THE AUSTRALASIAN

Radio World

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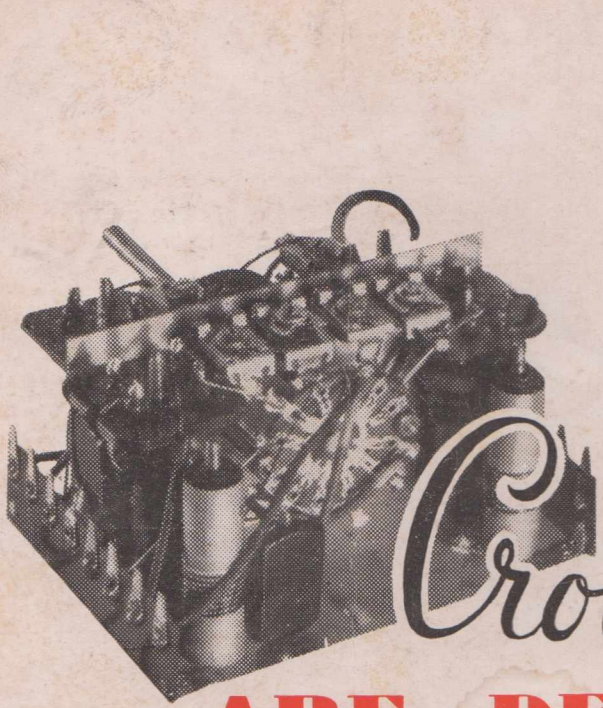
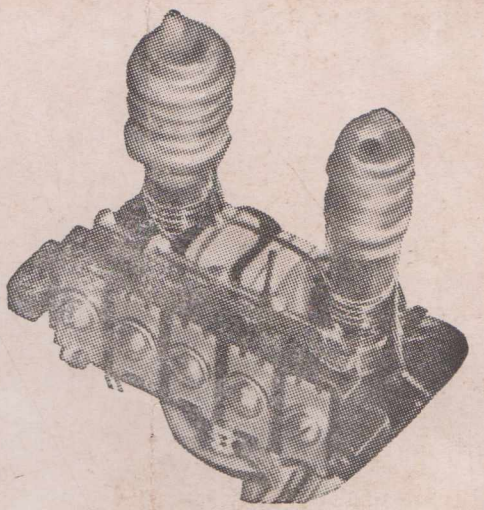
DECEMBER 15, 1947





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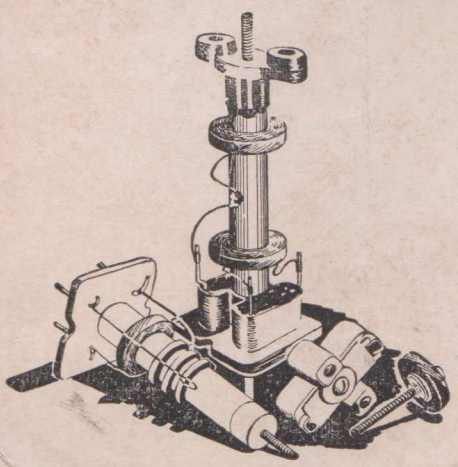

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EDITORIAL

"What do you think about the disposals business?" is often asked. There are many angles to it. To the up-country buyer who has visions of bargains, I suggest the greatest of care. If a piece of equipment is advertised as "brand new," then it should be O.K., but there are tons and tons of stuff lying about which is simply salvage gear which was worn out in service, and then left lying under a jungle tarpaulin for a couple of years before being returned to Aussie.

Next I would remind you of an old Scotch proverb about nothing being cheap if you don't need it and can't find any use for it. So many fellows buy bargains for no other reason than that they appear to be bargains, then find no possible application for such gear.

Then there is an angle of deeper ethics: what of the future? What is to become of the radio factories which make components for enthusiasts if enthusiasts are going to spend most of their money with the disposals people? When you buy a branded-line component, a portion of your money goes to the development laboratory where the components of the future are being designed. I happen to know of one large organisation which planned to market a lot of ideal "ham" gear, then decided that experimenters are putting all their money into the junk shops, so scrapped these plans. It makes a poor outlook for the future.

To all my readers—A Merry Christmas and a Happy New Year.

—A. G.HULL.

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STANDARD INTERMEDIATE TRANSFORMERS

460 K.C. INTERMEDIATE TRANSFORMERS

IF162 Intermediates 1st Stage Perm. Iron Core 13 9

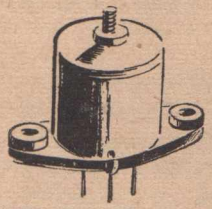
IF163 Intermediates 2nd Stage Perm. Iron Core 13 9

IF164 Intermediates Low Gain Perm. Iron Core 13 9

175 K.C. INTERMEDIATE TRANSFORMERS

IE74 175 K.C. Permeability Iron Core 1st 13 9

IE75 175 K.C. Permeability Iron Core 2nd 13 9



MIDGET BROADCAST COIL

Dimension 1" x 1"

E352 Midget Magnasonic Iron Core permatune Aerial Coil 6 6

E353 Midget Magnasonic Iron Core permatune Aerial Coil 6 6

E354 Midget Magnasonic Iron Core

E355 Midget Magnasonic Iron Core permatune Osc. 6 6

permatune Osc. 6SA7 valve 6 6

STANDARD COILS . . . . . Dimensions 1-3/8" x 1-3/8" x 1-1/2"

SUPERHET. COILS

E342 Aerial Coils, H gang Air Core 6 6

E343 R.F. Coils, H gang Air Core 8 6

E343 R.F. Coils, H gang Air Core .. 6 6

E344 Osc. Coils, H gang Air Core 6 6

E345 Aerial Coils, H gang Iron Core Permatune 8 6

E346 R.F. Coils, H gang Iron Core Permatune 8 6

T.R.F. COILS

T81 Reinartz Coils, H gang Air Core 5 6

T87 R.F. with Reaction, H gang Air Core 6 6

T88 Aerial Coils, H gang Air Core 6 6

T89 R.F. Coils, H gang Air Core 6 6

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A concentrated polystyrene lacquer for impregnating all components against humidity, climatic changes, etc. Also invaluable for holding coil turns in place and anchoring ends of coils. An excellent seal for iron core screws and other similar purposes. Every radio engineer and amateur should have a bottle standing by.

LOOP AERIAL COILS

Here is a positive technical advance upon ordinary loop aerial coils. The R.C.S. unit which is wound on a polystyrene spoked former has the aerial trimmer attached to the actual coil. This enables the aerial coil to be lined up after both the chassis and the loop aerial have been fitted into the cabinet. This, in effect, means that every R.C.S. Loop Aerial Coil can be individually lined up with the chassis with which it is used, a feature which must have a great benefit upon consistent performance.

F125 Standard 6" diam. 7 6

F126 Standard 4" diam. 7 6

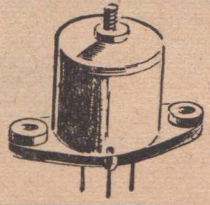
COIL FORMERS, 6 PIN PLUG IN

These transparent coil formers are moulded from polystyrene powder. They are engraved for frequency and type and indented for color spotting. May also be grooved for space winding. Socket pins are heavily nickel plated.

Type 124 .... 1¼" dia. 3 3

Type 125 .... 1½" dia. 3 5

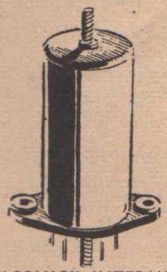
MIDGET SHORT WAVE COILS



H121 S/W 13-42 metres. Iron core Aerial Coil 5 0

H122 S/W 13-42 metres. Iron core R.F. Coil 5 0

H123 S/W 13-42 metres. Iron core Osc. Coil 5 0



"MAGNASONIC" INTERMEDIATE TRANSFORMERS . . dimensions 2" x 1"

IF168 Midget Iron Core Permatune 1st 12 6

IF169 Midget Iron Core Permatune 2nd 12 6

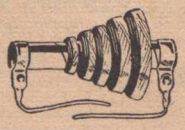
RADIO FREQUENCY CHOKES

RF106 Vibrator Low Tension, R.F. Chokes 4 3

RADIO FREQUENCY CHOKES

RF81 Silk H.C. R.F. Chokes 1 9

RF85 Cotton H.C. R.F. Chokes 1 6



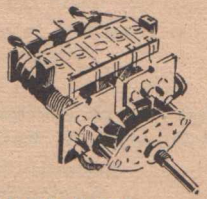
RADIO FREQUENCY CHOKES

RF82 3 Pie 1.7 M/H R.F. Chokes 4 6

RF83 4 Pie 2.5 M/H R.F. Chokes 4 6

RF84 5 Pie 4.0 M/H R.F. Chokes 4 6

RF85 6 Pie 7.0 M/H R.F. Chokes 4 6



DUAL WAVE UNITS

Type DW29—broadcast, short wave 34 0

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ELECTRONICS IN METEOROLOGY

ELECTRONICS in meteorology is now a well-established and essential factor to assist the modern meteorologist. With advance in aviation, the prediction of behaviour of upper air atmosphere is just as paramount as that of surface observations, and to determine these factors one instrument used is a Radiosonde.

By

C. YEOMAN

(VK3CY)

43 Bayview Crescent, Black Rock, Victoria

The Radiosonde is a miniature automatic weather station. It is battery operated and is carried aloft by the means of a hydrogen balloon. It will rise to between 10 and 15 miles where it will burst as the result of reduction of atmospheric pressure. A small parachute will open and the instrument is carried to the ground, and reclaimed.

The Radiosonde consists of two parts. Firstly, we have the meteorologically sensitive elements, which respond to pressure, temperature, and humidity of the air, respectively. The second is the transmitter which automatically transmits this information.

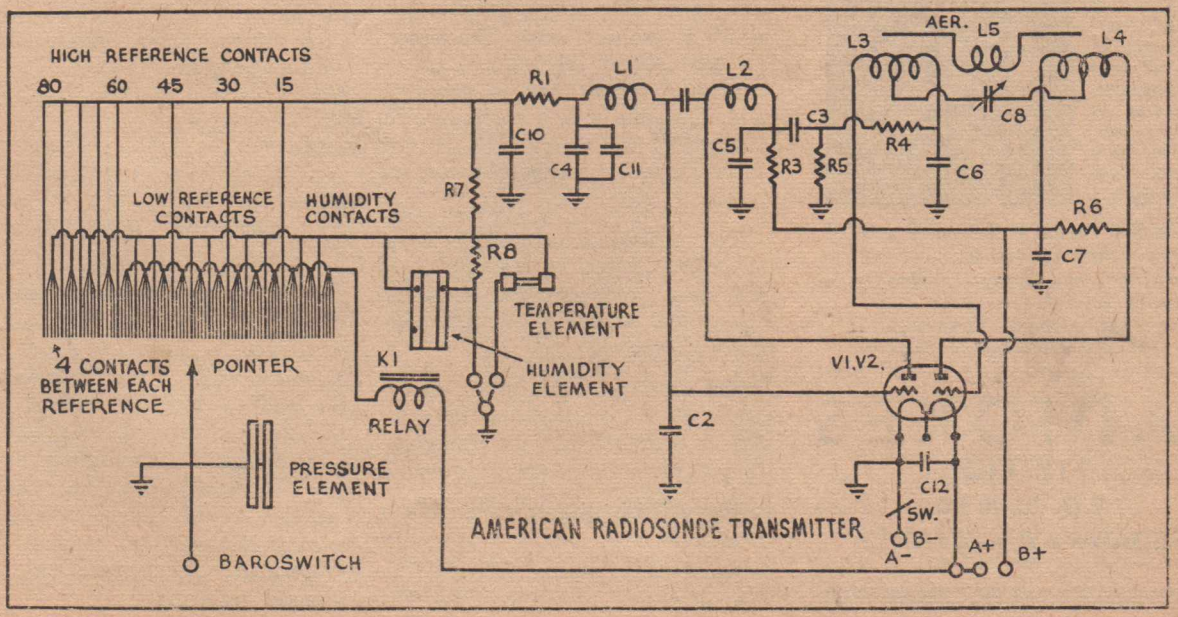
Today we find two methods of modulated audio frequency in general use. One is as used by the Americans and also in Australia, and the other as used by the British. First of all we will take the method used in America.

