

RADIO

IN AUSTRALIA
& NEW ZEALAND

Registered at G.P.O., Sydney, for transmission by post as a newspaper.

VOL. II

JULY 23, 1924

No. 35



RECEIVING THE NEWS "OUTBACK"---THE OLD AND THE NEW

PRESCOT PORCELAIN INSULATORS

(LOOP TYPE)



These Insulators are made of the **BEST VITRIFIED PORCELAIN**, treated with dark green glaze. The material of which they are composed is non-absorbent, and they do not depend on the glaze for their insulating qualities.

They are attractive yet inconspicuous in appearance, and as the design is such that they do not get out of alignment when erected, full advantage is obtained of their mechanical strength and electrical efficiency.

The following sizes are stocked:—

	No. 1. List No. D 4411.	No. 2. List No. D 4412
Dimensions	3in. × 1 $\frac{5}{8}$ in. with $\frac{7}{16}$ in. holes	4 $\frac{3}{8}$ in. × 2 $\frac{3}{8}$ in. with $\frac{1}{2}$ in. holes
Working Load	500 lbs.	2,500 lbs.
Breaking Load	2,000 lbs.	10,000 lbs.
Flash over voltage (wet) ..	2,000 A.C.	10,000 A.C.
Flash over voltage (dry) ..	20,000 A.C.	30,000 A.C.

William Adams & Co. Limited

175 Clarence Street :: SYDNEY.

53 King Street :: NEWCASTLE.

Edward and Mary Streets, :: BRISBANE.

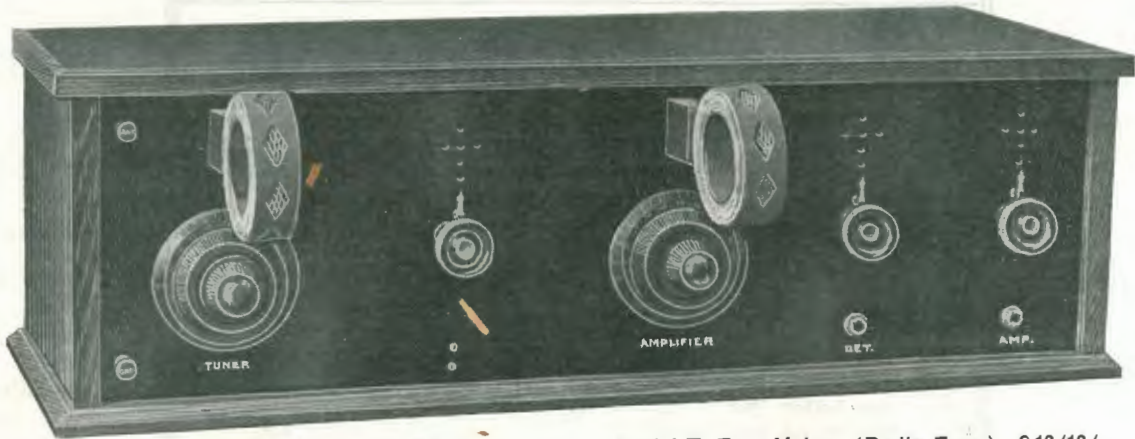
SIGNAL Home Assembly Sets



Model Phone Valve, £5/10/-.



Model Q 2 Valves, £9/9/-.
Model R. Three Valves (Audio Freq.), £11/11/-.



Model S Three Valves (Radio Freq.), £11/11/-.

Model T. Four Valves (Radio Freq.), £13/13/-.

Make It Yourself.

THE SIGNAL HOME ASSEMBLY SETS are designed to meet all demands for complete sets ready to be assembled. Simply constructed, and yet efficient. Each set contains all the parts necessary to construct the set proper. All contained in an attractive oak cabinet, mission finish, with engraved Bakelite panel all bored ready for mounting the parts.

INSTRUCTIONS and a clear diagram make it very easy to assemble these sets.

BOYS, YOUNG and OLD, here you can get all the thrill and satisfaction of MAKING YOUR OWN, and SAVE HALF THE COST

ASK YOUR DEALER FOR "SIGNAL."
and if he has not yet stocked it write us.

United Distributors Limited

(WHOLESALE)

28 Clarence Street, SYDNEY.

592 Bourke Street, MELBOURNE.



Radiotorial

At Long Last!



RIDAY evening, July 11, saw the announcement by the Prime Minister, Mr. S. M. Bruce, of the details of the new regulations governing Wireless broadcasting in Australia.

IT behoves us, reader and writer alike, amateur and professional, expert and beginner, to put our shoulders to the Wheel of Radio Progress in the Commonwealth and PUSH with all our heart and nerve and sinew.

AS the Walrus said: "The time has come."

THERE is nothing to be gained by arguing and squabbling over "what might have been" or "what should have been," the regulations have been issued, and it is up to all of us to waste no more valuable time—there has been, unfortunately, quite enough of that in the past—but to throw all our efforts in the direction of bringing Radio broadcasting into the position it enjoys in Europe, America and Asia to-day.

IT is unlikely that the decree which has gone forth will remain quite water-tight and "angle-ironed"—it is but to be expected that several alterations will be effected. This Rome least of all, cannot be built in a night, but when these alterations are made in an attempt to satisfy and be fair to all, he who would quibble at them would be dissatisfied with the accommodation we are told exists in The Better Land.

TAKING as a whole the Prime Minister's announcement of the new programme, the most pessimistic must but admit that the newly drafted laws are surprisingly liberal and drawn up with a most praiseworthy breadth of vision. It will be clearly remembered that some days ago many rumours were running through the columns of the daily press to the effect that listening-in

license-holders would have to pay several more or less hard-earned guineas in order to enjoy benefits conferred.

AS it transpired, the highest fee to be levied from those who reside in Zone 1 will amount to only 35/—a considerable decrease in magnitude to that which was originally expected.

WITH regard to the regulations as they effect the wireless experimenter pure but by no means simple, he has been given the Freedom of the Air without so much as a mild caution to be even careful. He can use and build any type of set that his ingenuity can devise, his imagination embrace or his pocket encompass. We feel confident he will not abust this trust.

FOR the ordinary listener-in whose dreams wend not their way in the enticing direction of "DX," there has definitely been granted the freedom of the "open set." The Heavens and Static willing, he may listen to Timbuctoo for as long as he likes, if his spirit so desireth.

A MOST illuminating point as to the suitability of the steps for Australian Radio control taken by the Federal Government is in the fact that the major portion of the dealers and traders in Wireless goods and apparatus have expressed themselves as well satisfied with the declaration of the now existing conditions. They are the men who are in the thick of the business, and what they do not know about it can be comfortably carried on the point of a pin.

IN effect, the manner in which the great difficulty—to guard all interests and yet give all claims every consideration—has been surmounted is an action of which this Government can reasonably feel very proud. It has done wonders and it has done its share.

WIRELESS enthusiasts—let us do ours.

RADIO DEALERS! THIS MAGAZINE IS THE ONLY ONE OF ITS KIND IN THE COMMONWEALTH AND NEW ZEALAND. EACH ISSUE IS EAGERLY AWAITED AND READ BY "LISTENERS-IN," BROADCASTING COMPANIES, AMATEURS, EXPERTS, AND ALL CONNECTED WITH WIRELESS ACTIVITIES. THEY ARE ALL PROSPECTIVE PURCHASERS. GET IN TOUCH WITH THEM BY ADVERTISING IN "RADIO."

WRITE FOR RATES AND ALL PARTICULARS TO THE MANAGER, THE WIRELESS PRESS, 97 CLARENCE STREET, SYDNEY.

New Wireless Regulations

Prime Minister's Announcement

Open Sets Permitted



DETAILS of the new regulations governing wireless broadcasting in Australia were announced by the Prime Minister (Mr. Bruce) in moving the adjournment of the House of Representatives on July 11.

After tracing the history of the conference in Sydney, Mr. Bruce said that the system of sealed sets had proved so unsatisfactory that a further conference had been held, and after much difficulty the Ministry had decided to adopt a new basis. Existing licenses would be continued, but the sealed set had been done away with, and anybody would be able to receive the programmes broadcasted, provided that they had a receiving set and paid the license fee for the programme they received.

The principal provisions of the new regulations are as follows:—

(1) Licenses will be issued to class "1" stations, which will obtain revenue from receiving license fees, and class "B" stations, which will not receive revenue from license fees.

(2) Advertisements will be permitted on both classes of station, but in each case a tariff of advertisement charges must be published, and no advertisement may be refused excepting with the approval of the Postmaster-General.

(3) On "1" class broadcasting stations advertising shall be confined to periods not exceeding five minutes and aggregating not more than 30 minutes in a regular programme, or 60 minutes in 12 consecutive hours. Advertising will be preceded by a suitable announcement.

(4) Both classes of station will be permitted to relay or broadcast programmes from other stations by agreement with, and with the approval of, the Postmaster-General.

(5) Minimum powers on which the stations shall operate will be specified.

(6) The existing licensees shall be permitted to operate "A" class stations, and in Queensland and Tasmania, where no license has yet been issued, one "A" class station will be authorised in each case.

(7) The two existing licensees in New South Wales will receive 70 per cent., and 30 per cent. respectively of the allotted revenue collected within the State, and the same allocation will be made in respect of the two Victorian licensees—the higher percentage being paid to the company operating the higher power station. It is intended that one company in each State shall operate on a power of not less than 5000 watts, and the other not less than 1500 watts.

(8) If the apportionments are objected to a settlement by arbitration will be accepted by the Government.

(9) In other States the allotted revenue collected within the State will be paid to the licensee authorised in that State.

(10) All license fees will be collected by the department.

(11) Where a reasonable public demand exists licensees will be expected to establish additional broadcasting (including relay) stations. In case of failure to meet reasonable demands, rights will be reserved to license other broadcasters, and to allot a proportion of the revenue.

(12) Subject to satisfactory service being rendered, the regulations, so far as they relate to the number of class "a" station licensees, and the amount in respect of each class of receiving license fee apportioned to the broadcasting licensees, shall not be altered within a period of two years from the date of issue. At the end of that period rights are reserved to revise the position and make such alterations as may be deemed necessary.

(13) In default of satisfactory service, reservations are provided to cancel the license or any portion of the rights secured thereunder.

(14) For the purpose of fixing receiving license fees, the territory will be divided into three zones, giving roughly a 250 miles radius in the first zone, 150 miles extending beyond the first in the second, and the rest of the territory of the State in the third.

(15) The proposed fees per annum for the three zones are respectively, ordinary license, 1924-25, 35/-, 30/-, and 25/-; 1925-26, 30/-, 25/- and 20/-; special license for hotels, entertainments etc., where profit is to result, £10, £9, £7/10/-.

(16) Dealers will be licensed, and will be charged per annum as follows:—Zone (1), £5; zone (2), £3; zone (3), £2. There will be no restrictions on the design of equipment or the sale of apparatus by registered dealers.

(17) Experimental licenses will be issued in cases where the department is satisfied that the applicant possesses sufficient knowledge to undertake scientific research and investigations. The charges per annum will be zone (1) 20/-; zone (2) 17/6, zone (3) 15/-. There will be no stipulation prohibiting the reception of broadcasting programme or the design of receiving equipment.

(18) The revenue to be collected will be apportioned between the department and the broadcasting licensees. From the ordinary licensees the post-office will retain 5/- and the balance will go to the broadcasting companies. The latter amount is variable, depending upon the zone.

