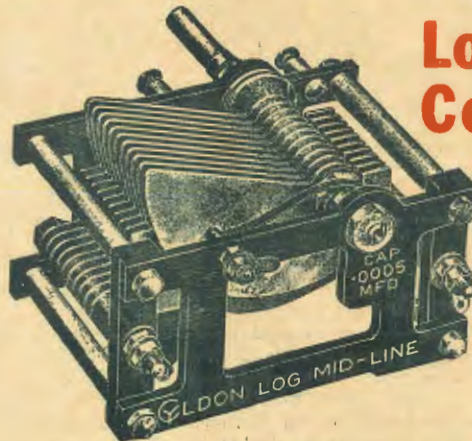
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