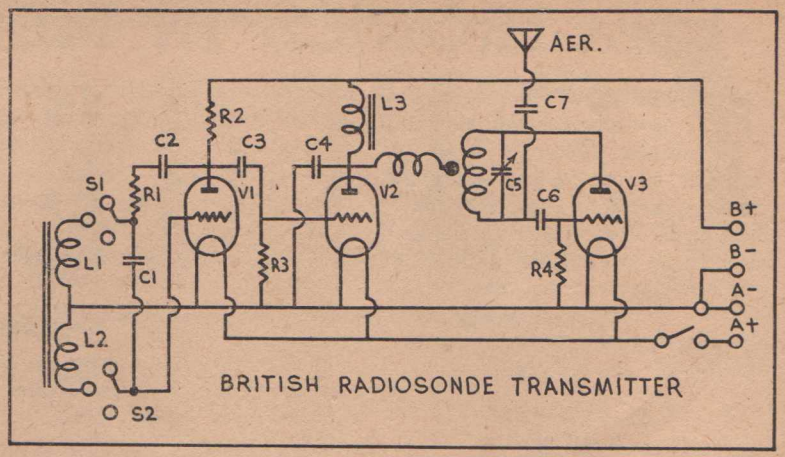
This method the temperature and humidity elements are in the grid circuit of the transmitter. The temperature element is a ceramic resistor which has a large negative temperature co-efficient. The humidity element consists of a plastic strip with metallised edges, and coated with a salt. The resistance between the two metallised edges varies according to the humidity or the wetness of the salt film coating. The pressure element is an aneroid capsule which has an indicating arm attached. This arm sweeps a series of contacts as the pressure encountered decreases or increases. This unit is known as the Baroswitch and also performs the functions of switching into the radio circuit the temperature element, humidity element, and the reference resistors in correct order. The transmitter circuit employs a twin triode in which one of these triodes acts as a modulating oscillator operating on a frequency of approximately 72 megacycles per second. The oscillator is of the trigger type, oscillating at the frequency of the tuned circuit formed by the grid coil L1, and the plate coil L2, and the condensers C1, and C2. The oscillating frequency is approximately 1 megacycle, and is intermittent, being controlled by the resistant capacity circuit C1, R1, R8 and R7, the temperature element and humidity element. Therefore the frequency of the stopping and starting of the oscillating gives a measure of temperature and humidity of the Radiosonde.

Two types of receivers are used for reception of the above signals transmitted. One is an American and the other an Australian.

The American ground equipment is a V.H.F. super-regenerative receiver in which the output is fed

(Continued on next page)





BRITISH RADIOSONDE TRANSMITTER

METEOROLOGY
(Continued)

into an electronic frequency meter and recorder which measures and records the audio frequency of the signal received.

This electronic frequency meter is operated on the principle of applied voltages giving rise to a proportional pulsating direct current which operates a micro-ammeter.

The recorder uses a photo electric cell scanning device, the beam of which is interrupted by the pointer of the microammeter. This pointer is synchronised with a one (1) turn helix which rotates beneath a recorder chart. The action is such that as the beam is interrupted a tapper bar is actuated and the helix is in a position with relation to the meter as to record a corresponding value on the chart paper.

The Australian receiver is a superhet, in which the output is fed to a frequency counter, and thence to a null point potentiometer recorder.

The charts are read by the Radiosonde operator, and the information is passed to the Central Weather Bureau, and other aerodromes.

The British system as an audio modulted type, and is a specially designed three valve transmitter of high stability towards any temperature change, and thus avoids the need for employing frequency reference values throughout the flight. The transmitter is as illustrated and operates on a frequency band between 27.5 mc. to 27 mc. per second. This equipment, unlike the American, does not use a frequency, but beats the received signal with the output of a Tuning Fork controlled variable audio oscillator. When the signal corresponds a reading is taken. This is usually done with a pair of earphones, and a Cathode ray oscilloscope. During the commencement of the flight the meteorological elements are switched into the circuit every six seconds, which means the operator has to do the necessary tuning of his beat oscillator within this period.

* * *

BRITISH LICENCES

A decrease of 28,550 in the number of broadcast receiving licences in force in Great Britain and Northern Ireland was recorded at the end of May. The total was 10,782,000 compared with 10,810,-550 in April. The March figure was 10,780,400. The May figure includes 18,850 television licences. During May 525 set owners were prosecuted for operating unlicensed receivers.

EXPERIMENT IN DE-CENTRALISATION

Some details of the Radio World's new home

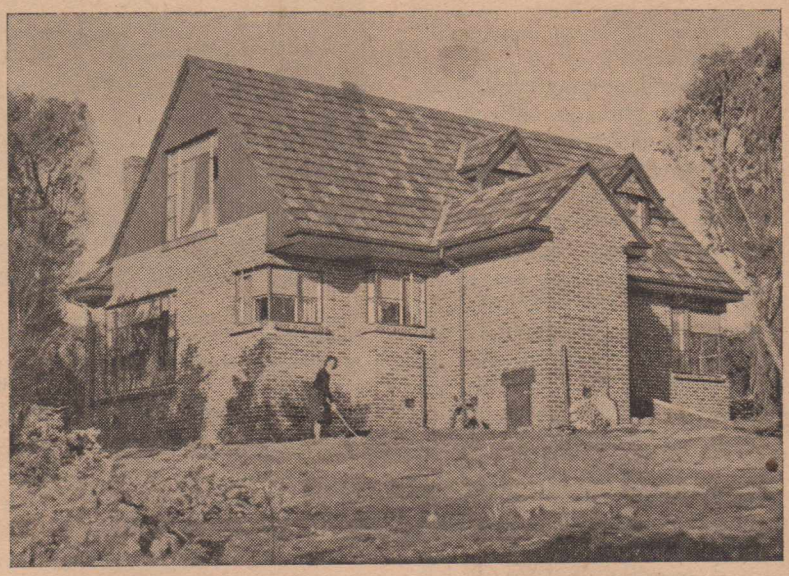
FOLLOWING a practice which is common in other parts of the globe, Australasian Radio World operates from a de-centralised location, and many readers appear curious to know just what the offices look like. So here are some photographs of the place. The situation is a scrub-covered portion of the Beleura Hill, overlooking the bayside holiday resort of Mornington, 33 miles from Melbourne.

Peace and Quiet

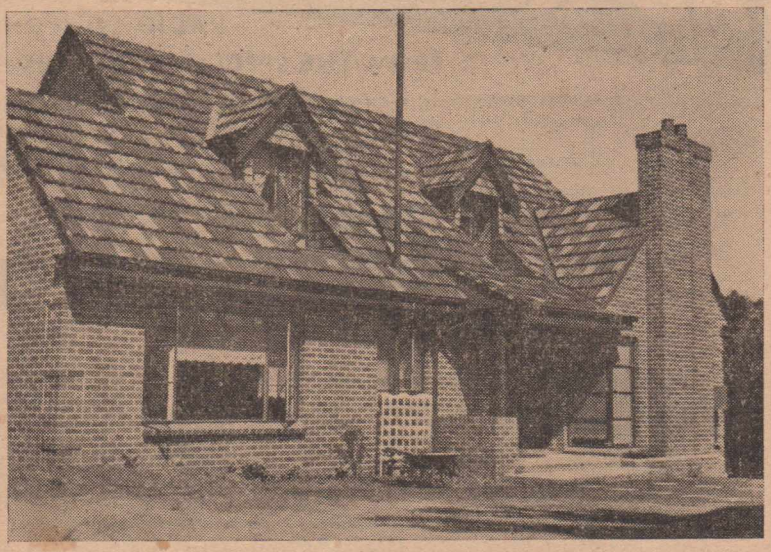
People from all over the state of Victoria save up their money in order to enjoy spending their holidays at Mornington, so your Editor thought that it would be a good idea to pick this spot in which to spend the rest of his life.

Ideal Layout

As will be seen from the photographs a modern little building has been built to form a combination home and office. Compactness has been an important factor, so the whole of the ground floor is devoted to living quarters, with the office, radio laboratory and workshop upstairs in an attic, which is 50 feet long and 18 feet wide.



Built on a slope, the rear part of the house stands well off the ground, as will be seen from this photograph, taken from the kitchen garden.



The home is built in a fairly small clearing cut out of the dense scrub, but there is room for a couple of wide lawns on the level in front. Balcombe Street is just a twisty bush track which dwindles into the scrub.

Laboratory equipment is not elaborate as it is not intended to go too far beyond the range of the ordinary reader, who works mostly on a kitchen table or at a modest test bench. However, a good signal generator has been installed, the latest in valve testers, an electronic multi-meter, oscilloscope and so on.

Sets In Use

Radio equipment in use includes a communications-type short-wave receiver, high-fidelity broadcast receiver for the locals and the original F.F.R. amplifier for gramophone reproduction.

Location

The building is about half a mile from Mornington, which might be thought a rather stick-in-the-mud place, but this is mainly due to the old-world atmosphere. You can get courtesy in the shops there; the folks are friendly.

Climate, like that of Melbourne, tends to be on the wet side, but

(Continued on next page)

DECENTRALISATION
(Continued)

you soon get the idea of referring to rain as "nice shower for the garden" rather than as something unpleasant. The winters are fairly cold, too, but who cares when you can get a seven-ton load of wood very cheaply and you have a big open fireplace?

Reception Conditions

Radio reception conditions are wonderful compared to most suburban locations. Any good set will bring in 27 stations at good volume right throughout the day, with no interference noise, as might be expected from the last run of the electric power line. The hams on 50 megacycles come through well on a Kingsley converter, and the experimental F.M. transmissions from Jolimont have no trouble in hopping over the Bay.

Appreciation

The tale of the new home is not complete without a few words of appreciation to those who have made it possible for this project to reach fruition. Firstly, the thousands of loyal supporters who form the backbone of the publication, the advertisers who stick by us, the contributors who fill the columns with widely varying interests, my representatives who guard my business affairs, and the good old Bridge Printery which has brought the issues out on time (or nearly on time) every month for over eleven years past.

—A. G. HULL.

View of the Bay, with Mornington pier in the centre and the scrub in the foreground. This photograph was actually taken through the landscape window of the radio lab., with the camera on the test bench. Nice working conditions, eh?

BETTER INTERSTATE RECEPTION

Suggested improvements in receiver design

RADIO manufacturers, as well as dealers, are squealing these days. The post-war radio boom they expected had not materialised and radio sales are nearly as slow as before the war. As far as I am concerned, I never expected a radio boom, for there simply was and is no reason for one. Since

By

PAUL STEVENS

21 Fletcher's Avenue,

Bondi, N.S.W.

back about 1933-34, when the multi-grid converter and with it the dual wave receiver hit the market there has been no worth while technical advancement in the household receiver. A good 1934 set is completely up to 1947 sandard for the job 99 out of 100 listeners expect it to do: to bring in the locals at good tone and volume. As a set, unlike a motor car, practically never wears out, there is no need for replacement. Therefore the radio industry, 12 years ago, as well as today, had to rely on such secondary items as fancy dials and cabinets, magic eyes, push button tuning, etc., to keep the public buying, but nobody apparently has ever thought of bringing a real intersate receiver on the market, one that after dark could bring interstate programmes as clear as the locals and make the listener conscious of the fact that there are more programmes available than those from stations within a radius of about 50 miles. Our present 5 and 6 valve sets are mostly nothing more than powerful local receivers, to the American pattern and quite unsuited for tele reception. They usually have the right sensitivity, but apart from this a real telereceiver has also to conform to the following conditions: (1) Selectivity variable or 10 kc., flat top for high note response. (2) AVC characteristic flat, starting almost without delay. (3) Dial to enable the clear identification or selection of stations. (4) Noise level as low as possible.

A set like this would mean real progress and, brought to the notice of the public by truthful advertising, would be appreciated and bought. The fact that almost 100 per cent. of Australian listeners

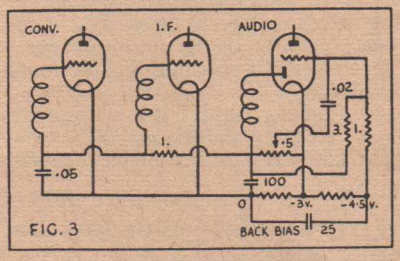


FIG. 3

tune only to their local stations is mostly due to the poor telereception qualities of our standard receivers. Sets like this would be almost unsellable in England or the Continent, where receivers are expected to bring the bulk of European stations after dark clearly and without interference from the neighbour, which, in this case, is only 9 kc. away. Our sets have a band width of 20 to 30 kc. which means that at any setting of the dial, two to three stations are covered, and according to field strength and fading conditions, one of them will always gain the upper hand and become audible, covered with interference and distortion from the other "shareholders." Our standard IF is round about 450 kc. and at this frequency it is hard to get 10 kc. flat top selectivity without sacrificing gain. The job could be done with 2 low gain IF stages, but a simpler way is to revert to the arrogantly called "obsolete" IF between 110 and 175 kc. The necessity of bandpass input was the reason to abandon the low IF.