(20) Penalties are provided for breaches of the regulations.

In regard to penalties, Mr. Bruce said that it was obvious that with open sets anybody could pick up the programme, whether they paid or not. Therefore it would be necessary to "police" the regulations.

Traders Express General Satisfaction with New Radio Regulations

THE President of the Electrical Employers' Association of N.S.W., Mr. R. Burgin, states that at the meeting of a sub-committee of Wireless Traders under the auspices of the Electrical Employers' Association of N.S.W., the new regulations were discussed by the members present. Those present represented practically all radio trading interests and general satisfaction was expressed that the question of regulations had now been finalised.

TRADERS have for some time past been endeavouring to secure an amendment of the regulations which would enable them to meet the public demand for radio sets free from restrictions and more in keeping with the practice in other parts of the world where reception of radio broadcast programmes forms such an important part of the domestic life of a very large portion of the community. The opinion was freely voiced at the meeting that the interests of the buying public have been generously taken care of under the regulations, as published in the press and that there now are no obstacles in the way of traders supplying sets from which the public can obtain all the benefits accruing from this, the latest application of science for the education and entertainment of the community in general. The following telegram has been dispatched to the Prime Minister:—

"**A**T meeting of sub-committee of wireless traders held under auspices of Electrical Employers' Association of N.S.W., general satisfaction was expressed regarding amended wireless regulations which will remove the difficulties that traders have had to contend with and will enable the public to take up wireless confident that they can obtain maximum benefits therefrom without restrictions, and with minimum of expense. (Signed) R. BURGIN, Chairman, President Electrical Employers' Association of N.S.W."



This splendid flashlight photograph has been sent to us by the General Electric Company of America. It is a view, of course, as the electric sign betrays, of their broadcasting station KGO, situated at Oakland, California, U.S.A. Judging by the present rate that broadcasting is improving and advancing, it should not be long before every owner of a receiving set in Australia will be as familiar with KGO and its programmes as he is with 2FC or 2BL.

"Radio" Visits 2FC



LITTLE MIKE THE MICROPHONE

BED TIME STORIES

E.J. GILES, ONE OF THE RADIO ENGINEERS, TALKS TO THE TRANSMITTING STATION AT WILLOUGHBY.

JOHN HOLLAND OF THE STUDIO LISTENS IN TO THE SWEET COCHRANIAN TONES BEING BROADCASTED

NOTE THE EXPRESSION OF THE PHONE WHILE LISTENING IN.

THE "HELLO MAN" OF 2FC - MR COCHRAN WHISPERING IN THE EAR OF LITTLE MIKE THE BED TIME STORIES FOR LITTLE PETS.

RADIO ENGINEER F.W STEVENS IS ALWAYS BUSY WHEN THE PROGRAMME BEGINS

RADIO NEWS RECORDS ON THE AIR

RECORD BROADCAST CHARLTON - BORG RACE RESULTS

2FC'S LIGHTNING NEWS GATHERER J.W. ROBINSON

I KNOW - SHE MUST HAVE BEEN A STEWARDESS ON THE HIGH SEAS.

THE PUBLIC LIKE EXCITEMENT LADDIE. LET ME BE BROADCASTED IN BITS FROM THE FACE AT THE WINDOW.

I'M GOOD ON THE HIGH C YOU SHOULD ENGAGE ME

MINE'S AN AERIAL ACT, YOU KNOW, TRAPEZE AND FUNNY PATTER, AND I SAY BOY I'M PRETTY GOOD ON THE TIGHTWIRE

YES BUT THIS IS A WIRELESS STUDIO

B.O JONES'S MANAGER OF 2FC FARMERS LTD BROADCASTING STATION. WHO, AMONG MANY DUTIES, INTERVIEWS PROGRAMME APPLICANTS.

HARRY JULIUS

SOME IMPRESSIONS BY ARTIST HARRY JULIUS.

"Wireless House" Dance Held

Most Successful Function

ON the evening of July 1 the Social Committee of Amalgamated Wireless (A/sia.) Limited, Sydney, held a very successful dance in St. James' Hall, Sydney. The hall was attrac-

Jazz Orchestra. Between 150 and 200 of the staff and their friends attended the dance, which was a huge success. Mr. J. F. Wilson, assistant manager, apologised for Mr. and Mrs.

Messrs. Spinney and Coy, a very hearty vote of thanks, which was carried by acclamation. So successful was the function that, although the next dance has been arranged for



Many of the staff and their friends were present.

tively decorated with coloured streamers and balloons and with the gay throng of people dancing it presented a very pretty and joyful sight. The music was supplied under the able direction of Mr. C. V. Coy and his

Fisk, who were unable to attend on account of Mr. Fisk having had to leave that night for Melbourne. Mr. Wilson then, on behalf of all those present, accorded the organising committee, Misses Coy and Wall and

September 13, the organising committee is endeavouring to arrange a similar function during August, full particulars of which will be announced in *Radio*.

IN THE FINEST HOMES

IT IS but natural that "BURGINPHONE" Receiving Sets are found in the finest homes. The same appreciation of artistry that is responsible for beautiful home surroundings sees in a "BURGINPHONE" a fitting example of craftsmanship that belongs with the finest.

AGAIN—the clarity of reception, freedom from extraneous noises, and greater elimination of interference made possible by a "BURGINPHONE" appeals to the true lover of music and the finer things of life. The long range places the music of the Continent within your reach.

AT LAST—the owner of a "BURGINPHONE" knows that others will admire it. Its possession reflects good taste and judgment.

WRITE OR CALL FOR ILLUSTRATED LITERATURE, PRICE LISTS, ETC.

BURGIN ELECTRIC COY.

MANUFACTURERS OF HIGH-GRADE WIRELESS APPARATUS.

FIRST FLOOR, 391 GEORGE STREET, SYDNEY.

(Opposite Hordern Brothers).

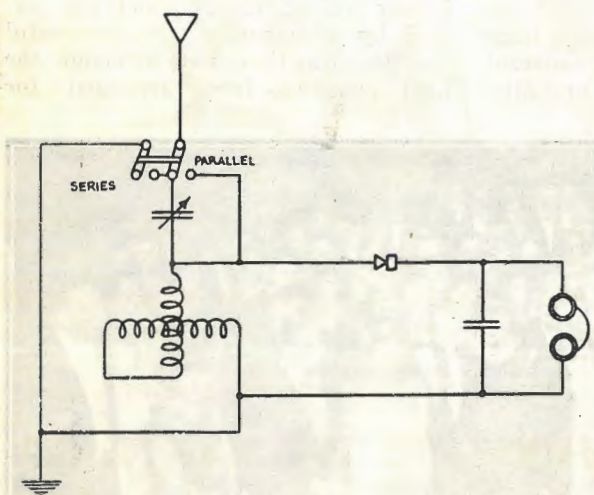
Telephone: M 3069.

Telegrams: "BURGINECO," Sydney.

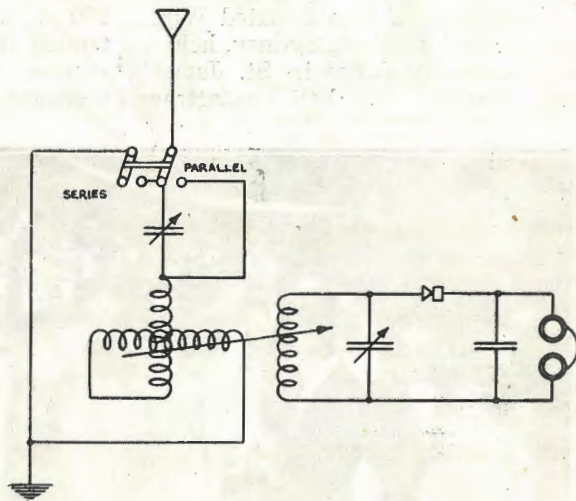
Mention "Radio" when communicating with advertisers.

Simple Circuits for Beginners

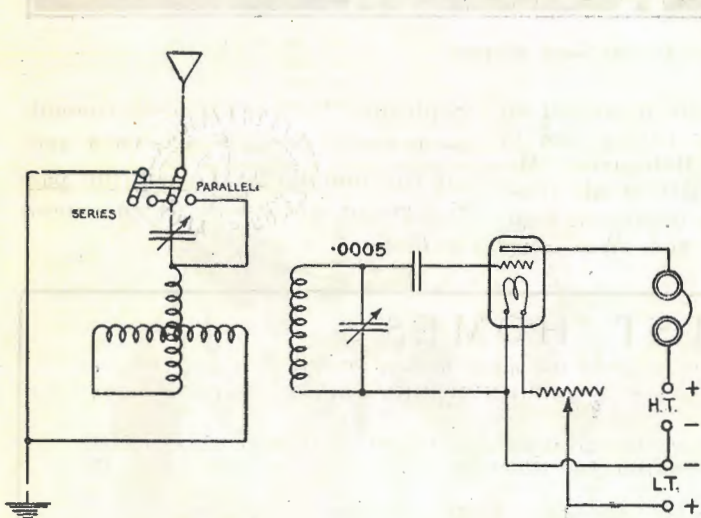
NOW that the new Broadcasting regulations permit open receivers using any kind of circuit, no doubt thousands of people will desire to buy the necessary component parts and assemble their own receivers. To assist such people "Radio" will, commencing this issue, publish regularly a series of diagrams showing the correct and most efficient way of connecting receiving apparatus. Hereunder appear the first four.



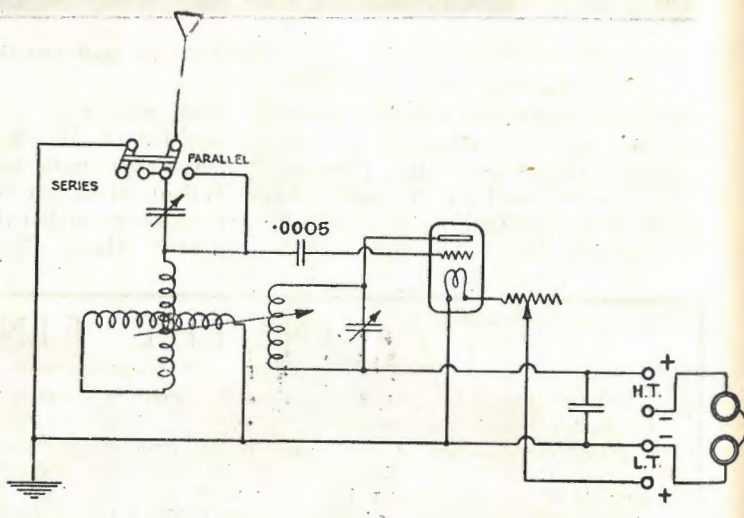
SIMPLE CRYSTAL RECEIVER



INDUCTIVELY COUPLED CRYSTAL RECEIVER



INDUCTIVELY COUPLED VALVE RECEIVER



DIRECT COUPLED
REGENERATIVE VALVE CIRCUIT

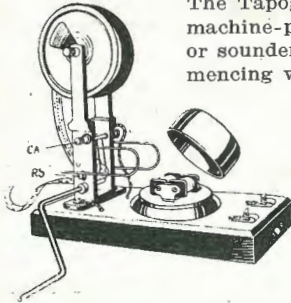
Values are not shown. It is recommended that beginners, after having decided on the set they want to build, go to their radio dealer and show him the circuit and tell him what stations they want to receive and he will then supply coils, etc., of the correct value.