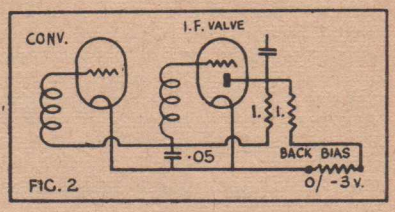
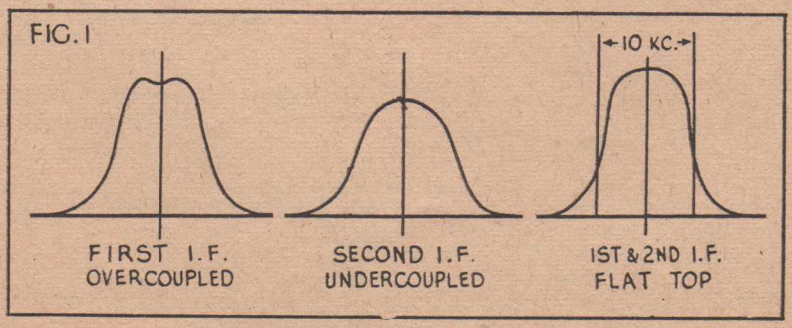


FIG. 2

For the sake of a few shillings saved on a coil and a tuning gang section, our radio industry practically sacrificed the interstate receiver for a freakish in-between, just like a poorly designed car fitted with a high powered engine will never make a racing car. Not only do remote stations on our present sets interfere with each other, but every local blots out at least two, more often three or four stations. Our eight Sydney broadcasters, therefore, account for the loss of between sixteen and thirty stations according to the quality of the receiver. —10 kc. flat top selectivity is easy to get with low IF.

By over-coupling the first IF transformer and under-coupling the second to fill in the trough between the "dog's ears" (fig. 1.), a very good square characteristic can be obtained, with a high note response absolutely equal to our present 20 or 30 kc. sharp peaked IF's. Increased selectivity also proportionately reduces background noise. IF gives high gain, but the circuit is easy to stabilise, as the influence of stray capacities decreases with the frequency. The often brought up excuse of having



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INTERSTATE

(Continued)

460 kc. IF chosen to improve the image ratio on short waves should not be taken seriously. The second spot on 460 kc. is not as loud as with the low IF, but still very pronounced, and compared with the many other drawbacks of short wave reception on DW receivers, hardly worth mentioning. As for the flat top this is a feature little known out here, because it makes the aligning of receivers rather complicated, especially on 450 kc. where more than one IF stage have to be used for flat top characteristics. The simple tuning to the peak is definitely out. One has to use either a special oscillator in conjunction with an oscilloscope, or, much simpler, damping resistors. With this latter method, resistors of about 50,000 ohm are connected across both primary and secondary of all overcoupled transformers in the circuit (usually only the first one, anyhow). While aligning each section the particular resistor is temporarily removed. After the alignment is finished, all damping resistors are taken out, and the IF transformers must not be touched any more. Proper flat top alignment in a receiver is easily recognisable whilst tuning it. The stations come in suddenly and with horrible harmonic distortion, stay clear and unchanged for nearly 10 kc., then quickly fade away with the same distortion that marked their entry. In our standard sets the stations come and go gradually and stay clear, but with their side bands somewhat attenuated, only on one sharp point. Sideband attenuation here starts as low as 200 or 300 C, often giving an impression of bass boost, falling off very sharply.

The next very important point is AVC. Here again our designers made it as easy as possible for themselves. We all know the simple circuit as in Fig. 2. All cathodes are earthed, the AVC line returned to -3V back bias and, presto, we have our minimum bias together with 3V delay for the AVC. Such a delay would be all right when driving an EL3 output valve directly from the diode, but with an audio amplifier in between only about .1 Volt, or no delay at all, is permissable. With 3 Volt delay these sets will play full blast on locals with the volume hardly turned up from zero, while on the other hand weak stations that need it most, will not be affected at all by AVC which, in this case, completely fails in its main purpose, to counteract the fading of remote stations.

To do the right thing we have to use simple undelayed AVC and then flatten the, in this case rather steep, characteristic by introducing audio AVC. This introduces distortion, unless only one quarter or less of the full available AVC voltage is applied to the audio valve, which of course has to have super control characteristics. The ideal thing would be to have a valve like the EFM11, a variable mu

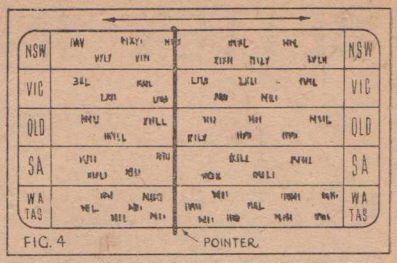

FIG. 4

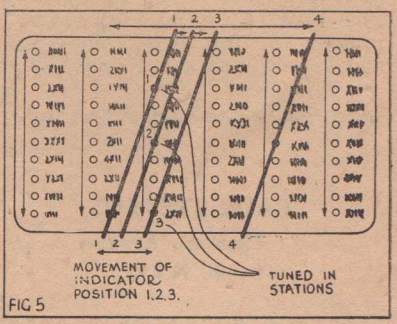

FIG 5

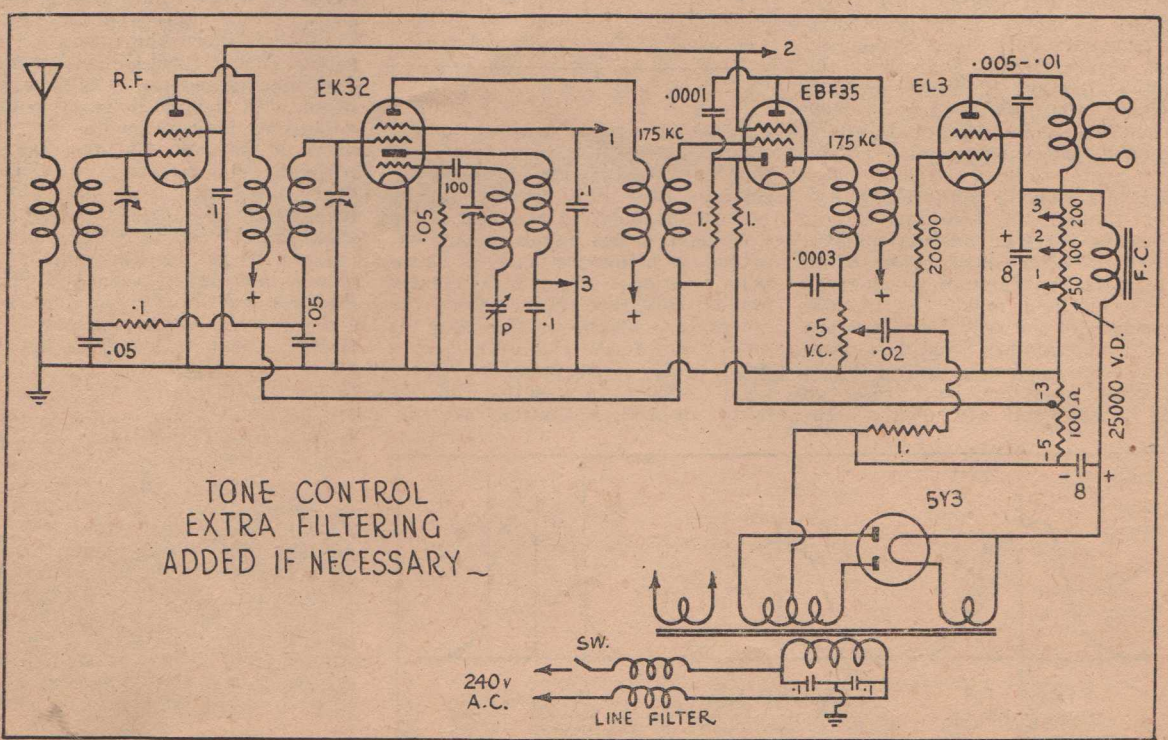

Figure 6.

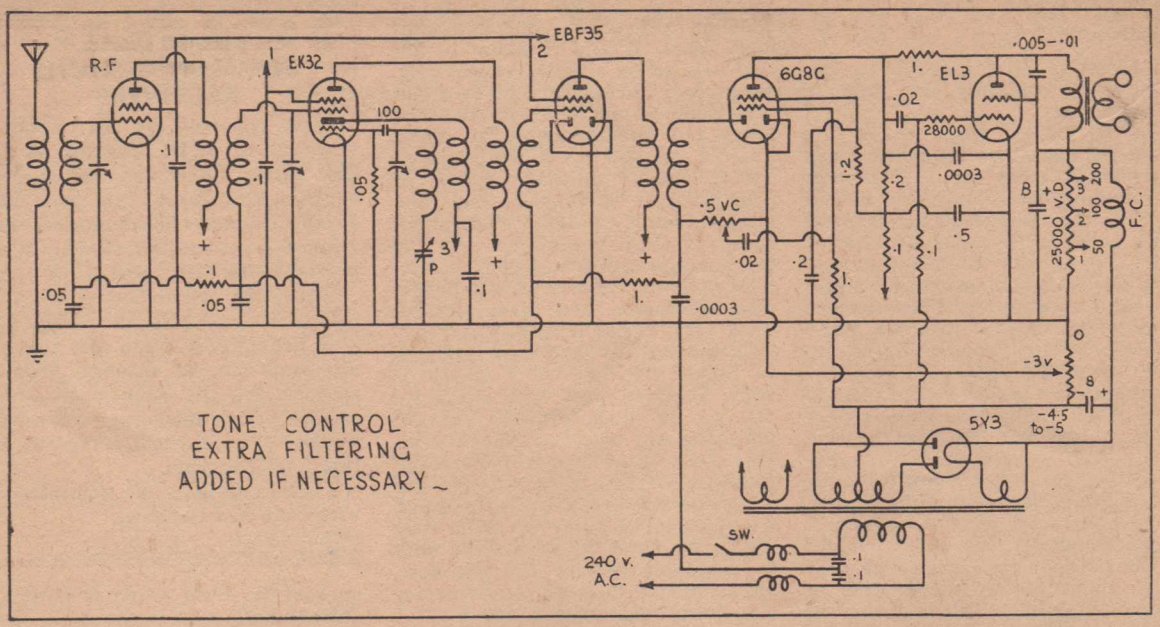

Figure 7.

audio pentode combined with a tuning indicator, the characteristic of which is so gently curved, that even by application of full AVC its total distortion does not rise above 1½ per cent.

However, nobody has yet found it worth while to import or manufacture this type out here and so ordinary RF super control pentodes have to be used with fractional AVC. By keeping the screen voltages of the affected valves constant by taking them off a voltage divider and also by returning the suppressor grid to the AVC line, further improvements can be achieved. By these means it should be possible to receive all worthwhile stations on the dial at practically the same volume, thus giving the words Automativ Volume Control their true meaning.

The Dial

The one subject that has never been mentioned in technical radio articles as far as I can think back, but is of paramount importance for a telereceiver, is its Dial. Let us have a word about these multicoloured atrocities, which we accept as dials today. If we think logically: what is the purpose of a dial? It should indicate exactly the station our receiver is tuned to, or vice versa, to tune our receiver to any station we desire. As being one of the visible parts of our radios it is subject to fashion. If ever the ancient Greeks or Romans had a goddess of fashion, they would probably depict her as a beautiful, but mentally rather defective, girl. If you don't believe me, just look at the ladies' hat fashions. Now this said demented goddess has presented us with the modern radio dial. The first condition: as many colours as possible per square inch; the last condition: to know where you are. I got one of these straight line affairs in my radio gramophone. There is 8¼-ins. of movement between 1600 and 550 kc. It is easier to pick the winner of the Melbourne Cup than to pick the station you are listening to on this prototype of our modern straight line dial. Listening one night to a station on a certain setting left the following possibilities: 2PK, 2GN, 4MK, 4MB, 5AU, 7DY, 6PM, 2ZO; enough starters for each betting.

This takes, of course, parallactic errors, backlash, and a 10 kc. possible tracking error into consideration, but it shows the deficiencies of the majority of our present day dials. The three fundamental conditions for a properly designed telereception type are: (1) Tuning sweep as long as possible. (2) Light or shadow spot indicator to avoid parallactic error. (3) Good mechanical construction, no play or backlash.

As for effective length of the tuning sweep the standard straight liner is about the worst; semi-circular next, full circle still better. But they all suffer from the drawback, that they do not show one station clearly following the next. You have to scan down the full length of the indicator and decide which call sign it cuts nearest to its centre, (something like the judging of a "find the ball" competition).

These are the types shown in Fig. 4, with stations grouped according to the States, as against the type in Fig. 5, which although of the same physical dimensions, has an effective length about four times bigger. Here the stations are grouped in six vertical columns, a clear, round dot in front of each. A shadow indicator set at a certain angle moves horizontally behind the dial. As it moves on, various portions of it will intersect with the vertical rows of dots in front of the stations and so it will seemingly scan down the first, second, third, etc., column, as the pointer is moved on. Stations in various States can still be marked by different colours. The same principle can, of course, be applied to circular or semi-circular dials. With precise workmanship and a parallax free light or shadow indicator, this type of standard Continental dial leaves no doubt as to the station you are tuned in to. It is a critical check on the proper tracking of a receiver and may not be popular with some manufacturers for this very reason.

The last point to discuss is the noise level. Noises can be created inside or outside a receiver. The most prominent one of the internal noises is the well known valve hiss, which tends to marr the reception of weak stations completely. As it is chiefly the converter, that causes all the damage in this respect, an RF stage for telereceivers, is a definite must. Any ordinary super control pentode will do in this place, but low noise valves like

(Continued on next page)

INTERSTATE

(Continued)

the EF50 or 1852 may be an improvement, certainly for gain if nothing else.

An RF stage also makes the otherwise necessary input bandpass dispensable, as it provides enough preselection to avoid the second spot on the broadcast band. Good coils, such as Permaclads, are of course, essential. External noises, such as real or man made static are hard to suppress. The narrow band width of our receiver takes care of a big proportion, allows only about half of the static encountered in standard receivers to pass. Much of the man made static, which enters the receiver by the back door, in other words, the powerline, can be shut out by making a fine filter together with proper earthing of the chassis a regular feature. The aerial should be the outdoor type wherever possible, about 30 feet long and as high as possible. Telereception in noisy locations is only depending on the quality of the shielded lead in aerial system used, of which there are several on the market.

Having laid down all the principles, the design of a 5 or 6 valve telereceiver is just as simple as that of any other set of similar size. Figs. 6 and 7 show a five and six valve circuit respectively. Both have 175 kc. IF. The 5-valver, which has no audio driver, the EL3 being fed directly from the diode, has 3V delayed AVC, while the 6-valver has simple and audio AVC. The 5-valver is very similar to a circuit I built up for a chap about three or four years ago. He had the strange desire to listen to Melbourne from Sydney every Saturday afternoon, and after putting up a high aerial he really got signals through at sufficient strength to make him happy. I tried the same receiver first with standard 460 kc. IF transformers, but did not have any success. The 175 kc. IF's were by no means modern flat top affairs. They were out of an old 1935 Radiola, had no iron slugs and were probably not even of a very high gain type. I tell all this only to demonstrate how the simplest, old-fashioned low IF transformer can outdo the modern 460 kc. for both selectivity and senstitivity in every case and that the advent of the 460 kc. IF, claimed as progress, was really a big step backwards. As for making these sets into dual wave jobs, I am actually against it. Dual wave is a makeshift, but these sets aren't. A short wave converter with proper SW tuning facilities and 1600 kc. IF to be coupled to the input of these sets (tuned to this frequency) would be the appropriate thing to do.

EDDYSTONE COMMUNICATIONS RECEIVERS

It is reported by Mr. Gronow, manager of J. H. Magrath & Co., 208 Little Lonsdale Street, Melbourne, that stocks are now held of the famous "Eddystone" communications receiver, which is imported from England.

Equal in performance to anything in the world the Eddystone is a beautifully made and finished job and can be strongly recommended for the connoisseur.

The price, including sales tax, works out at £78/9/5, complete, but less loud speaker.

Further details are available direct from Mr. Gronow.

THEATRE SOUND EQUIPMENT

Designed by one of our loyal supporters

MOST readers of Australasian Radio World will recall the many fine articles which have appeared from time to time from the pen of Ray Brown. Mr. Brown won one of our circuit contests a few years back and is a Radio World supporter of the keenest type. Ray has now sent along some details of a theatre sound equipment which was recently installed by the firm where he is employed, Harvey Ivers, of Manning Street, Taree.

As will be seen from the photograph it is a fine looking job.

The unit utilises twenty-three valves in all and is of rack and panel construction in six tiers.

The bottom section houses the 240V panel and the two power amplifier power supplies.

The second section houses the exciter lamp control panel (in this model it is DC), the power supply of the two monitor sections and the pre-amplifier power supply.

The exciter lamps are switched and rheostat controlled separately and a DC voltmeter it automatically switched to the lamp in circuit.

The third section houses two power amplifiers, one predominating on low frequencies and the other high frequencies.

These amplifiers are of similar construction other than frequency control, the input valves in each case being a triode phase changer feeding driver triodes in push pull, thence to 2A3 output valves.

A volume and tone control is incorporated in each amplifier so that either high or low frequency response may be adjusted at will and varied so that normal reproduction may be had should the necessity arise that the show has to be run on one channel.

A milliameter is continuously in circuit with each pair of output valves, so that the condition of these valves may be seen at a glance, and this meter also serves as a high tension check.

The fourth section houses the pre-amplifier section and comprises three two stage pre-amplifiers and a two stage mixing system.

For the sake of convenience we have designated the film left amplifier as "X" amplifier and that of the film right "Y" amplifier.

A third pre-amplifier is a spare and may be switched to either "X" or "Y" positions merely by the changing over of the co-axial cable connector from either of the P.E. cells.

This spare pre-amplifier also has a microphone input channel brought out to the front panel.

All three pre-amps. have an output level control.

The mixer box has a three way fading system—that of "X" and "Y" inputs, spare pre-amp. input and non-sync. input. In addition, a three way change over switch is incorporated—switching "X" and "Y" amps. and in the neutral position places both these amps, in circuit so that change may be either switched or faded.

Versatility

It will readily be seen that this section is rather a vital one and while a separate power supply is provided for it, this can be supplied from any of the other three power supplies by merely changing a 5 pin plug.

Moreover, the mixer panel can be linked out completely, again by plug change and output level brought to normal by increasing

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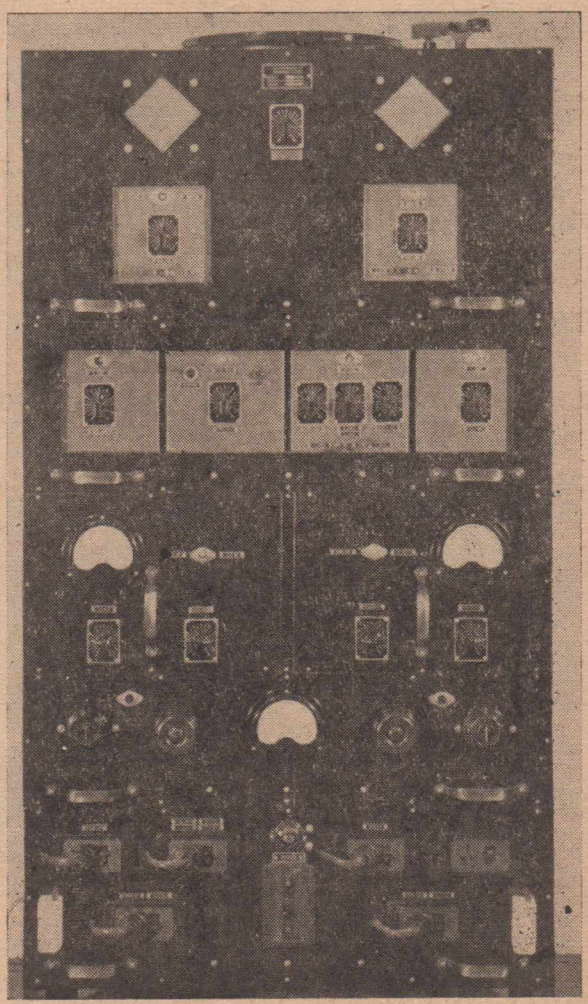


This fine theatre sound system was designed and built by one of our enthusiastic readers. It embodies several features from our quality amplifiers and gives superlative performance.

★

RE-VAMPING AN "FS6"

AS one of the many with an F.S.6 I would like to give you an idea of what I have been doing with the re-vamping of same.

By

E. J. VON STANKE

31 Bertha Street,
Mt. Gambier, S.A.

Firstly, the article in February's issue of "Radio World" started me off on to that which is now quite a decent little unit.

As from the article I converted the receiver to plug-in coil use for 20, 40, 80 and broadcast, using as standard broadcast set of coils which covered most of the broadcast band down to approximately 700 Kc/s. (429m).

Band-spread was incorporated, removing all but one rotor plate as suggested and using a 23-plate midget mounted in place of the watch case.

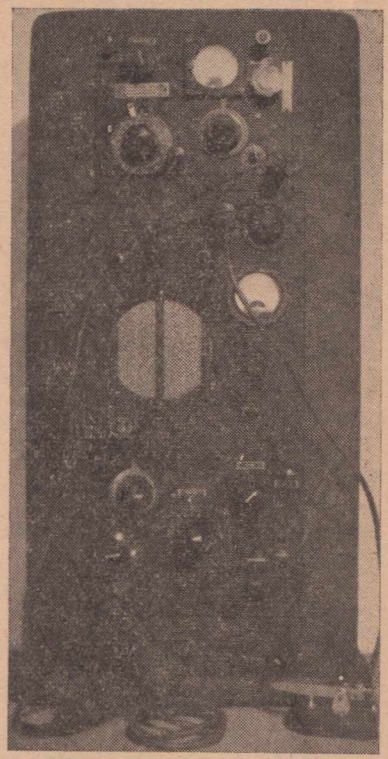
Improving the A.V.C., sensitivity and selectivity as suggested in the July issue was next.

After this I thought of redesigning the layout of the whole unit into a rack and panel job, also to make an extra panel for an amplifier and speaker. Hunting through the junk box I found an old 89 which seemed to be about the best tube for the job I had and which did prove a good job using a 6H permag. speaker with separate gain and tone controls.

The output of the receiver can be switched to the phones or to the speaker direct or to the input of the amplifier. On this panel also is a signal strength meter hook-up using an 0-1 milliameter placed in the V2 I.F. circuit. This is not a 100 per cent. but it gives fair indication as to the signal strength and I find it very useful.

The whole unit does a very good job and I think it was well worth while anyone with an F.S.6 who hasn't yet done anything about re-vamping it to get these articles and get on with it.

The finished job is in an imitation crackle finish to match the panels of the original unit. The photograph of the present set-up



will give you some idea of the lay-out.

(F.S.6 sets are used here in the local Bush Fire Communications unit and the articles published are most useful. The article of the transmitter stage is eagerly awaited at present, as nearly all sets are being used in their original form but for Xtal control. Some experimenting is being done using plate modulation but as yet nothing definite has been accepted until your article is published.)

THEATRE SOUND

(Continued)

the output of the pre-amp. sections.

The fifth section houses the two monitoring sections and the scratch control filter for non-sync. operation.

The first monitor is a normal one switching from either high or low power amp. output lines (500 ohm) and has its own level control.

The second monitor is an intercom. system fed from an Alnico permag speaker housed in a suitable section of the theatre.

By this the operator may monitor his own sound directly from the house and two way conversation can be carried out if desired, thus obviating the necessity for a house phone.

Should the operator be engaged or using the normal monitor system, a buzzer system is fitted to the speaker in the house as both monitors have a neutral switch position.

The top section houses a synchronous turn-table, and a "Rothermel" crystal pick-up, and as some recent recordings have very extended high frequency ranges, the scratch filter may be used as a master tone control.

The reproducers are two "Goodman" English permag. speakers. They are mounted on a double thickness of canite and the low frequency speaker has an acoustic chamber built on the baffle.

The whole unit is pulley mounted so that it may be drawn up to the roof if the stage should be required at any time.

The Max. working output of the system is 14 watts and the speakers are rated at 40 watts so that the quality of the reproduction is unimpaired right up to maximum output.

The whole object of the design is that, other than a complete power failure, the operator can immediately overcome any sound trouble at all, without the aid of the serviceman and can even return the faulty section to a workshop for repair.

Again an objection may be raised to the large number of controls, but for normal operation only two controls need be used, as in any normal installation—that of non-sync. control and the pre-amp. fader control—both being located side by side on the mixer panel.

The number of the tube types have been kept to a minimum by the use of screen grid valves for triode operation, etc., and all rectifiers are interchangeable.

LATEST AMERICAN TECHNIQUE

A Well-Designed Studio Recorder

A NEW studio recorder of the console type is now in quantity delivery by the Fairchild Camera & Instrument Corporation, Jamaica, N.Y. The unit, incorporating many outstanding features in addition to the basic Fairchild two-speed planetary drive, is designed to meet the high requirements of the commercial recording, radio and motion picture industries.

FROM OUR SPECIAL CORRESPONDENT IN U.S.A.

The drive, direct through worm and gear at 33-1/3 rpm speed, guarantees absolute timing, since the motor is synchronous. A considerable use is made of this positive drive feature in the film business, because the A.C. line is the only interlocking device needed in dubbing sound from Fairchild recordings to synchronously driven film.

The 78 rpm speed is secured through a precision ball race mechanism operating in light oil in a dustproof housing. Change of speed is accomplished by simply pulling up or pushing down a shift pin protruding slightly above the record from the hollow turntable shaft. This can be done without shutting off the motor.