*Learn the "MORSE CODE"
the "NEW" way.*

THE "TAPOGRAPH" MORSE INSTRUCTOR

will definitely teach you the Morse code at home, in your own time, with the least possible expense. No need for you to spend weeks and months de-coding the indifferent sending of another amateur or in attending classes of instruction.

The Tapograph will make you an efficient operator in a few weeks. A carefully designed series of machine-perforated tapes, containing perfectly-shaped signals, is used in combination with a buzzer or sounder. Each tape may be used hundreds of times, and contains from 1000 to 2000 signals, commencing with single letters at a slow rate and ending with complicated telegrams, radio calls, press and coded messages at a fast rate. Endorsed, used and recommended by Wireless Operators, Telegraphists, Post-office and Railway Officials everywhere.



Mr. WIRELESS AMATEUR, get this outfit at once. Do not be content to listen to broadcasting only. Tap the world's wireless messages and experience the thrills of catching messages from ships at sea, Australian, Coastal, American and Continental stations.

TELEGRAPHISTS and OPERATORS, begin right by learning to receive perfectly-timed signals in your spare time at home.

PARENTS, encourage your boy to take an interest in things electrical. The Tapograph is a most acceptable gift; it will amuse and instruct.

Price, complete with tape, high-toned buzzer, also valuable charts and instructions for learning the Morse code.

30s. each. Postage 6d. extra.

Obtainable from dealers
or direct from _____

G. E. BRAY
Particulars Post Free on Request.

Manufacturer's Agent, Box 781,
Somerset House, Martin Place, Sydney.

Columbia Radio Batteries Are the Best

COLUMBIA Radio Batteries have proven to be the best batteries for radio receiving sets that money can buy. They are made in different styles suitable for every radio equipment and will give more satisfaction than any other make.

Columbia Dry Cell "A"

COLUMBIA Dry Cell "A" Batteries for vacuum tubes of low amperage are made especially for this work. They will withstand the slow steady drain required and give satisfactory results for a much longer period of time than any other similar type of battery.

Columbia Storage "A"

For vacuum tubes of one-half ampere or over, the COLUMBIA "A" Storage Battery is ideal. It is shipped dry and charged and filled when sold, thus assuring a fresh, powerful battery. It is tightly sealed and contained in an attractive mahogany finished box with handles.

Columbia "B"

COLUMBIA "B" Batteries are made in 22½ and 45-volt sizes. They are equipped with Fahnestock Spring Clip Connectors to insure easy, secure connections. They are thoroughly insulated and waterproofed. They are portable, powerful and long lasting.

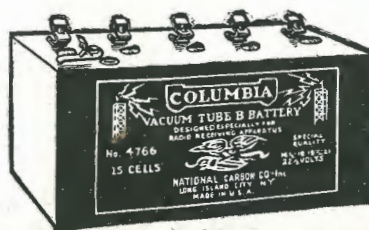
Columbia "Three"

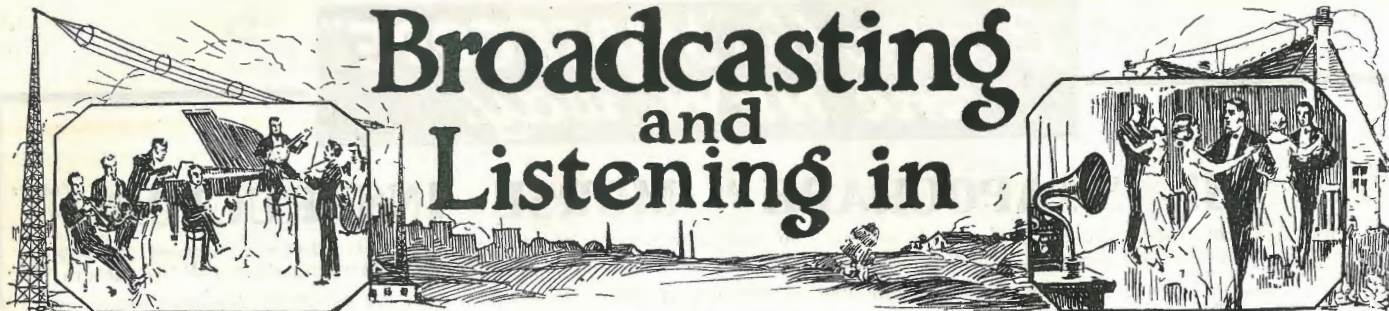
COLUMBIA "Three" Batteries are designed so that under certain conditions they can be used as an "A," "B" or "C" Battery. They are made of extra large sized cells, and are used as an "A" Battery for light, portable sets using UV-199 tubes; as a "B" Battery for obtaining additional plate voltage; as a "C" Battery for grid biasing.

COLUMBIA Radio Batteries for Every Radio Requirement

NATIONAL CARBON COMPANY, Inc.

30 EAST 42nd STREET, NEW YORK, N. Y., U. S. A.





Broadcasting and Listening in



ANADA has seven direction-finding stations in operation, the latest being opened at Yarmouth, Nova Scotia, by the radio branch of the Department of Marine and Fisheries. Attention is thus directed to the quiet work of development which has been going on for the past five years in connection with the application of radio to navigation. The code signal of the new station will be VAU. It is the third direction-finding station placed in commission within the last year and brings Canada's total up to seven. The list of stations is: Cape Race, Newfoundland; St. Paul's Island; Canso, Nova Scotia; Halifax Harbour; Yarmouth, Nova Scotia; St. John, New Brunswick, and Pachona Point, British Columbia. In addition, three automatic radio beacon stations have also been established during the year at Cape Ray, Newfoundland, and on the Heath Point and Lurcher lightships. Canada built its first direction-finding stations in 1918, and the accuracy and reliability with which they function is testified by the thousands of letters received from the navigators.

4CM, Dr. Val McDowall's Brisbane station, which in the past has done so much for the advancement of Radio in Queensland, and indeed Australia, has definitely closed down, and until some amicable arrangement can be arrived at. "I could not see my way clear to restrict the wave-length, as desired by the radio inspector," Dr. McDowall said to our Queensland representative the other day, "and so the station has been closed. In my opinion 4CM could not function efficiently on a wave-length restricted to the degree desired, and as I did not care to sacrifice efficiency, there was nothing left for me to do but to shut the station up."

ONE of the Sydney experimental stations of Amalgamated Wireless (A/sia.) Limited, while listening in recently on about 120 metres, intercepted the following signals:—YOKMC UU 1XZ. Following the call particulars of a message were intercepted, which indicated that 1XZ

call signals 1XZ is the call sign of the Clark University at Worcester, Massachusetts, located on the Northern Atlantic coast of America and the distance between the transmitting station and the receiver in Sydney is approximately 10,000 miles. Amalgamated Wireless (A/sia.) Limited cabled to the American Radio Relay League, giving details of the reception and received a reply stating:—"Reception verified. Mailing details." 1XZ is an American low-power experimental station.

2FC

BROADCASTING TIMES.

Sydney Mean Time.

Wave Length: 1100 metres.

Midday Session:

12.55 Tune in to the Studio Chimes.
12.58 Time Signals from Farmer's Master Clock (Sydney Observatory Time), Coastal Farmers' Market Reports, Stock Exchange Intelligence, Weather News, "Sydney Morning Herald" news and cable service, "Evening News" midday news bulletin.
1.15 Close down.

Afternoon Session:

3.30 Studio Chimes.
3.33 Musical programme by Farmer's Orchestra broadcast direct from Farmer's Oak Luncheon Hall. Numbers will be played at intervals to 4.45.
4.45 Stock Exchange, weather, afternoon news.

Early Evening Session:

6.30 Studio Chimes.
6.33 Children's Hour.
7.0 Dalgety's Market Reports, Fruit and Vegetable Markets, Stock Exchange, Late News.
7.15 Close down.

Night Session:

8.0 to 10.0 Entertainment.
See list hereunder.

EVENING ENTERTAINMENT.

As far as possible the following schedule is adhered to:—

Monday: Theatre Night.
Tuesday: Popular Concert
Wednesday: Jazz Night.
Thursday: Classical Night.
Friday: Popular Concert.
Saturday: Choral and popular numbers.

was communicating with South America. The reception was made through visible lightning and very strong atmospheric, but so clearly could the signals be heard through breaks in the atmospheric that the note of the station transmitting indicated a self-rectifying circuit. According to one of the latest lists of

RUMOURS have been current in radio circles, says *World Wide Wireless*, the staff journal of the Radio Corporation of America, that the recent expiration of one of the vacuum tube patents under which the Radio Corporation of America has manufactured and sold radiotron vacuum tubes, would legalize the manufacture and sale of three element tubes of present-day construction, generally. The Radio Corporation of America has issued the following statement which indicates that with the expiration of the patent the tube manufacturing will remain practically unchanged. It reads: "The expiration, on January 15, 1924, of vacuum tube patent, No. 841,387, will not permit the general manufacture, sale, importation or use of three-element vacuum tubes as generally constructed, in which the grid or its equivalent is interposed or located between the filament and the plate. This type of vacuum tube is still covered by U.S. Letters Patent, No. 897,532, under which radiotrons are manufactured and sold to the public. This latter patent has been sustained by the Courts, and unlicensed radio tubes have been held by the courts to be infringements of this patent. (Signed) Radio Corporation of America, 233 Broadway, New York."

DAVID JONES' SALE,

*The Greatest Event ever
launched by David Jones'
Special Radio Reductions*

Baldwin's Type "C" Loud
Speaker units, now 36/-

Grodan Loud Speaker
Horns, with 'Phone attach-
ment. Very suitable for
converting a Headphone
into an efficient Loud
Speaker 30/-

Baldwin Head Sets. Sale
Price £3/17/6

A.F. Transformer, Marle,
Sale Price 22/6

Airad, Sale Price .. 22/6

Master Condenser, plain
and Vernier—

.001 Vernier £2/2/-
.0005 Vernier £1/16/-
.001 Plain £1/12/6
.0005 Plain £1/6/-

In addition to the reduc-
tions above, there is a
further reduction of 2/- in
the £ on all Radio Goods
excepting a few proprie-
tary lines.

DAVID JONES'

RADIO SHOP,

252 YORK STREET, SYDNEY.

Type "B" Tuner	2s
3ft Strop Insulators	1/-
Amplifying Transformers, 3 to 1, Audio Frequency (unmounted)	10/-
3-inch Heart Thimbles	3d.
Ebonite Separators for glass Test Tubes	1d. each
Spring Switch Arms	2d.
Glass Test Tubes, with Lead Strips and Glass Separators	3d. each
Wooden Boxes	1/8 each
Instrument Feet	1d. each
1 P.O. Key	1s
Tin Lamp Shades	6d.
Wire Winders	3d.
Telefunken Buzzer Stands, with Ter- minals	5/-
Wooden Bases for Keys	1d.
Also quantity other Second-hand WIRELESS ACCESSORIES.	

Amalgamated Wireless (Australia'sia), Limited

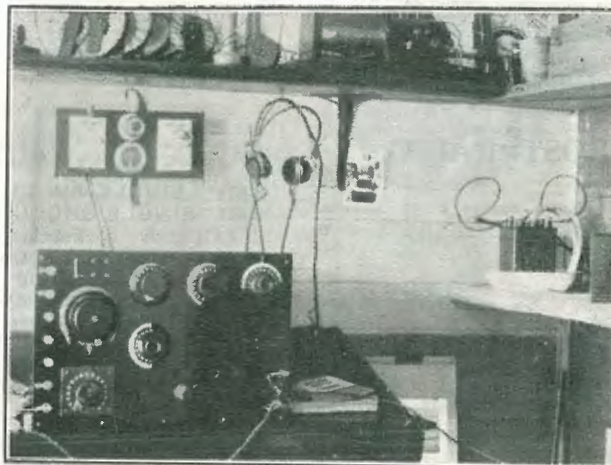
CONSUL AND RADIO FAN.