The drive and associated 1800 rpm synchronous motor, connected by an especially designed rubber coupling, are mounted in a heavy casting in the base of the cabinet. The linkage between the drive and turntable is a hollow shaft with mechanical filters to reduce to a minimum the transmission of vibration from the motor or drive to the turntable. In addition, a clutch permits shifting of speed without shutting off the motor, as well as insuring smooth starting and stopping of the turntable.

The turntable is mounted on a sturdy shaft especially designed to resist vibration. There is adequate space in a recessed panel on the front of the console to mount switches, volume indicators, etc.

The cabinet, of heavy wooden construction, is solidly built to meet the needs of mechanical operation and servicing. Height of the table above the floor is 41-ins. The top is 32-ins. wide by 24-ins. deep; the overall width is 32-ins. and depth 28-ins. Levelling feet are provided for quick and effective adjustment. The 117-volt (nominal) A.C. input and 500 ohm input to cutterhead are terminated in suitable connections in the rear of the cabinet. A

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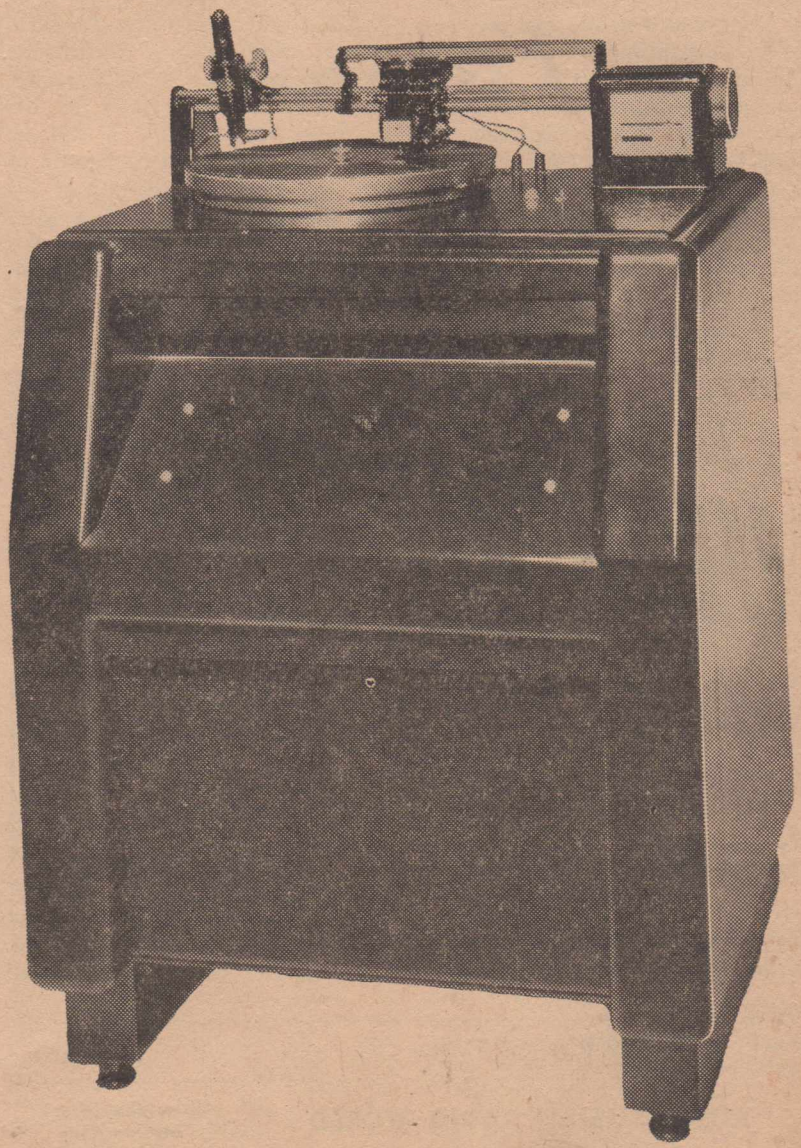


STUDIO RECORDER

(Continued)

door is provided in the front of the cabinet for easy access in servicing the drive, motor, and other mechanisms.

The feed screw and two accurately ground and polished stainless steel guide rods, anchored in sturdy castings, provide a stable framework on which the cutterhead travels. The feed screw does not carry any part of the weight of the carriage mechanism, which is moved transversely across the turntable on the guide rods by a split nut which engages three threads of the feed screw.

The number of lines per inch can be varied continuously from 80 to 160 by a unique ball race mechanism, operated by rotating a large, easily accessible knurled knob. Instant shift can be made, while recording, if desired, to any standard pitch or any intermediate number of lines per inch, by means of a calibrated scale, for both in-out and out-in direction of cut.

The Fairchild No. 541 magnetic cutterhead is standard equipment. It is mounted on a precision-built carriage mechanism which has an up and down travel of $\frac{3}{4}$-in. for adjusting of cutting stylus angle and for use of $\frac{1}{4}$-in. thick flowed wax masters when desired. For the thicker wax masters, the entire feed screw mechanism can be raised the required distance with no mechanical adjustments other than two machined mounting blocks, easily installed with Allen wrenches. Floating operation is provided for the cutterhead. Provision is also made for installation of a horizontal type cutterhead.

A feature of the new Fairchild studio recorder is a microscope mounted in a rather unusual manner on the left-hand portion of the overhead mechanism. It can be moved by a convenient handle to any part of the cut surface of the disc during recording. The mounting holds the microscope at all times tangent to the record grooves, diametrically opposite to the cutterhead. It is equipped with a special movable illuminating assembly which permits scanning of both walls of a recorded groove, as well as the radius at the bottom of the groove, so the recording engineer may quickly and accurately judge the quality of the cut.

A manually-operated over-run-spiralling attachment, which functions in both directions of cut, is standard equipment. It will produce spiralling up to $\frac{1}{4}$-in. pitch at easy cranking speed.

Due to the method of mounting, and other mechanical features, turntable noise, or rumble, is practically non-existent.

Evenness of speed at $33\frac{1}{3}$ rpm is maintained by the fine quality 1800 rpm synchronous motor, the accurately cut worm and gear, and a balanced turntable with extra weight in the rim. The 78 rpm speed is also accurate because of the precision ball race and an even loading of the mechanism to reduce wows to a minimum. The motor is of sufficient power to maintain adequate torque on voltages lower than the rating of the motor.

Requests for information, mentioning the Unit 523 Recorder, should be addressed to Perkins (Aust.) Pty. Ltd., Bowden Street, Alexandria, N.S.W.

AMONG OUR READERS

News From Subscribers

"I have been buying Radio World since 1938, and find it one of the best radio publications to date. What I like best is that the feature articles are not too technical and can be understood by readers like myself, who enjoy building radios as a hobby." — R. A. Kelly, 574 Sandringham Rd., Mt. Albert, SW1., Auckland, New Zealand.

(It is nice to see that you are still going strong, Mr. Kelly. I have not forgotten the very helpful little thing you did for me a few years back. It makes me mighty happy to know that I have such solid backing from so many loyal supporters. Thanks for the good wishes and the best of luck. —A.G.H.)

* * *

"I find your magazine not only extremely interesting but also most educational and I have learned quite a lot from your informative articles, especially the amateur notes. While not a licenced amateur, I spend a lot of time listening on the "ham" bands. I intend to apply for an amateur licence as soon as my health permits."—R. L. Crick, Parker Street, Beaufort, Victoria.

(Sorry to hear about the accident, but feel sure you won't let it interfere with your hobby. You shouldn't have the slightest trouble in passing the amateur exam, so long as you know the regulations off by heart and can do the morse speed easily. The theory exam is quite easy. Don't see how you could possibly fail. Good luck. —A. G. H.)

* * *

"I have no complaints about this paper but I would like to see articles on the following subjects: (1) simple A and B eliminators, using disposals rectifiers; (2) more on reflex circuits, which I think would be of great use in small sets on portable batteries; (3) information on super-regeneration; (4) a section of Try This One; (5) more information on disposals gear, especially valve coding. As you will gather I am interested mainly in getting the maximum amplification and power from the minimum of parts. I have now thought of one complaint, A.R.W. doesn't come out often enough, once a week would suit me better than once a month. Or you could bring out additional booklets from time to time, for example one on a.c. mantel models, one on transmitters, one on battery sets, etc. I am sure there would be quite a keen demand for them. Thanking you for a very interesting publication, yours,"—H. W. Lucke, 12 Avoca Street, South Yarra, Vic.

(Will keep your suggestions well in mind, but please don't mention such things as bringing out more books or publishing Radio World every week. You ought to see what a struggle it is to get out the one issue a month!—A.G.H.)

* * *

"I have nothing but praise for your magazine and I have found it a valuable auxiliary to any text book reading of radio, in fact over a number of years it is a text in itself. My life's path is laid very differently from that of almost all your readers, as I am a student for the Catholic Priesthood with almost two thirds of my seven-year course behind me. My interest in rodio started towards the end of my year in the senior public examination class in 1942. Since then radio has been almost a part of me, though it is only a hobby. Lack of finance keeps me busy on improvisation but with the assistance of another keen student here I have managed to keep fairly well abreast of the practical aspects of the game. Audio amplifier work is our specialty, due mainly to the fact that entertainment often has to be provided for the students. Several amplifiers and modifications are tried from time to time and in this regard the articles by Mutton, Straede, De-Faur and Davies have proved the most popular. But Don Knock's writings are not overlooked and some day, when I catch up on the code, I'll get my ham ticket. The most refreshing articles are those by Paul Stevens; he always gives the other side of the story. It would be presumptuous for me to suggest improvements, all I can say is to keep up the good work and make the magazine bigger."—Noel Daniels, Pius XII Provincial Seminary, Queensland.

(Glad to hear from you and feel sure that your letter will be of great interest to many other readers. Incidentally we have quite a few priests on our subscription lists and also a number of ministers of other religious denominations.—A.G.H.)

* * *

"I am purely an experimenter on ordinary receiving sets and do not take much interest in the present wave-length which amateurs are using, however, I do not for one minute suggest you cut down on these articles and give more on the commercial type of set, as no doubt, out of all the chaps who read your magazine my type is hopelessly in the minority. One suggestion I might make is for more battery circuits. All the same I think your magazine is GRAND. I am at present building a home with, of course, the inevitable shack outside. My short wave set happens to be a humble AR14 which has rather surprised me for three valves. (I have ignored the 1J6.) Whilst on short-waves I was very disappointed after the war to find that amateurs were off the broadcast band. If they are ever allowed back on this band I hope to have a station going, as this certainly appeals to me, while the present system just doesn't. Hoping that you don't think me biassed against short-waves. Yours faithfully, M. R. SHAW, Christmas Hills, Vic.

(I do think you are biassed against short-waves, but that is quite O.K. You are entitled to have your own opinion and I find it refreshing to have your views. I don't think that there is the slightest chance of the authorities ever again licensing amateurs to work on the broadcast band.—A.G.H.)

"Although I am mostly interested in DX, I have just enrolled with the A.R.C. as I am hoping some day to make and repair my own sets. Your notes are too technical for me to grasp at present, but I hope to catch on in time."—John McDonald, 65 Benelong Road, Cremorne.

(That's the spirit, John. You'll find it comes easily when you get into it a bit.—A.G.H.)

LATEST KIT RELEASE:—

"WALKIE-TALKIE" by Kingsley

Self-contained battery-operated "personal" portable receiver

DURING the summer months the use of a very small portable at picnics and holiday outings has its attractions.

There are many who would attempt the construction of such a portable, given the material and facilities.

The construction of a very small personal portable, owing to its very cramped layout, is largely a matter for a commercial factory with the necessary tools and skill available.

The Kingsley "Walkie-Talkie" kit is an answer for those who have limited facilities for metal working, jig wiring, lining up equipment, etc.

The kit has its metal work and engraving done—all holes punched to fit the Kingsley components from which this little portable may be fabricated in your home, in spare time.

The fundamental kit for this unit consists of the following Kingsley parts:

1. A pre-lined miniature "Ferrotune" unit—type KF/JB.
2. A pair of MINI I.F. Transformers, color coded, KIF14 (1st) and KIF15 (2nd).
3. A metal case.
4. An engraved front panel.
5. Two knobs.
6. A mini. ON/OFF Switch.
7. A MINI chassis on to which are mounted 4 MINI sockets.
8. A carrying strap—which is also the low impedance loop aerial, together with its its fastening clips.
9. A Kingsley 3 in. Speaker.