MR. K. de G. MacVitty, the Ameri-
can Consul, who resides at the
Grand Hotel, Auckland, is doing
some remarkably fine work with his
De Forest Reflex set, type D-10, and
using the loop only, often logs Cali-
fornian stations; his regular perform-
ance is astounding his visitors by giv-
ing them 2BL through the loud-
speaker, as well as Wellington and
Dunedin. Mr. MacVitty is in a bad
position to successfully operate so

beseiged by the usual inquisitive but
keen amateur who salutes him with
"Can I see your radio set, Mister?"

A LUCKY EXPERIMENTER.

MR. H. ANDERSON, of Waitakaru-
ru, Hauraki Plains (N.Z.), is at
present on a visit to Auckland and
in conversation with *Radio's* repre-
sentative, commented on the clarity
and volume with which he receives
the broadcasting from KGO and other
Pacific Coast stations. He stated that



In a letter to the Editor, Mr. C. D. Maclurcan forwards
a copy of a communication from Mr. D. G. Campbell, of
Kyogle, N.S.W., together with a photograph of his set,
which is reproduced herewith. Speaking of Mr. Camp-
bell, Mr. Maclurcan states that the Kyogle experimenter
has sent him the most complete log of the workings of
2CDM during the recent trans-Pacific tests that he has
so far received. It consists of four pages of foolscap and
has been most carefully compiled. Mr. Campbell logged
complete messages from 2CDM up to 1800 miles on one
valve.

sensitive a receiver, as he is situated
only a few feet from the hotel lift
which radiates induction and static
at about strength 100. (Not to men-
tion VLD, which is only a matter of
approximately 300-yards distant.)
This gentleman is certainly an excel-
lent example of the ardent radio fan.

'T WAS EVER THUS!

THE New Zealand Shipping Com-
pany's s.s. *Remuera* is at present
in port on her second visit to Auck-
land since she has had a DF set in-
stalled and the operators have been

where he is situated in the back coun-
try, there are no amateurs for miles
and consequently he is absolutely free
from any interference whatsoever.
This keen experimenter also receives
2FC exceptionally well, the whole
family thoroughly enjoying the con-
certs from this popular station, par-
ticularly the recent broadcasting of
"Sally," over which he was most en-
thusiastic. Nearly all Mr. Ander-
son's work is done with detector and
two stages audio-frequency, although
DX signals are obtained on detector
only.

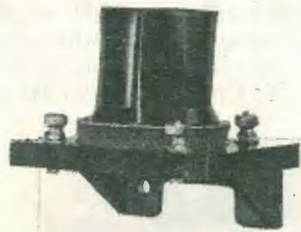
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No. 618, Bakelite-Sponge Shock Absorber Socket, Standard base, panel or table mounting 6/3

For 199 Tube 6/3

For those who wish a compact gang of three Shock-Absorber Sockets. The construction is identical with our separate sockets, except for base. For panel or table mounting.

FROST SOCKETS.

- 618 SINGLE SHOCK ABSORBER SOCKET, for Standard Valves ... 6/3
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- (All above sockets are made of Bakelite and have sponge rubber cushions.)
- 612 BAKELITE SOCKET, for C299 and UV199 Valves ... 5/-
- 100 BAKELITE SOCKETS for Standard Valves ... 5/-
- 619 3 GANG SHOCK ABSORBER SOCKET, for Standard Valves ... 24/6
- 616 3 GANG SHOCK ABSORBER SOCKET, for UV199, C299 ... 24/6

FROST RHEOSTATS AND POTENTIOMETERS

COMPLETE WITH TAPERED BLACK BAKELITE KNOBS, METAL PARTS HIGHLY NICKELLED, KNURLED TERMINALS, TECHNICALLY PERFECT.

- 650 RHEOSTAT, 6 ohm (Maroon Bakelite) ... 7/3
- 651 RHEOSTAT, 6 ohm Vernier (Maroon Bakelite) ... 9/6
- 652 RHEOSTAT, 35 ohm (Maroon Bakelite) ... 7/3
- 653 RHEOSTAT, 35 ohm Vernier (Maroon Bakelite) ... 9/6
- 600 RHEOSTAT 6 ohm Metal Frame ... 5/6
- 601 RHEOSTAT, 6 ohm Vernier, Metal Frame ... 7/6
- 602 RHEOSTAT, 35 ohm, Metal Frame ... 5/6
- 604 RHEOSTAT, 35 ohm Vernier, Metal Frame ... 7/6
- 654 POTENTIOMETER, 400 ohm (Maroon Bakelite) ... 9/6
- 605 POTENTIOMETER, 200 ohm, Metal Frame ... 5/6
- 603 POTENTIOMETER, 400 ohm, Metal Frame ... 5/6

FROST MISCELLANEOUS.

- 301 EXTENSION CORD, complete with Adapter and Plug, 20ft. ... 32/6
- 400 LOOSE COUPLER or Receiving Transformers ... 75/-
- 410 CRYSTAL TUNING COIL SLIDER (1100 metre range) ... 27/6
- 501 RADIO JACK BOX (for 4 plugs) ... 28/-
- 611 ADAPTER, for C299 or UV199 ... 5/6

FROST JACKS AND PLUGS.

NICKEL-PLATED, FORMICA INSULATION, NICKELED SILVER COMPACT SPRINGS, PURE SILVER CONTACT POINTS.

- 133 OPEN CIRCUIT JACK ... 4/6
- 131 DOUBLE CIRCUIT JACK ... 5/-
- 135 FILAMENT SINGLE JACK ... 6/-
- 136 FILAMENT DOUBLE JACK ... 6/6
- 126 NEUTRODYNE CIRCUIT JACK ... 6/6
- 140 PLUG, DOUBLE (2 connections) ... 5/-
- 139 PLUG, SINGLE ... 4/6

FROST MISCELLANEOUS.

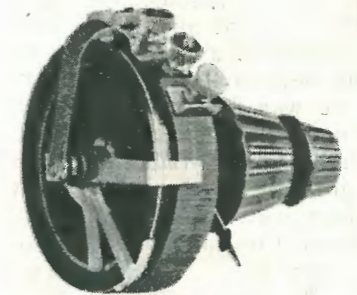
- 630 RESISTANCE UNIT, 35 ohm (to increase resistance) ... 3/6
- 631 INDUCTANCE UNIT (to increase wave length) ... 5/-
- 620 POTENTIOMETER SWITCH ... 5/-
- 621 PARALLEL SWITCH ... 5/-
- 608 PUSH-PULL BATTERY SWITCH ... 4/-

FROST HEAD FONES

STANDARD THE WORLD OVER.

- 161 FONES (Aluminium Head Pieces), 2000 ohm ... 32/6
- 171 FONES (Aluminium Head Pieces), 3000 ohm ... 37/6
- 172 FONES (Maroon Bakelite Head Pieces), 3200 ohm ... 45/-

THE MAGNETS IN FROST FONES ARE TREATED WITH COPPER TO PREVENT CORROSION BY MOISTURE AND SALT AIR.



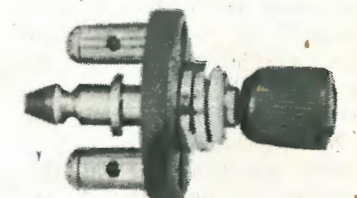
FROST RADIO.

FROST COMBINATION POTENTIOMETER- RHEOSTAT.

COMPLETE WITH KNOBS, ALL HAVE KNURLED BINDING POST CONNECTIONS, AND ARE TECHNICALLY PERFECT.

610 TUBE CONTROL UNIT, a combination of a 35 ohm Vernier Rheostat and 400 ohm Potentiometer ... 17/6

607 TUBE CONTROL UNIT, a combination of a 6 ohm Vernier Rheostat and 200 ohm Potentiometer ... 17/6



FROST RADIO.

608 PUSH PULL BATTERY SWITCH ... 4/-

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A FEW TERRITORIES OPEN FOR AGENTS.

28 CLARENCE STREET, SYDNEY.

HOBART

MANUFACTURERS OF HOME ASSEMBLY SETS

SEE ADVERTISEMENT ON PAGE 194.

PERTH — BRISBANE — ADELAIDE — MELBOURNE

- No. 600, Metal Frame Rheostat, 6 ohms 5/6
- No. 602, Metal Frame Rheostat, 35 ohms 5/6
- Same with Vernier 7/6
- No. 603, Metal Frame Potentiometer, 0.400 ohms 5/6
- No. 605, Metal Frame Potentiometer, 0.200 ohms 5/6

EACH OF THE ABOVE, WITH VERNIER, 7/6.

Experiments with 100 Metres

By D. B. McGOWN.

(By courtesy "Radio," San Francisco.)



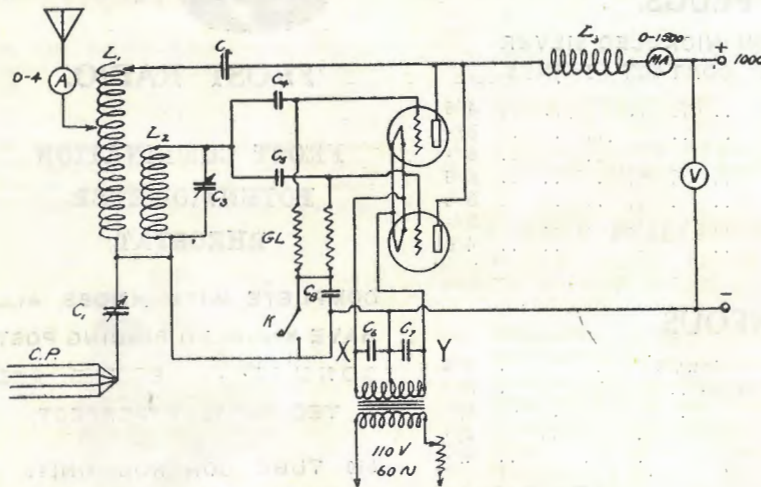
THE wave-lengths around 100 metres, and below, bid fair to become the most useful of all. They were used to a small extent by the Naval Service during the latter part of the war for inter-fleet communication, using spark apparatus. The Signal Corps Laboratory at Camp Vail furthered the development of the short waves, and finally the Westinghouse Company started op-

cept by special authority from the Department of Commerce. This authority usually takes the form of an experimental license, which, unfortunately, is not generally available to amateurs. It is hoped that some arrangements can be made whereby some small band of short wave-lengths can be assigned for amateur and private experimentation.

The chief problem in short wave work is to so reduce the wave-length

Brass porcelain rod insulators at each end. The lead-in was taken off the middle, making a T, and all four wires were brought down some 10 ft. from the middle, and thence led to two wires, which formed the lead-in. This antenna was suspended from two 50 ft. poles, giving a total length of 75 ft. from the lead-in to either end of the antenna. The counterpoise was made up of ten wires, each 65 ft. long, supported evenly across the width of 25 ft., supported about 8 ft. above ground. The station was located near the middle of the antenna, and beneath the counterpoise, so the antenna lead passes right through the latter. This doubtless causes a reduction in the effective height, but was the best that could be done under the circumstances. The natural period of this antenna to counterpoise was 145 metres, with a capacitance of 0.0008 mfd.