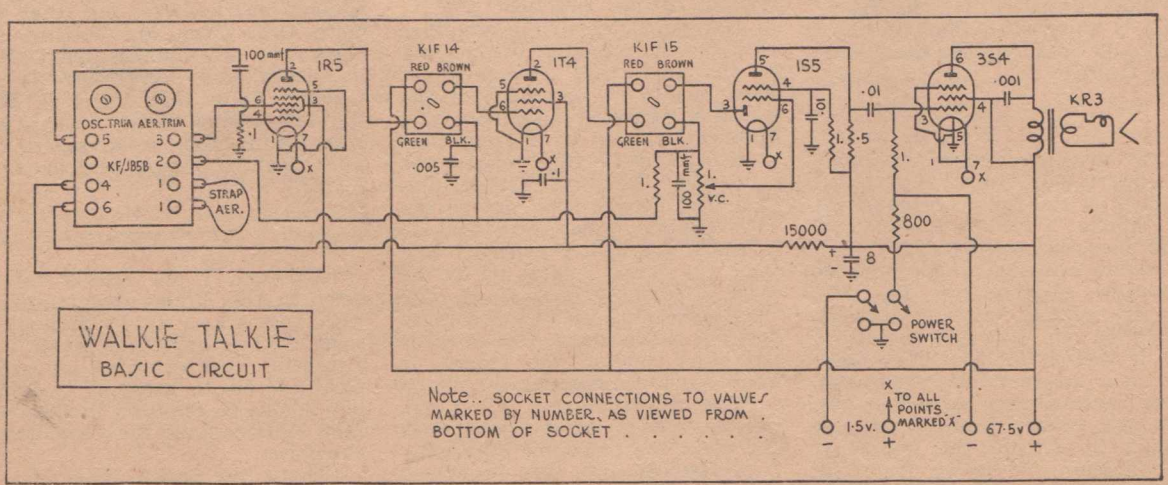
Procedure for Assembly and Wiring

It will be observed that the kit

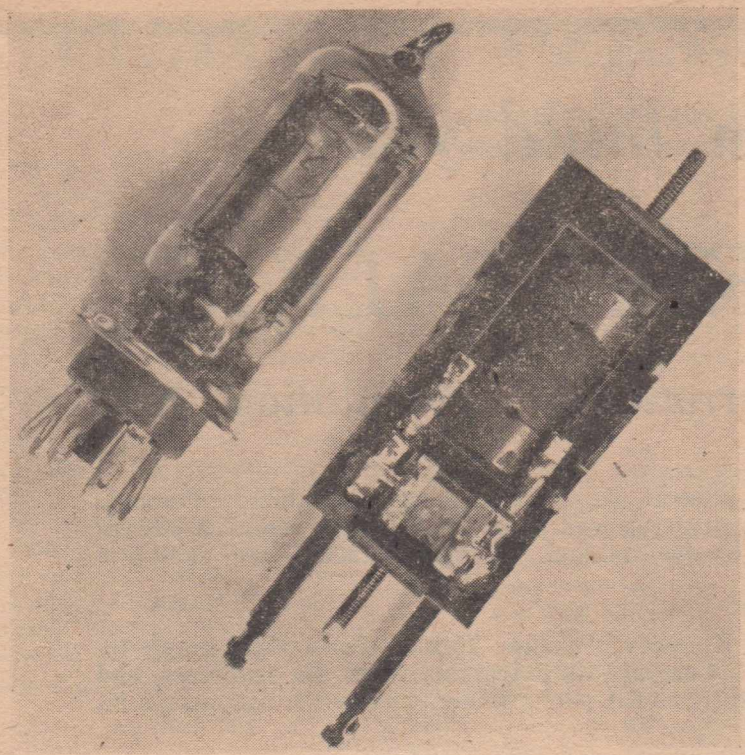
(Continued on opposite page)

CONVERTER PRICE

Owing to a misunderstanding, in last month's issue we quoted the Kingsley 50 mc. converter as listing at £4/5/-. This is the price of the kit of parts only, but at present the kit is not available. The made-up converter, fully wired, tested and ready for operation is £6/18/6 plus sales tax, with valves at £1/16/7 extra if required.



Circuit for the Kingsley "Walkie-Talkie" Receiver.



The latest midget intermediate transformer from Kingsley, shown with a "peanut" valve for comparison.

is partly assembled into three main assemblies. They are—

(a) The "Ferrotune" type KF/JB, to which is already fixed the Mini. chassis—4 sockets and the pair of Mini. I.F.'s—type 14 (1st) and 15 (2nd), and the front panel with switch.

(b) The speaker.

(c) The battery holder and loop aerial carrying strap.

The assembly (a) is the first to receive the attention of the home builder. This assembly should be carefully and neatly wired up in accordance with the block circuit published herein and a photograph of the completely wired unit which will appear in the January issue of the "Australasian Radio World," and will also go out with each kit as an instruction sheet.

The speaker (b) should be fitted to the back of the front panel, and its output transformer connected to No. 6 pin on the output valve socket, and 67½ volts + on the B. battery.

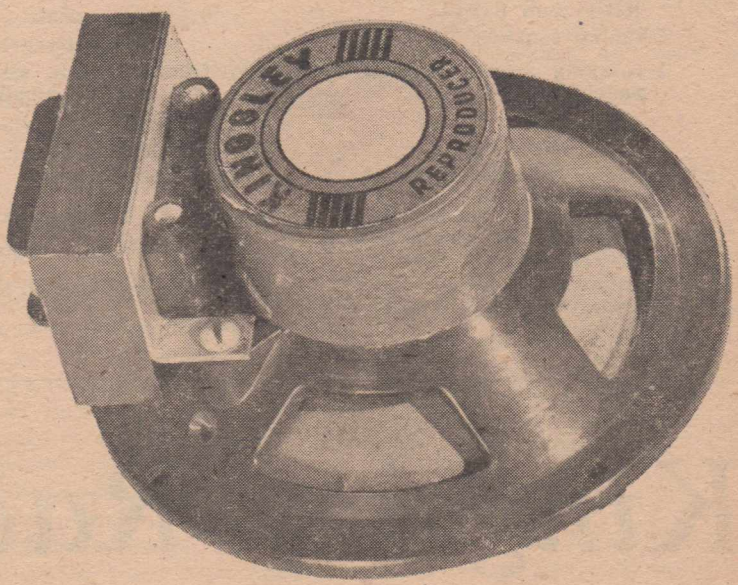
(c) It will be noted that the battery carrier has provision to clip in two No. 2 torch cells, and a minimax 67½ volt B. battery. The battery can only be fitted in one way to ensure that + high tension is connected to + of the circuit. The torch cells should be placed in position with the centre contact fitted to the clip marked with a **red dot.**

When all wiring is done, the battery carrier can be placed in position behind the speaker and the back fitted to the case. Turning on the switch should start the unit playing.

No Adjustment Needed

The KF/JB "Ferrotune" is already lined up, and should need little or no adjustment. Slight trim can be carried out in accordance with instructions with the kit. If the unit does **not** operate, don't begin turning all adjusting screws on the JB unit—this was right when it left the factory—look for a mis-wire in your own work.

LATEST THREE-INCH SPEAKER



The new baby speaker from Kingsley. This speaker and the intermediate transformer above are featured in the "Walkie-Talkie" kit.

Now you can build your

"WALKIE TALKIE!"

Kingsley "Ferrotuned" Foundation Kit!

Kingsley is proud to present Australia's most outstanding Personal Portable Foundation Kit, just released from the Kingsley research laboratory! This amazing 4-valve midget is "ferrotuned"— an exclusive Kingsley feature!

Anyone can build the Kingsley "Walkie Talkie" from this simple-to-assemble foundation kit! Compare its extra smartness, its smallness, and its amazing full-size mantel-model performance, and you'll appreciate its sheer superiority!

FOUNDATION KIT COMPRISES:

- 1 type KFJB "Ferrotune" tuning unit (including coils, padders, etc.).
- 2 Kingsley miniature I.F. transformers types KIF14 and KIF15.
- 2 tuning controls.
- 1 carrying case (including back and front panels).
- 1 "on-off" switch.
- 1 chassis with 4 sockets attached.
- 1 modern plastic carrying strap incorporating aerial.
- 1 battery holder.

Circuit, wiring instructions, and full parts list supplied with each foundation kit.

Miniature Speaker

Three inches in diameter, but designed to give a complete reproduction of all frequencies — big-speaker performance with amazing compactness!

Miniature I.F. Transformers

The best I.F. Kingsley have ever produced. These "babies" will give you all the gain in the world!

Miniature "Ferrotune" Unit

All the advantages of "Ferrotuning" packed into this splendid new midget unit—crystal clear tuning of every frequency!

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Should your usual supplier be temporarily unable to supply you with a foundation kit— or any Kingsley Parts —drop us a line giving his name and address.

KINGSLEY RADIO PTY. LTD., 380 ST. KILDA ROAD, MELBOURNE

AMATEUR PERSONALITIES

A Few Words About Individual Hams as the Writer Sees and Knows Them

VK2OC, OWEN CHAPMAN, the "Squire of Wyong," is as keen on amateur radio as the day he started, but much of his time is taken up cutting slabs of quartz and getting them into trim for amateur and commercial frequencies. Is keen on VHF stuff and has been most co-operative in helping prove the usefulness of the ground plane antenna on "Six." Uses one to listen to Sydney stations and will be using it shortly to make a noise on the band from a pair of 834's. Cannot says "No" to attractive Disposals bargains, but buys in quantity and passes on the gems to the lads interested, and they are many.

* * *

VK2XV, NEVILLE WILLIAMS —off-sider to VK2JU in matters journalistic in the sphere of radio and other hobbies. Puts out a nice signal from Merrylands on 51.0 mC. and has lately taken to recording received transmissions and playing them back to the Sydney six-metre gang. Held the fort for his Editor during war-time Service absence.

* * *

VK2AT, LOU ALTMAN, Lakemba, has a keen eye for bargains and can be seen in and around the various Sydney radio Disposals dealers,' making the most of anything from the "Sixpenny Dip" to the "Six Guinea Touch." Puts in a bit of time on 7 mC. phone.

* * *

VK2BA, BRUCE CHAPMAN, Balgowlah, an old-timer with a wealth of experience in brass-pounding who is liable to see red if you suggest that he should use phone. Has investigated about every form of antenna there is for his location and finished up with a full-wave single section 8JK on "20." Builds receivers like battleships from solid brass, copper, etc. Served with RAN as Engr. Lieut. during the Big Scrap and was in the early 1930's in the Solomons as VR4BA.

* * *

VK2BD, TED BEHRMANN, Marrickville. Another OT who modestly hides his light under a bushel. Is heard nowadays on 14 mC. phone, steadily working DX, etc. Took a keen interest in "Ten Metres" in the 1928-9 period. Called at the writer's station some time in 1929 some days after VK-2NO had been frantically calling CQ on the key, ostensibly on Ten," and broke the news that he was getting a walloping signal over at *his* QTH . . . on the wrong harmonic—"thirteen metres."

* * *

VK2BG, BRUCE GLASSOP, Eastwood. Has a nice phone signal from a GP antenna around 51 mC. and is an engineer with the STC people. Got around with RAAF during the war and is much more interested in VHF's than the "Hi and Handle Bands."

* * *

VK2CL, LES TAYLOR, Ashfield. Always has nice phone when he uses it but is primarily a CW man who steadily knocks over the DX on "20" as a matter of course, using a conventional Zepp antenna. Served during the war in Signals and Army Inspection. Is a firm supporter of the "Anti-Hi and Handle Association" and possesses what is probably the best laid-out and neatest of all VK amateur stations. Has been responsible for many lads passing their AOCP by virtue of personal coaching in pre- and post-war days.

VK2ZH, N. MACNAUGHTON, Wahroonga. Handles the amateur side of the business for the well-known store in the heart of Sydney run by "Mac." Is heard at intervals punching the key on 14 mC. but has been relatively inactive lately owing to change of QTH. Served as Sig. Officer with RAAF and got around in operational areas in the Islands. Knows good bargains when he sees them and can usually find the odd bits and pieces the lads look for. Is an old-timer with a lot of Ham experience. Gets a bit steamed up at "lid" operating.

* * *

VK2DQ, DUD NOURSE, Broken Hill. A first-rate key puncher and an old hand at the game. Has not yet been talked into using phone on our post-war domestic bands. Served overseas with RAAF and RAF during the war and was badly smashed up at Benghazi during a crash landing. Is sparking on all cylinders again, and recently visited Sydney and Brisbane, looking up many old amateur friends.

* * *

VK2EH, ERN HODGKINS, Wagga. In between teaching the youth of this land the various R's, puts in his spare (?) time at amateur radio. To be heard frequently with a nice phone on 7 mC. Is one of the neatest constructors of amateur equipment in VK—had a flair for carrying off prizes in the pre-war Exhibitions. Put in some good work during the war on the E.C.N.