The antenna ammeter was an 0-4 ampere Weston thermo-couple instrument. Inductance L_1 was made up of 40 turns of No. 10 copper wire, with taps every third turn, wound in threads cut in a bakelite tube $\frac{1}{4}$ in. thick, the adjacent turns of wire being separated just enough so they would not short-circuit. L_2 is composed of 9 turns of No. 16 DCC wire on a 3.75-in. tube. L_2 was placed at the end of L_1 , and is, therefore, closely coupled to it. L_2 is shunted by the 0.0001 mfd. condenser C_3 . Condenser C_2 was of 0.01 mfd. capacity, and was built to withstand 6000 volts. This condenser must be of good quality and of high breakdown values, as it is required to stand the full potential of the plate supply, which will short-circuit if C_2 fails. Grid condensers C_4 and C_5 are ordinary Dubilier transmitting condensers, and are of the same type, but are of 0.004 mfd.



Circuit Diagram for 100 metre transmitter.

erations on a wave a trifle below 100 metres, which was used to broadcast from KDKA at East Pittsburgh for re-broadcasting from their other stations on longer waves. The first amateur two way transmission across the Atlantic was accomplished and carried out on about 100 metres between the station of F. H. Schnell, of Hartford, Conn., traffic manager of the American Radio Relay League, and the prominent French amateur, M. Deloy, at Nice, France.

These short waves are so valuable that no stations are permitted to operate anywhere below 150 metres, ex-

cept by special authority from the Department of Commerce. This authority usually takes the form of an experimental license, which, unfortunately, is not generally available to amateurs. It is hoped that some arrangements can be made whereby some small band of short wave-lengths can be assigned for amateur and private experimentation.

The writer has used the circuit known variously as the "reversed feedback," "Stanley," "British Aircraft," etc., as shown herewith the antenna was composed of four No. 10 solid copper wires, each 50 ft. long on 15 ft. spreaders, with 10 in. Ohio

COMPLETE PARTS
TO MAKE

LOOSE COUPLER CRYSTAL SETS

From 30/- each at

SMITH'S Radio Stores

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Opp. HOTEL AUSTRALIA, SYDNEY.

capacity each. Condensers C_6 and C_7 are of the same type, but are of 0.004 mfd. capacity each. The grid leaks GL were standard R. C. A. units, of 5000 ohms rated value.

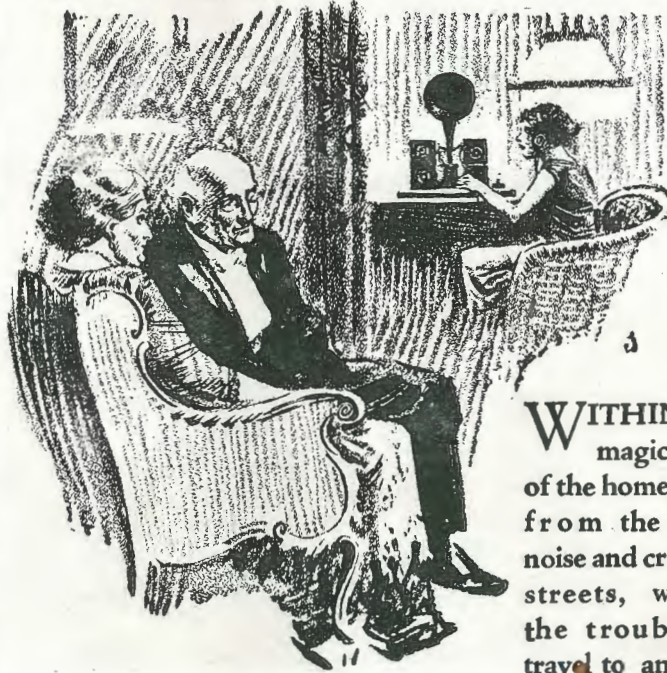
The set was intended for direct current plate supply, and alternating current filament supply. The first procedure in setting up such a transmitter is to mount the plate and grid inductances. The grid inductance should be so arranged that it can be turned through an angle of 180 degrees, as when first set up it may be of reversed "polarity" and no oscillations will be obtained. The various other instruments should be grouped as close together as possible, although not too close for convenient manipulation. The negative plate lead is led to the centre tap of the filament transformer, while the positive connection is made through choke coil L_2 to the plates of the tubes. L_3 is an unmounted honeycomb coil of 200 turns, and its function is to prevent the high frequency from getting back into the d.c. supply system. Filament control is accomplished by inserting a variable resistance in the transformed primary circuit. Keying is accomplished by breaking the grid leak, which permits the grid to charge up, and "block" the tube, thus preventing oscillation when the key is open. The key is shunted by condenser C_8 of 1 mfd. capacity, which eliminates howling at audio-frequency, which sometimes takes place when the key is open. A chopper could be inserted here in series with the key to produce "ICW" if desired.

The wave-length of the antenna, with but a few turns of L_1 connected in circuit, with condenser C_1 omitted, was in the neighbourhood of 175 metres. This was reduced to 100 metres by the series condenser C_1 , a variable air condenser made up of 101 plates separated by $\frac{1}{4}$ -in. washers so as to give $\frac{1}{8}$ -in. air space between plates. Its capacity varied between .0009 and 0.0011 mfd. After it had been adjusted to the desired wave-length it was locked in position. The first experiments were with one 50-watt tube which gave a radiation of 1.5 amp. with 1000 volts and 200 milliamps on the plate. With two tubes the radiation was 2.2 amp. with a.c. filament supply and 2.5 amp. with 10 volt d.c. The radiation, increases rapidly on higher wave-lengths, being

2.9 on 103 metres and 3.5 on 110 metres.

With this set the writer has carried on tests with numerous distant stations from San Francisco, Calif. For example, station 4XC, at Atlanta, Ga., was worked, with no trouble and without repeating, as if he were twenty miles distant. This is something that could not be done, except with great difficulty, on 200 metres. Various nearer stations were also worked in the Middle West and Canada.

The field between 150 and 175 metres offers almost as interesting a field for amateur research, and practically the same set could be used. The longer wave would require that the inductance L_2 be increased to about 15 turns, and, if a small antenna is used, C_1 might be cut out. Or, if a large antenna is used, a series condenser can be used, and the advantage of the greater height and capacity of the large antenna made use of and still the wave-length kept within the law.



WITHIN the magic circle of the home, away from the city's noise and crowded streets, without the trouble of travel to and fro,

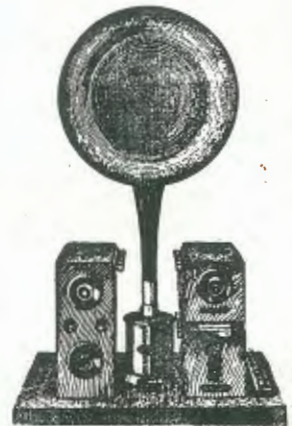
every form of entertainment is now brought right into that charmed home circle through the wonders of radio. Old and young can sit at home in their favourite chairs and hear the host of performers which are yours to command when you own

Western Electric RADIOPHONES

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Some New Radio Apparatus



THE prospective amateur wireless set builder will be glad to know the much-heralded Frost lines have now arrived in Sydney. This is a new line of necessary parts, such as sockets, rheostats, potentiometers, jacks, etc.

The rapid development and perfection of wireless throughout the world to-day is indebted greatly to the manufacturers of parts and equipment, who realised the necessity of exhaustive tests for efficiency, durability and simplicity in construction, and quality of materials used in such

of the socket in which the tube fits and makes contact with the four phosphor bronze contact springs is suspended from the actual base by $\frac{1}{16}$ in. thickness of sponge rubber. Flexible wire leads are used to connect the contact springs to the terminals, thus ensuring the tube absolute protection from any outside vibration or shock.

A pleasing design, embodying these numerous scientific features should make the Frost socket very popular with the set builders, who want maximum results without unnecessary expense.

a shaft bearing and mounting block, so by drilling a (single) hole in the radio panel, the rheostat or potentiometer can be mounted securely by the standard jack nut (which is supplied in each box). A strong spring is brought in contact with the end of the shaft, ensuring a perfect contact.

The newest feature in the Frost line is a combination of vernier rheostat and potentiometer, called in United States slang, "the Pot-Rheo." The mounting features are the same as described above, but an additional shaft and knob is used, giving separate control of either rheostat or potentiometer. This "Pot Rheo" can be used to advantage where conservation of space and money is necessary.

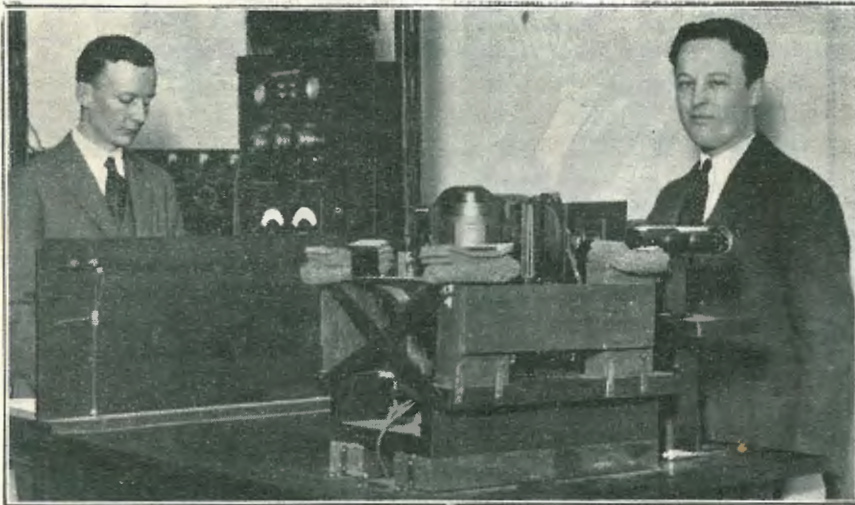
All metal parts of the Frost line are heavily nickelled and highly polished, large terminals are used throughout, and there is a rheostat and potentiometer for every need.

Frost plugs and jacks are standard. The jack is highly polished and nickel silver springs with silver contact points are used. Each spring is separated by formica, thus ensuring against leakage.

There are also three styles of the famous "Frost 'phones." These head sets have been tested and are very sensitive, light in weight, and comfortable when in use. The magnets in all these 'phones are treated with copper to avoid corrosion through moisture or salt air, making them extremely suitable to the climatic conditions of Australia.

There are also other Frost products, such as push-pull switches, tuning coils, adaptors, etc. They are all equally well made and the general appearance of refinement and strength should establish their sale with the amateur and manufacturer alike.

The United Distributing Co. are the exclusive distributors and the lines are advertised on pages 204 and 205. The Frost lines are sold at one fixed price by all large dealers. Call in and look it over. It will interest you.



Here is a machine which transmits or receives pictures from city to city. It takes on an average about five minutes to receive a picture from the sending station.

apparatus, before placing their final product before the public. Realising the above facts we will describe a few of the most important parts as manufactured by Herbert H. Frost.

The Frost "Shock Absorber Socket," for standard or 199 tubes, proves to be the long wanted improvement in socket construction to eliminate vibration and microphonic noises, and prolong the life of the most important part of your set—the tube. The Frost "Shock Absorber Socket" is made of heavily moulded maroon bakelite, singly and in gangs of three, each drilled for panel and baseboard mounting. The upper part

Rheostats and jacks are parts, the importance of which the average set builder is apt to overlook. Rheostats with loose shaft bearings or weak contact springs invariably cause an irregular flow of current through the filament of the tube, which produces grating or spluttering noise when tuning.

In designing rheostats and potentiometers, Frost has utilised many ingenious ideas, and has standardised them throughout all the full range of plain and vernier bakelite rheostats and potentiometers. The heavy threaded brass bearing has been cast in the bakelite mould, and is used as

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1. The Instructors are all highly qualified men, combining 20 years' practical experience on Sea and Land.
2. The School's equipment is of the very latest, and includes complete commercial installations.
3. Priority of appointment to the Students of the School is given in all vacancies occurring on board ships of the Australasian Mercantile Marine.

THE TIME FOR ENROLLING IS STRICTLY LIMITED,
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Marconi School of Wireless

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Our Letter Bag



BANANALANDER HEARS MUSIC AND SPEECH FROM KGO.

"I WISH to report that I logged KGO for the first time this evening (June 16)," writes Mr. B. Israel, of Bowen Terrace, New Farm, Brisbane (Q.). At 6.5 p.m. he heard: "KGO, California. KGO will continue broadcasting from St. Francis Hotel—" the rest of the speech being drowned by static. At 6.15 he picked them up again and held them till 6.25, in the course of which he heard orchestral music. At this time an oscillating valve near-by took things in hand and reception became practically impossible. At 6.30 speech was again heard but through the same interference he could not distinguish the words and eventually lost the station. Mr. Israel states that as Brisbane experimenters experience a great deal of interference it is a wonder that anyone can log long-distance stations, "So you can imagine," he says, "the amount of satisfaction I have got through being able to receive this station and being able to prove that DX stations can be worked by anyone willing to try hard." Mr. Israel has a six-valve set of his own construction but he logged KGO on one detector and two audio frequency only, using small spider-web coils with plenty of air-space.

TASMANIAN EXPERIMENTER DOES WELL.

RADIO is glad to announce the receipt of a letter from Mr. J. Stipek (7BE), of St. Helens Hotel, St. Helens, Tasmania, in which he states reception of the Californian broadcasting station KGO. To date, Mr. Stipek is the first experimenter from the Apple Isle, who has acquainted this magazine of his successful reception of the General Electric Company's station. The carrier-wave was heard shortly after 5 p.m. on June 15 and five minutes later the words, ". . .

WEST AUSTRALIAN AMATEUR "CARRIES ON."

The Editor,
"Radio."

Sir,—

After reading your Radiatorial in the issue of May 28, I was tempted to send you this report of DX (long distance) reception in W.A., and hope it is of interest. I can get some sort of result any night from both 2FC and 2BL, and on favourable evenings most of the announcements can be read. My best "phone" to date is from 5BQ, of Adelaide, 1,000 miles away. I can take every word he says any night he starts up, and must congratulate Mr. Jones on his clear speech. "Phone" from 5AH and 5AD has also been received, and from 6AG about 370 miles away. The following is a list of calls I have logged in CW, all these are readable O.K.: 2CDM, 2CM, 2DS, 2LO, 3BD (very strong), 2JU, 3DD, 3BH, 3BQ, 3JH, 3BU, 3DB, 3QW, 3AF, 3JM, 3EF, 4CK, 5BQ, 5AH, 5AC, 5AD, 5AA, 7BN, 6AG, 4AA (N.Z.), 1AX (N.Z.); 1AA (N.Z.).

The receiver is just an ordinary affair, and possesses few refinements, English valves are used—ORA, Ediswan AR, Marconi R and V24 have all been tried, with results about the same. I claim nothing remarkable in the above, no doubt many are getting better, perhaps this will induce them to let us know of it.

The credit is due to the transmitters who are getting such distances on their low-power. One thing, if they would sign more often when sending 'phone. It is annoying to hear a couple of good items, and then get, "How is it now, OM? Over." The transmitter should remember that someone hundreds of miles away is, perhaps, trying for them, as well as the chap around the corner. With the Sydney stations on full power, no difficulty should be experienced in logging them here.

I am,

Yours, etc.,

(Sgd.) C. SMETHURST.

18 White Street,
Kalgoorlie, W.A.

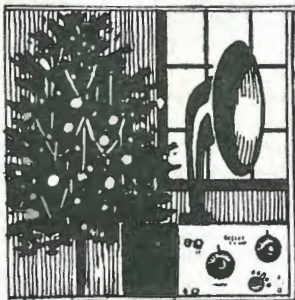
orchestra was plainly heard followed by an announcement at 5.21 p.m. that the music was being supplied by the orchestra in the dining-room of the Hotel St. Francis, San Francisco, and transmitted by station KGO, Oakland, California. During the earlier portion of the reception the music often faded out for quite ten minutes, but at other times it was very strong. From 6.30 p.m. onwards, the strength of reception was noticeably better and the station was held continuously till 7 p.m. "Fortunately," the Tasmanian experimenter says, "the announcements were very distinct and no possible mistake could have been made regarding the identity of the station, especially as I asked three other persons to listen-in (with extra 'phones) during the reception so that my report could be corroborated, if necessary. The closing announcement: "KGO signing off at 12.59 Pacific time—good-morning!" was particularly strong. A four-valve receiver was used—one stage radio frequency, detector and two stages audio frequency.

2FC HEARD IN TASMANIA.

ON a single valve set, Mr. A. T. Cotton, of "Kelvedon," via Triabunna, Tasmania, logs 2FC (Farmer's broadcasting station, Sydney) quite distinctly every evening. Every inflection of the announcer's voice can be distinguished, he writes, and musical instruments—especially the violin and piano—are very clear. He has also heard another broadcasting station which he believes to be 2BL but this comes in very indistinctly and keeps fading out entirely. He has not been able to catch the announcer's words chiefly on account of this indistinctness and also because of ship stations which he cannot succeed in tuning out. Mr. Cotton is adding two extra valves and intends to have a shot for KGO. (The best of luck!—Ed. R.)

Hotel, San Francisco," came through. Upon further tuning adjustments the

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RADIO BROADCASTING
SOLVES YOUR HOME
ENTERTAINMENT PROBLEMS



Every tone, every note clear and sweet. You can almost see the musicians swaying in time to the music. It's just as if the orchestra was right in the room with you.

"COL-MO" Broadcast Receivers are the last word in sensitivity, selectivity and simplicity. You need only to switch on the valves and set the dials for the station you want. The cabinet is of highest finish mahogany or walnut, and includes compartment for dry batteries.

The COL-MO is the ideal Radio Receiver for the home.

Prices.—Complete in every detail: CRYSTAL SETS from £3/10/-; VALVE SETS, one to five Valves, including Loud Speaker, etc., £14 to £75.

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PART I.—

If you want to design your own Set to meet your own special requirements on a sound, scientific basis, this Book will prove of inestimable assistance to you.

All the features of such Design Work are dealt with, and the information given can be thoroughly relied upon.

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PART II.—

Many experimenting amateurs have requested full mathematical data for design purposes, and this Section is devoted to Data and Actual Quantitative Design, as well as to a description of many simple High-frequency Measurements, which can be carried out by the experimenter.

New Developments, such as the ARMSTRONG SUPER-REGENERATIVE RECEIVER are also included.

Postage, 6d. Both Parts Post Free, 11/-.

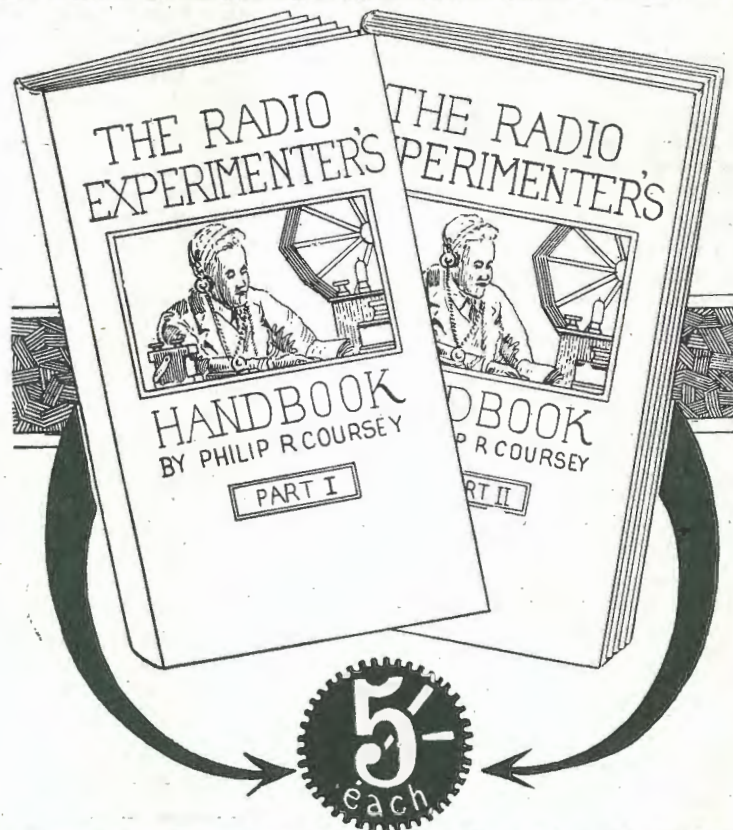
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LATE NEWCASTLE DISTRICT RADIO CLUB.

A SPECIAL GENERAL MEETING was held at the club-room, 25 Winship Street, Hamilton, at which Mr. Sward, President, occupied the chair. There was a full attendance of members. Mr. A. Cotton was elected to fill the vacancy of Publicity Officer. A scheme was formulated and adopted, whereby the Society will absorb the members of the recently-formed Hamilton Experimental Radio Club and thus centralise control of Newcastle amateur wireless activities. A committee of six was appointed to enquire into the question of holding a public demonstration for the purpose of augmenting the club funds. The committee will report its findings at the next meeting. It was also decided in view of the growing importance of the club as the representative body of experimental interests in the second largest city in the State to change its name to that of the "Wireless Society of Queensland."

MT. LAWLEY (W.A.) RADIO CLUB.

RECENTLY, at one of the buzzer practices, Mr. B. M. Randel, asst. secretary of the body, brought along a very compact three-valve set fitted with special low frequency transformers, and the members present had a very pleasant evening "listening-in." The speech and music were very loud and clear and free from the usual disturbances, this being due to the design of the transformers and type of circuit used. Recently a large number of members visited the Applecross Wireless Station. They were shown over the station by the Chief Officer, who explained the various working details of the installation in a most interesting and instructive manner. It is intended at an early date to pay a visit to the East Perth Electric Power House, and members are urged to attend the next general meeting in order to complete final arrangements for the outing.

SUBIACO (W.A.) RADIO SOCIETY.

THE first annual meeting was held recently, when the following officers were appointed for the ensuing term:—Hon. President, W. Richardson, M.L.A. (re-elected); President, W. B. Phipps (re-elected); Vice-Presidents, Messrs. G. H. Jackson, C. V. Powell, W. R. Groom; Technical Adviser, A. E. Grey; Treasurer, H. Hiddlestone; Hon. Secretary, B. Congdon (re-elected); Hon. Assistant Secretary, A. E. Grey (re-elected); Executive, Messrs. H. J. Jewell, G. E. Botterell, H. T. Yeates, M. S. Urquhart, G. C. Caird, R. W. Edwards, A. C. Horne.