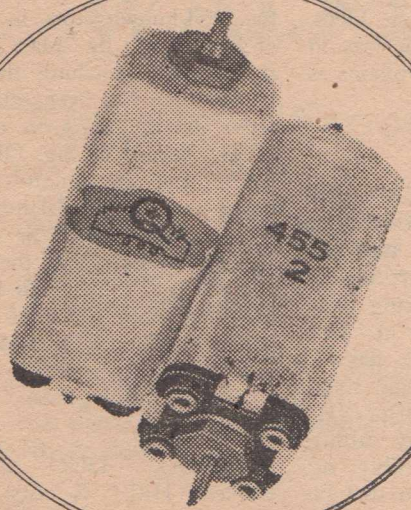
* * *

VK2CE, ALF BARNES, Bondi. Not heard so frequently lately, but may be more active on "Ten" than "Twenty." Noted for "short overs" and gets to the point.

CENTRE OF PERFORMANCE

In Your

Christmas Portable



A PAIR OF "Q PLUS" MIDGET I.F.'S. MEASURING 3/4" × 3/4" × 1 7/8"

FULL SIZE PERFORMANCE
In a 3/4in. x 3/4in. Jacket

"Q Plus" Engineers are justly proud of this ultra-small I.F. transformer. Many ways were open to obtain a small physical size, but with a decreased electrical efficiency, but we are proud to announce that NO LOSS OF EFFICIENCY FROM STANDARD SIZE I.F.'s HAS BEEN MADE.

Full 100uufd. negative temperature co-efficient condensers are used, and full 5/41 litz wire too.

The secret of course is the exclusive "Q Plus" Ferropreg treatment of both coil and can. (PATENT APPLIED FOR.)

Mounting this tiny unit was a problem because any side mounting method took up valuable space—"Q Plus" have used a single hole mounting, with special shoulders to prevent the terminals shorting to the chassis. You will see these when you obtain your first pair of "Q Plus" midget I.F.'s.

Earthing the shield too was important, and that is why the four little lugs neatly folded inwards all press firmly on to the chassis, not just one or two, but four, for even pressure and good contact.

Lugs for soldering were the subject of much pondering too. No doubt you will be placing resistors and other components right underneath this little transformer, and would need a short stubby solder lug which would solder well and prevent dry joints, examine yours, we know you'll like them.

Gain—We realised that you will need every bit of gain from your personal portables and so we have provided a No. 1 and No. 2 I.F. No. 2 being more closely coupled to overcome the loading of a diode detector, please don't reverse them as performance of your set must suffer.

Connections—Terminal connections are moulded into the bakelite base, this like all "Q Plus" mouldings is of high-quality phenolic bakelite and does not melt away when treated by your soldering iron.

Christmas—The Staff and engineers of the "Q Plus" organisation wish you the happiest of Christmases and a prosperous 1948.

R. W. STEANE & Co., Pty. Ltd., KEW, VICTORIA

ANTENNA TIPS FOR THE NEW HAND

WHEN reference is made in magazine articles to "resonant transmission lines," feeders of the "Zepp" or "Open Wire" doublet kind are usually indicated. "Matched Impedance" refers either to single or two-wire non-resonant feed-lines. A half-wave antenna fed by some form of non-resonant line is a more efficient radiator than one using a resonant, or tuned line, provided that it *is* resonant at exactly the same frequency as the transmitter feeding it. By "exact" resonance is implied a permissible deviation of about 1 per cent. of the driving frequency. Handbook formulae serve as accurate guides to resonant length.

Presence of nearby trees, houses, and other objects will affect capacity to earth, and so it is advisable when planning any antenna, to cut it slightly on the long side, and then to reduce it gradually until correct transmitter loading is indicated. To be fully certain of resonance, however, a grid-dip oscillator should be used. Remember also that ordinary soft-drawn copper wire has an annoying feature of stretching, and after a few weeks' operation, such an antenna is likely to need further pruning. Hard-drawn wire, especially copper-clad steel, is not subject to this disadvantage.

Because you see amateurs of experience using special antenna systems involving complex arrays, rotary and otherwise, don't conclude that the relatively simple "Single-Wire-Feed" or "Zepp" antennas are not useful or fully effective. Good *general* communication is their outstanding feature, especially if a wire a full wavelength long is used. For the CW man in particular, the "SWF" or "Zepp" has its uses.

A full-wave wire, fed in either manner, and erected with the wire running due North and South, will give good world coverage on "Twenty," and so will a full-wave one for "Forty." The 50-degree lobes take in the major continents. The "SWF" system works fairly well on its harmonics when the feeder is located 16 per cent. from the current loop, rather than the optimum for one-band operation, which is 14 per cent. from the current loop. Provided that the feeder line is carefully matched, and the antenna cut for resonance, the "SWF" system is preferable to the "Zepp" method of feed, but in practice there is little to choose between the two.

The tuned feeders of the "Zepp" are likely to radiate and thus waste more power than a non-resonant line. In some cases radiation from the line can result in almost total loss at the antenna. Feeder separators can also be a source of trouble in wet weather unless they are of non-hygroscopic insulation material such as glass or glazed ceramic. A "Zepp" antenna, can, as a *whole,* be tuned over a fairly wide range, but radiation efficiency will suffer unless the flat-top is of correct electrical length for the transmitting frequency.

All forms of resonant feeders are simply folded portions of the entire antenna system. This folded portion is brought into the operating room and it is then an easy matter to adjust the electrical length by means of variable condensers. Thus, the "Zepp" can be tuned as a *whole* to the exact transmitter frequency without the need for cutting wire and moving feeder taps.

Both the "Zepp" and the "SWF" systems have been tried and proved through long years of amateur radio DX, and although such simple systems cannot be expected to produce the results obtainable with directive high-gain arrays, lots of DX and good communication can be had with them. Either of them is better than any old haphazard length of wire strung out of the window.

Latest DX-chasing antenna in use for 14 mC/s at the writer's station is an inductively-coupled version of the well-known single section 8JK Beam. This is aimed 30 degrees West of North and East of South for bi-directional work on Europe and South America. It is, so far, the most satisfactory *simple* beam array tried at the location. It will be described in detail at an early opportunity.

Radio Frequency Chokes

Puzzled about that VHF RF choke? When testing for effectiveness at the intended frequency, there is a very simple way of deciding whether or not the choke *does* function or not. Connect it in series with a 60 mA. dial lamp and a pick-up loop. Couple it to the tank circuit of your VHF transmitter or oscillator. If the lamp does NOT light, then no R.F. energy is being passed by the R.F. choke and it is effective for application on that band. If you are fussy and need a more sensitive indicator, then use a suitable rectifier and meter in the usual manner.

Bias Supply

An inexpensive power transformer is provided for a grid bias supply unit to the order of 50 to 100 volts by using a filament transformer. The winding intended to give 6.3 volts is connected across the 6.3 volt filament supply of one of the valves in the transmitter. The transformer primary can then be used to supply voltage to the plates of a 6X5G as a half-wave rectifier and a simple filter will smooth out adequately the ripple and give a bias voltage that can be adjusted by potential divider or potentiometer. More voltage can be obtained if large capacity filter condensers are applied. So long as the transmitter filaments are energised, grid bias voltage is available. Incidentally, this scheme prompts an obvious use for some of those 500 cycle ex-Radar transformers obtainable in profusion in Disposals gear.

—D.B.K.

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These special models are for those who want the finest in equipment.

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P.S.—WE CAN'T BREAK OUR MODEL! DOES THIS INTEREST YOU??

THE PRICE IS 99/6.

RADIO CLUB NEWS

There is now a very thriving Amateur community in the West consisting of most of the prewar stations plus a very healthy compliment of new comers who are fast proving that they have not many points to learn.

On a recent QSO day more than 40 stations participated on 7 mc which gives some idea of activity.

The local Division of the WIA has arranged a Sunday morning broadcast of local news and doings which is much appreciated by country hams who incidentally are very much on the increase. This broadcast is being ably handled by Ted Doddy Vk6WH a regular 7mc worker and takes the form a news service on ham doings followed by a period in which country stations are given the opportunity to reply.

Several country centres are forming club groups. The most prominent of these is the Geraldton and Districts Radio club which now has some 20 members. It is expected that a good number of new Amateurs will result from this activity.

Amateurs in the West are very disappointed at the disposals gear made available to Amateurs through the WIA on a priority basis. The local division has only been able to get a handful of equipment. A recent example was the auctioning of a quantity of Class "C" Army wavemeters. These went to auction and were obtained under the hammer by a local firm who kindly passed them on, on a cost plus basis with the result that a goodly proportion of locals now have a class "C" Meatwaver. There are still large quantities of equipment useful to amateurs in ordinance stores here, but the powers that be, seem to favour it being auctioned to the junk dealers. (how am I doing 6DX).

Amateurs in general have been very busy preparing for the coming summer DX. Much erection of beams, mostly of the dual ten and twenty type has been going on. Most favoured arrangement seems to be closed spaced arrays on windmill towers as the ideal for the suburban back yard. Fairly elaborate arrays of this kind are now owned by; 6DF, 6HL, 6FL, 6KW. VS1AV has been a visitor to the West and likes the place so well it is rumoured he may settle here.

NEW WESTRALIAN CLUB

From R. H. Atkinson (VK-6WZ) comes word of the formation of the "Geraldton and District Radio Club." Says Ray: "July 25, 1947. Last night a meeting convened by myself and decided by fifteen enthusiasts, decided to form this Club. Pre-war I was closely associated with the WIA in Perth, and was also a member and instructor with the now defunct Victoria Park Radio Club. At present there are only three licensees in Geraldton, VK6EL, 6CN and myself. 6CN is one of the unfortunates who got through the exam in '39 and has waited all this time to get on the air. A pre-war licensee is VK6BX, one of our technicians at 6GE Broadcasting Station. I have hopes of getting him on the active list again. Among those present at the meeting were Hams, service mechanics, electricians, radio salesmen, a hairdresser, and two broadcast technicians. Technical and code classes are to be got under way without delay . . . with honorary instructors and no fees. President is R. G. Evans, headmaster of the local high school. He was, in the 1920's, an active member of the Northam Radio Club . . . all BCL's then. They made their own variable condensers and "bred their own pussies for catswhiskers." It was a case of make your own or go without. Mr. Evans has generously offered the school as a meeting place. My own activities are confined to 7 mC. at present with about 7 watts to a 6P6 from an FS6 vibrator supply. I get 100 volts more from this than I can get from the town D.C. mains!"

—D.B.K.

EXPERIMENTAL RADIO SOCIETY OF N.S.W.

The usual fortnightly meetings were held at Melody Hall, George St., Burwood, on the 11th and 25th of September last. News was received that Wally Haynes, formerly VK2XH, and a member of this Society, is now ZL3HE. Members are anxious to contact him. A new Receiving section member welcomed was Ron Anderson. VK2QX, John Warren, is arranging for the morse instruction equipment to be put back into service, and in the meantime instruction has been given by Bill Waugh, VK2LW, on a buzzer outfit loaned by Mr. Taylor. A letter has been received from Ern Hodgkins, VK2EH, of Wagga, a former President. He writes to thank the Society for the help in association with Wagga amateurs regarding the XYL of VK2NE, who was unfortunately killed in an aviation accident. The Society's Receiver will be in action again very soon for instructional purposes. Mr. Brockbank kindly donated a speaker to replace the one previously damaged. It is proposed to re-institute the "Question Box," a feature so popular in the old Lakemba Club, and consequently the technical Committee is "on its toes." A request was received from VK4EJ asking for a copy of the Society's Constitution as a basis for the Townsville Club in contemplation of formation. The President, Mr. R. Anthony, VK-2TR, is forwarding a copy and arranging for all members to be presented with copies in the near future. The "New Member" competition concluded with a dead heat between Messrs Lumb. VK2AGL, and Burke, VK2NM, making a ballot necessary to determine the winner. Lectures on "Modern Broadcast Transmitter Design" and "FM" were given at the last two meetings. Mr. Jim Corbin, VK2YC, is scheduled to talk to the Society regarding the W.I.A. plans for affiliated Clubs.

All enquiries regarding the E.R.S. should go to the Hon. Secretary, W. Hayes, 34 Nicholson St., Chatswood. Phone, JA7729.