HAVE YOU HEARD HIM?

The Editor, "Radio," Sydney.

Dear Sir,—

The following is a report of stations heard and worked by me during the last three weeks, which may be of some use to transmitters in other States. Worked: Z1AA, 7AA, 5DA, 7BK, 3BL, 3GP, 3BD, 2MB, 2HN. Heard: 6AG (West. Aus.), 3DD, 3BQ, 3GU, 3JH, 4GE, 4AA, Z2A1, 3AF.

I would be pleased to hear from any other amateurs in the country who hear me.

Yours faithfully,

LEN SCHULTZ (2LO).

"Warabu,"

Burns Bay Road,
Lane Cove.

DX.

The Editor,
"Radio."

Dear Sir,

I have installed a single valve receiving set at my home and I tuned in for the first time in my life one night recently, and in about a quarter of an hour I had VIS very plain, being readable about 3 ft. from 'phones. Since then I have heard the following Radio Stations:—VII, VIC, VIT, VIR, VIB, VIS, VIM, VIH, VIA, VIN, VIO, VID, VIP, and several ships including the s.s. "Orvieta" (MOJ), and (BSK?). I don't know who BSK is; if you could tell me I would like to know as I have heard the call several times. Stations outside Australia which were heard are:—PKX Malabarq, D. E. Indies; NPO Cavite Manila, NSS Annapolis, U.S.A. and NPM, Honolulu. I can read Morse sounder and buzzer about 25 words per minute. My aerial is as follows:—2 wires 3/22 six ft. apart 90 ft. long. The Aerial is swung between two poles 41 ft. and 31 ft. high respectively. I have also heard Townsville VIT in day-time, mostly about twelve o'clock (noon).

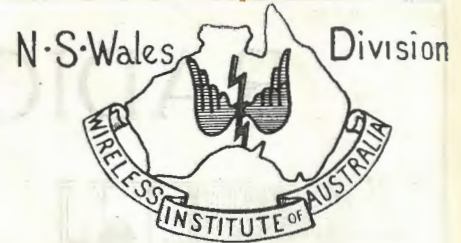
Wishing "Radio" every success.

Yours faithfully,

(Sgd.) WM. E. HAGARTY.

Kingfisher Street,
Longreach,
Central Queensland.

We have no record of such a station as BSK.—Ed. "R."



UNFORTUNATELY, in order to give Radio the opportunity of announcing the arrangements in time, notification that the Delegates' Council of Affiliated Societies with the Wireless Institute had arranged with the Australian Red Cross Wireless Committee, Bedford Park, Sturt, (S.A.), call signal 5BS, to transmit experimental test messages to N.S.W. amateurs did not reach this office until too late. However, messages were transmitted on July 13 and 20 from 10 p.m. to 11 p.m., Sydney time, and a further attempt will be made next Sunday evening at the same time.

RADIO RELAY LEAGUE.

ON Sunday night, July 20, the Radio Relay League under the auspices of the Delegates' Council of the Wireless Institute arranged that at 9.30 p.m., Sydney time, official station 2YI would call CQ N.S.W. transmitters. A special message was to be transmitted on a wave-length of 210 metres. All transmitters who received this message are requested to QSL 2YI, Phil Nolan, Hon. Sec., Radio Relay League, Box 3120, G.P.O., Sydney.

ESSENDON (V.) RADIO CLUB.

AT the recent radio exhibition held at the Melbourne Town Hall, this club was well represented, as two of its members gained first and second prizes respectively for the best complete stations. Messrs. Holland (3JH) and Chaffer (3XF) were the successful competitors. Both these experimenters have worked 4AA (N.Z.), while 3XF has been heard in W.A. Other activities of club members include the giving of radio concerts at various hospitals and church functions throughout the district. The first annual social will be held in the Regent Street Hall, Ascot Vale, on July 24, when apparatus made by members will be on view. All clubs are invited.

VICTORIAN IS SUCCESSFUL.

RECEPTION of KGO is reported by Mr. N. L. McKenzie, of Newfield (V.) on Sunday evening, June 29. "Although," he writes, "I had picked him up several times previously, this evening was the clearest to date, despite the fact that static was very bad. Just before one item of the programme was broadcast the announcer said: 'KGO, General Electric Company, Oakland, California. A tenor solo—Karl Anderson.' The song and the piano-forte accompaniment came in very clearly."

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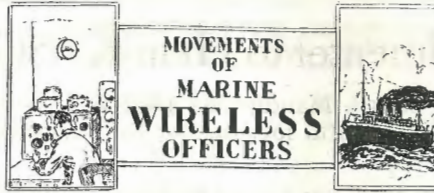
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JUNE.

Mr. J. P. Banney relieved Mr. E. F. Hayes on s.s. *Aroona* at Sydney, 10th.

Mr. T. E. Young relieved Mr. G. Pow on s.s. *Esperance Bay* at Sydney, 19th.

Mr. S. A. Figtree signed off s.s. *Merriva* at Sydney, 23rd, and terminated service.

Mr. S. Hamilton signed on s.s. *Merriva* at Sydney, 23rd.

Mr. G. J. Flynn signed on s.s. *Dukera* at Sydney, 23rd.

Mr. T. M. Alexander was relieved by Mr. E. S. Bales on s.s. *Loongana* at Melbourne, 17th, and proceeded on Home Port Leave.

Mr. G. W. Rowland signed off s.s. *Chronos* at Melbourne, 12th.

Mr. H. K. Wadsworth relieved Mr. R. P. Ginders on s.s. *Boonah* at Melbourne, 17th.

Mr. R. P. Ginders relieved Mr. J. C. S. Flanagan on s.s. *Period* at Melbourne, 18th.

Mr. N. W. G. Scott signed on s.s. *Komura* at Newcastle, 5th.

EXPERIMENTERS' RECEPTION
CONFIRMED.

MESSRS. PELL and MORGAN, of Bega, (N.S.W.), heard KGO in a manner really worth while on the evening of June 30. At 6.12 the orchestra was heard and this interrupted only by pauses between the pieces and the usual announcement was heard right up till 6.31. Here it was announced that a soprano solo would follow but any further details as to the identity of the singer or the title of the song were lost through static. A few minutes later another song was announced which sounded like, "Goo Goo Eyes!" This came in well, and at the conclusion of the ordinary announcement it was stated that KGO was speaking to New Zealand. The words "New South Wales" were heard but no sense could be made of the remainder of the remarks, although on another occasion "two thousand six hundred and forty-five miles" came in clear enough to be intelligible. The two experimenters received a letter from the management of the station KGO confirming reception.

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First Australian Experimenter to Hear KFSG; Who will be Next?



R. R. J. FAGAN, of Sunny Ridge, Mandurama (N.S.W.), well-known to readers of this magazine through his series of successful loggings of the American broadcasting station KGO, has gone one better.

ON the night of June 28 he unmistakably heard KFSG, the station of the Echo Park Evangelistic Association, Los Angeles, California.

AT 6.25 he heard music and then an announcement which he could not catch. Tuning finer he heard a baritone solo accompanied by the organ. The singer had a splendid voice, but Mr. Fagan could not recognise the item. The next announcement was to the effect that the selection following would be an organ piece of Hawaiian music. The speaker then went on to say that America owed Hawaii a debt for the sympathetic and plaintive music it produced and hoped that many Hawaiian listeners-in would hear the music. He said it would be played by the city organist. He also mentioned something about the Los Angeles Examiner and Echo, and said that they were transmitting from Los Angeles. The Hawaiian music that followed was beautifully rendered, the tone of the organ being magnificent. The next item was a tenor solo, but Mr. Fagan could not make out the full announcement owing to static, but he heard what sounded like, "The Old Rugged' (Hundred?). Static was now increasing, but the piece was heard to it conclusion when another organ piece followed, which was easily recognised as "The Lost Chord." A lady then spoke but her voice was very difficult to hear. The experimenter thought he heard her mention Canada and Australia at one time, but he would not vouch for it. At one period in the programme the announcer stated that the station was carrying out long-distance transmission.

NOW then, Experimenters! It can be done. Who is going to log them next? Go to it!

The Wireless Tests Held at Bourke (N.S.W.)

A SPECIAL COMMITTEE of the N.S.W. Public School Teachers' Federation, appointed by the Minister for Education recently attended the public school at Bourke, New South Wales, in order to investigate the possibilities of the reception of radio broadcasting in public schools, and to ascertain what receiving set or sets, at present on the market, could be reported to the Minister as being suitable and reliable in view of all circumstances.

An open invitation was extended to members of the Sydney Wireless Trade to participate in the tests, and several firms undertook to carry out the demonstration. The conditions laid down by the committee were that demonstrations should be given both in the daytime and at night; also, that sufficient volume should be obtained on a loud speaker to enable the broadcasting of Messrs. Farmer and Company or Broadcasters (Sydney) Limited, or both of them, to be clearly audible to everyone in an ordinary class-room of a size not exceeding twenty feet by twenty-four feet, and capable of accommodating fifty children.

The distance that had to be contended with—over four hundred

miles by an air-line—provided a searching test, which was the more severe owing to the fact that loud-speaker results had to be obtained during the day-time as well as at night. However, severe as the tests undoubtedly were, remarkable results were obtained with the simpler type of standard non-experimental broadcast receiving sets, as will be seen from the following particulars relating to the demonstrations given by the Western Electric Company.

The receiving set used by this company throughout the tests, consisted of their standard broadcast receiving apparatus.

Using a four-valve set employing a tuned anode circuit, and consisting of one stage of radio frequency amplification, a detector and a two-valve Western Electric power amplifier, with loud speaker, both Messrs. Farmer and Company's broadcasting station and also that of Broadcasters (Sydney) Limited, were received on an outdoor aerial of the single wire inverted "L" type, with considerably greater volume than was actually required by the conditions laid down.

Using an indoor aerial which consisted of a single wire stretched across the class-room, Farmer and Com-

pany's broadcasting station was received on the loud-speaker during day-light with such volume that not only was every word clearly heard by all within the class-room, but by persons outside in the roadway, over one hundred yards away from the school building, notwithstanding that the door of the class-room was closed.

In addition to the above results, KGO, the American broadcasting station was received, using a three-valve set consisting of one stage of radio frequency amplification, a detector, and one stage of audio frequency. The aerial was a single wire inverted "L" type, fifty feet high, tapering to forty feet at the lead-in end. Several Victorian amateurs were also received on this three-valve set, and also one Tasmanian amateur, 7AA.

When it is considered that Victorian and Tasmanian amateurs were transmitting on a very low power and the air line distances to Bourke were in the vicinity of nine hundred to eleven hundred miles, the results obtained on a simply controlled commercial receiving set were most remarkable, almost as remarkable indeed, as the reception of KGO, California, on the same apparatus.



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DEAR READER! WHEN YOU HAVE FINISHED WITH THIS COPY OF "RADIO" LEND IT TO A FRIEND — DON'T KEEP A GOOD THING TO YOURSELF!

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H.A. (St. Kilda). Q.: Are Marconi "R" valves satisfactory as detectors?

A.: Yes, these are good all-round valves, both as detectors and amplifiers.

Q.: What make of H.T. battery do you recommend, and what is the cost of same?

A.: "Hellesen" are very satisfactory. The price of 60 v. battery is 21/-.

Q.: How can an H.T. battery be tested?

A.: By voltmeter when on load. If no appreciable drop in voltage cell is O.K.

J. V. W. (Donald, Vic.). Q.: Is the use of lighting mains as aerial practical, if so, what capacity condenser should I use in series, and should it be variable or fixed?

A.: Yes. A special appliance is on the market known as the "Ducon"; no extra apparatus is necessary.

Q.: What companies other than 2FC and 2BL are broadcasting in N.S.W.?

A.: We do not know of any who transmit regularly.

Q.: I am constructing a two-valve set, should I use radio or audio amplification?

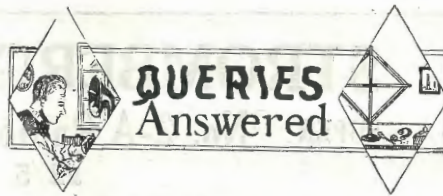
A.: Use 1 detector and 1 audio for local stations or 1 radio and 1 detector for distant stations.

Q.: Which are the most satisfactory, basket or spiderweb coils?

A.: Either is O.K.

E. P. D. (Avondale) Q'land. Q.: In making up spider-web coils, what size wire would be best, also number of turns on primary, secondary and tickler to receive 2BL?

A.: With a mean diameter of 2in. and parallel primary and secondary condensers of 0.001 and 0.0005 m.f. respectively use:—Primary 25 turns, secondary 50 turns, and tickler 50 turns. This will enable you to tune approximately between 300 and 500



metres with the above-mentioned condensers.

Q.: Do you think there is too much metal on the "Advance" H.C. holders?

A.: No. The only effect of excessive metal plugs is that the distributed capacity is increased slightly, and for short wave work this is not desirable.

In order to avoid unnecessary delay all letters containing questions to be answered in this section must, in future, be endorsed "Queries Answered" on the top left corner of the envelope. Readers, when writing, are requested to number their questions, phrase them as briefly as possible, and write only on one side of the paper. It should be remembered that it is impossible for us to estimate the ranges of reception of experimenters' sets, as the controlling conditions vary so considerably.

W. R. J. (Brisbane). Q.: What length, gauge and make of resistance wire is necessary to wind a 30 ohm rheostat?

A.: Use 7 to 8 feet No. 30 S.W.G. bare nichrome.

Q.: Would a double wire aerial improve long distance reception, instead of present single wire?

A.: No.

Q.: Would the natural wave-length of the aerial be increased?

A.: No.

R. O. (Rutherglen, Vic.).—Your query is too indefinite, please state the upper limits of wave-length you desire to tune in. The ratio of wave change by variometer alone is usually 2 to 3: 1, depending on the mechanical construction. Do you intend using the variometer in crystal or valve work? If so, in what circuit?

C. K. W. (Tenterfield). Q.: Have received 2FC on a simple crystal single circuit receiver, 450 miles air line, announcements clear and distinct. Is this good reception?

A.: We must compliment you on your excellent reception. This station has also been heard in New Zealand and Hobart on crystal.

Q.: What power is 2FC transmitting on?

A.: 5 Kw.

Q.: Which is the best H.F. amplifier, "Q" or "QX," with 160 and 60 volts on the plate respectively?

A.: "QX."

Q.: Will a "V24" stand 80 volts on the plate, and what is the necessary grid bias?

A.: Yes. Approximately six volts negative.

Q.: What amplification per stage tuned transformer coupled should I expect using the following valves:—"V24," "Q," "QX," "Mullard KA" and "UV199"?

A.: The determination of amplification at radio frequency is complicated owing to distributed capacity effects, which reduce the effective impedance inversely as the wave-length is altered.

"Regular Subscriber" (Cessnock).—We can offer no help beyond the use of coupled circuits and counter-poise earth.

New Zealand Call Signs

AMATEURS AND BROADCASTING STATIONS.

1AA (d) Edwards, Cecil Norman, Auckland. 50 watts, 180, 170, 160 metres.
 1AB (e) Penny, Victor George, Auckland. 5 watts, 140 metres.
 1AC (d) Spackman, Leonard Storkey, Auckland. 20 watts, 155, 165, 175 metres.
 1AH (d) Hartle & Gray, Auckland. 50 watts, 175, 165, 155 metres.
 1AI (e) Goodwill, Charles Seivier, Hamilton. 5 watts, 140 metres.
 1AK (e) Claxton, William Harry, Thames. 5 watts, 140 metres.
 1AL (d) Mulvillihill, Thos. Henry, Auckland. 20 watts, 160, 170, 180 metres.
 1AM (d) Hamilton Amateur Radio Club, Hamilton. 50 watts, 155, 165, 175 metres.
 1AO (e) White, Russell Garland, Auckland. 5 watts, 140 metres.
 1AQ (e) Sommerville, Aymer Alexr. Thames. 5 watts, 140 metres.
 1AR (e) Hobbs, Frank Beesely, Hamilton. 5 watts, 140 metres.
 1AS (e) Grainger, Ralph Eric, Auckland. 5 watts, 140 metres.
 1AU (e) Aubin, Rolf Ernest Lempriere, Auckland. 5 watts, 140 metres.
 1AV (d) Bingham, John Merton, Auckland. 50 watts, 160, 170, 180 metres.

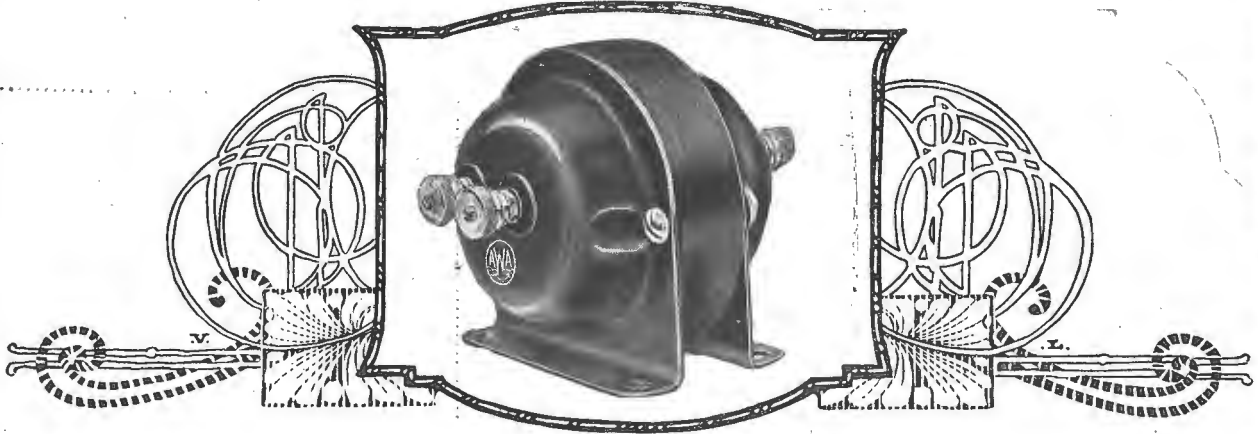
x1AW (e) Maxted, Robert, Thames; 5 watts, 140 metres.
 1AZ (e) Sherson, James Reginald, Hamilton. 5 watts, 140 metres.
 1YA (a) Auckland Radio Service Ltd., Auckland. 500 watts, 260 metres.
 1YB (b) Pearson, Charles Henry (on behalf of Newcombe Ltd.), Auckland. 500 watts, 260 metres.
 2AB (e) Wilkinson, Dan, Motueka. 1 to 5 watts, 140 metres.
 2AC (d) O'Meara, Ivan Henry, Gisborne. 50 watts, 155, 165, 175 metres.
 2AD (e) Stevens, Percy Ronald, Gisborne. 5 watts, 140 metres.
 2AE (e) Patty, Robert James, Gisborne. 5 watts, 140 metres.
 2AF (d) Sinclair, William John, Gisborne. 50 watts, 150, 165, 175 metres.
 2AH (d) Wanganui Amateur Wireless Club, Wanganui. 50 watts, 155, 165, 175 metres.
 2AI (e) Harrison, Walter Leslie, Wellington. 5 watts, 140 metres.

2AJ (e) Bransgrove, Thos. Henry, Stratford. 5 watts, 140 metres.
 2AK (e) Rowson, Leslie, Hawera. 5 watts, 140 metres.
 2AL (e) Edwards, Walter George, Shannon. 5 watts, 140 metres.
 2AM (e) Buist, Wm. Fredk. (Dr.), Hawera. 50 watts, 180, 170, 160 metres.
 2AO (e) Brunette, Gordon Albert, Opunake. 5 watts, 140 metres.
 2AP (e) Collier, Percy Charles, Wellington. 5 watts, 140 metres.
 2AQ (d) Coutts, Morton Wm., Taihape. 50 watts, 155, 165, 175 metres.
 2AR (e) Clarkson, Thos. Reynolds, Hastings. 5 watts, 140 metres.
 2AS (d) Simpson, Albert Edward, Wellington. 15 watts, 160, 170, 180 metres.
 2AU (d) Innes, Ian Joseph, Nelson. 50 watts, 160, 170, 180 metres.

x — Advice of issue not received from the District Telegraph Engineer.

- (a) Toll Broadcasting Stations.
- (b) Private Broadcasting Stations.
- (c) Experimental Stations.
- (d) Transmitting and Receiving Stations, Grade I.
- (e) Transmitting and Receiving Stations, Grade II.

(To be continued.)



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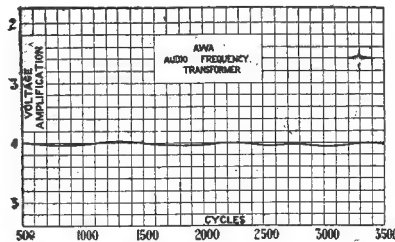
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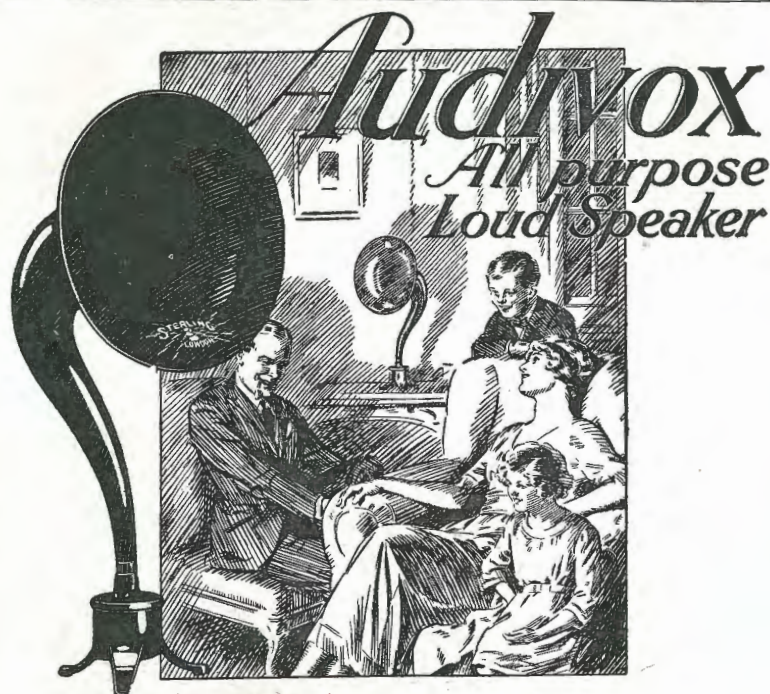
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