NETWORKS—AND "RAG-CHEW" CLUBS

An Interesting New Phase in Amateur Station Operation

Many amateur, and also listener, users of the 7 mC. band in particular have noted the establishment of a form of communication which in these post-war times is an advanced version of the old "Rag-Chewers' Club." The latter was more theoretical than practical in those early days, but the idea was good, and was applied spasmodically by a few enthusiasts. Then—it was all done by "brass-pounding." To this writer's knowledge at least, there was no effort to start anything of the kind on telephony. Nowadays the picture is different, engendered by technical advancement and the influence of war-time Service practices. Group Working is a most important feature of military field communication. A Control Station is established on a spot frequency and the "out" stations "Net" to that common frequency. All use "break-in" and with accuracy and speed, either by voice or key. In amateur radio now, voice communication holds prior interest for many fundamental reasons—there is much more to getting a *good* phone transmission on the air than a clean cut CW signal. The latter is, and likely to be for ages, an important means of conveying intelligence, but telephony can be understood by the laymen—untrained in the morse code. Not always an advantage, of course—especially in military usage; but even *there* the enemy is effectively misled by phonetic codes. Today the radiophone amateur has, in most cases, a transmission which can be understood at once by a listener—spoken words are at once intelligible. But oft-times interference comes along—especially inter-station interference—and the going can be tough: both for transmitting and receiving stations. Where a number of amateur stations get going on any one band in a domestic "get-together" usually dubbed a "round table," there can be unreasonable usage of that band to the detriment of others if all those stations are scattered anywhere across the band. If, under those conditions, half a dozen stations are engaged in rotational contact—each on a different frequency; there is not much of the band left for the other fellows. That position is corrected by the obvious use for Variable Frequency Oscillator control of transmitters. One station assumes the mantle of M.C. and the others move to his frequency. It is done effectively, very quickly, with the result that only ONE channel is occupied on the band—just as if ONE station only were active.

* * *

Master of Ceremonies

Any other would-be participants in the ensuing conversation need only move to the Control Frequency, and at a suitable opportunity, announce arrival or wish to be included in the rotation. It is a good scheme with everything in its favour. Where the M.C. knows that some particular station is not VFO equipped, but wishes to be included in the contacts . . . HE establishes himself on the crystal-controlled station's frequency, and the others follow suit. The catch there is that if QRM happens along, it must be endured if that frequency is retained, whereas if all participants are VFO equipped, a slight move can be made by Control, and the others to avoid the QRM and thus carry on undisturbed. One group of stations functioning at times in N.S.W. is dubbed "The Tomato Network," styled thus with a long American "a". The title sounds to the uninformed, a trifle facetious, but has an origin. During a phone conversation between two VK's and K6BHL, Honolulu, one VK explained that "his poor signal might be due to his antenna, hanging from a window sill to a garden tomato stake." Whereupon the Hawaiian described this regular trio of conversationalists as the "Tomato Network."

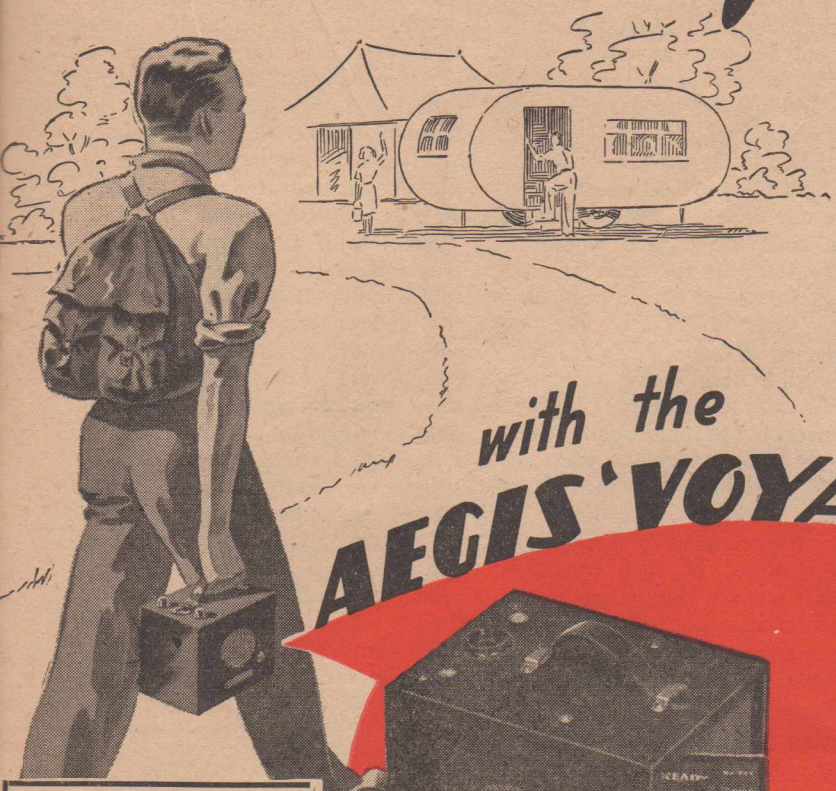
* * *

Printed Rules

A printed set of "Rules" goes out to those interested. They cover 12 points, all helpful in the better utilisation of amateur bands by R/T users. One of these stresses possession of, VFO control, and correct usage. Another is that the use of the slang "Handle" is barred and that Interference and Static shall not be referred to as QRM and QRN. All of them are laudable points and certainly make for better operating. Another group of VK2 stations, which includes some of the Network already referred to, functions as the "Home to Lunch Club," and as the name implies is what the title says. It consists of stations able to operate from 1300 to 1400 in the 7 mC. band during week-days and functions on similar lines to the "Tomato Network," so far as VFO Control applies. In both instances operation is the most suitable for inter-country, town and city communication. Provided that those participating in group-working schemes live up to their expressed ideals, and function to rejuvenate the once very evident Spirit of Amateur Radio, bearing in mind that the spoken word also appears in the loudspeakers of Mr. and Mrs. Public, all will be well. Popularity of the schemes rests with the members.

—D.B.K.

Here's PORTABLE pleasure



It's a little beauty! The Aegis Voyager is a compact, efficient 4-valve battery-operated portable supplied in kit set form. Every part, including the miniature valves and Mini-Max batteries, comes to you in a well-packed carton, all ready for assembly—and it's so easy to do with the complete instructional details. When finished it is only 8in. x 6½in. x 7in. and every feature is typical of Aegis quality and ingenuity of engineering. This is the first kit set to be fully licensed by A.R.T.S. & P. which gives you full use of all patents—yet another triumph for Aegis.

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Features of MODEL KP4

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BATTERIES: Genuine Eveready Mini-Max B. Batteries, giving approx. 240 hours' life.

RADIOTRON miniature valves, allowing for extra sensitivity and space saving.

ROLA 3½" Per-mag. Speaker.

CABINET durable Leatherette covering.

AEGIS special Loop Aerial for High Q.

AEGIS J10 I.F.'s.
CHASSIS Cadmium plated.

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PROS and CONS of the V.F.O.

That there is much in favour of VFO control for operation of amateur stations on our crowded "popular" bands, no far-thinking exponent of the hobby will deny. That there are points in disfavour of VFO control is a state of affairs engendered solely by misuse by a few individuals, fired by a mistaken sense of DX values. Matters have reached an acute phase where many prominent overseas DX stations now refuse to answer calls on their own frequencies; perhaps there are VK's who are turning also to this "cold-shouldering practice." It is bad enough to have a flock of stations calling together on a distant station's frequency, but when they add to that, the pernicious business of calling *before* he has finished his CQ, with the sole object of keeping others out of the picture, no comment can be scathing enough in print. In Britain there is a suggestion that a cure would be for VFO users to call their wanted station about 15 kC. either side of his frequency; to pick such a spot at random, and to listen for at least 15 kC. either side. Which all goes back to our old time status of amateur radio communication, in the 1930 era days when nobody would think of confining band-search after a CQ call to one little spot in the vicinity of one's calling frequency. True, one would be likely to stop on the first station answering, but the intention from the moment the dial was moved was to start off and *cover the entire band.* Not enough use is made of the long-established "Q.S.T." practice of QLH, QMH, QML, etc.; in fact, this writer doesn't recall ever hearing other VK's using the scheme. It is in the DX regions where the VFO comes in for most misuses; things are not so bad in our "domestic" communications. For example, on 7000 to 7200 kC. there is sensible use being made of VFO's to establish "Club" or "Network" communications; or in the words the man who did these things not long ago in uiform: "Group working." Whether or not there is agreement or dissent with some features of such operation, the fact remains that where a number of stations foregather on a common frequency, that channel and that channel only, is occupied by all those stations. The interference situation is non-existent—it is even less than that resulting from normal communications between two stations using different channels. Nevertheless, that point doesn't dismiss crystal control with a shrug of the shoulders—there are indisputable points about that method of control that make it highly desirable, especially for some not-so-experienced youngsters. It is vastly easier to make spurious noise on frequencies other than that intended by reason of two-stage MOPAS or similar gear than it is with a simple 2 stage crystal controlled affair. There is also a vast difference between some forms of self-excited contraptions masquerading as Variable Frequency Oscillator-controlled outfits, and the elaborate temperature - compensated VFO drive unit as typified in modern radio engineering practice. Also, it is not good enough for a man to appear on "Forty" with some of the ex-Army boxes of tricks acquired over the "junk" counters, and to imagine fondly that he is the proud possessor of a VFO unit that is equal in performance and calibration-holding features to, for example, a Franklin type oscillator starting off at LF, plus successive stages. The calibration properties of most of those portable field equipments are but relative—they can by no stretch of imagination be considered in the light of accuracy. Most of them have, in any case, no hair-line indication—but merely fat white or black-filled engravings that can cover 15 or more kC. either side. In other words, if a station goes VFO, then it must do so in the correct sense, or avoid the issue and stay on crystal. There are plenty of VK's using VFO to correct and useful advantage. They can be heard on DX and "domestic" bands. There is much to be said in favour of their modus operandi, but as outlined, there is still something in favour of the quartz crystal. And there for the time being, the matter rests.

—VK2NO.

TELEVISION - GUIDED MISSILES

A PEEP INTO FUTURE WARS

Those Hams who may be members of the American I.R.E. and who receive the invaluable "Proceedings," will have read that absorbing story with illustrations of the television-equipped and radio controlled glider bomb developments. The bomb, as it speeds unerringly to the target, sees what it is approaching, and transmits the scene to the controlling plane to the rear, or the ground base station. The operator handles the controls at that position and literally places the bomb where he wishes. War, in this atom era is now surely something that only a lunatic would start against a powerfully equipped nation, but there are always lunatics around. Point about this television bomb development is that two plain Hams were responsible. They visualised the scheme and put their VHF Ham experience to work. After this, television for the Ham station cannot really be far away.

—D.B.K

NOTICE

Clearance Sale of Old Back Numbers

Owing to shortage of storage space it has been decided to dispose of all back numbers dated prior to February, 1946. Therefore the following back numbers are offered at a special price of 6d. each, or 5/- per dozen, post free to any part of the Commonwealth.

These issues contain a wealth of technical data and information. Only small stocks of some issues are available, so don't hesitate.

September, 1939.—Six-band frequency meter, Dual-wave battery four.

October, 1939.—Portable Four, Code oscillator, S.W. battery superhet with coil data.

November, 1939.—S.W. Pre-selector with coil data, Good article on meters.

December, 1939.—Loop portable 3, Junior class B battery amplifier, "Air-scout" communications six, multi-meter circuit.

February, 1940.—Companionette 3 for a.c., Receiver alignment, 3-watt midget amplifier, World-Cruiser 8, etc.

May, 1940.—De-Luxe Fidelity 8, 12-valve Super Set, "Vibra" p.a. amplifier, S.W. Converter for battery operation.

November, 1940.—Trans-port a.c. portable, T.r.f. mantel 4, "Criterion Crystal," Two champion amplifier circuits, 8-valve battery superhet.

December, 1940.—"Tip-top" 3/4 superhet (one of our most popular circuits), tone-corrector for magnetic pick-ups.

February, 1941.—The Club Special, Local-tone Four (a.c), First article on tone compensation by inverse feedback.

March, 1941.—Second article on compensated acoustics, also the "Acoustic Compensated Superhet."

April, 1941.—"Master 4" battery set, Car radio, Club Special with vibrator, etc.

June, 1941.—Super-seven dual-waver, Paraphase amplifier, extension speakers.

July, 1941.—Countryman's vibrator 4, 13-watt amplifier, power oscillator for code class.

December, 1943.—Design of folded horns, five-way tone control, High efficiency aerial for short-wave listening.

January, 1944.—Simple v.t.v.m. with magic eye, home-made high-fidelity pick-up head, all-wave two-valver.

February, 1944.—How to make a soldering iron, 12-valve super-quality amplifier.

March, 1944.—Making electric musical instruments. The Three-Two battery special.

April, 1944.—How to make an electric guitar, simple volume expander circuits, Mystery crystal set.

May, 1944.—Multi-vibrators, an amplifier beyond reproach, wide tone-control unit.

June, 1944.—Utility battery set, Direct-coupled t,r,f, 4, How to wind your own output transformer, etc.

July, 1944.—Simple v.t.v.m., Three circuits by Stevens, Home-built communications 13, scratch filters.

August, 1944.—Home-made hi-fi pick-up, wide-range audio oscillator, useful a.c. bridge, bass booster amplifier.

September, 1944.—How to design direct-coupled amplifiers, crystal circuit which receives N.Z., Eclipse champion amplifier, simple valve tester, R.f. heating.

December, 1944.—Victorian champion amplifier circuits, pick-up equalizers, English fidelity radiogram circuit.

January, 1945.—How to wind your own power transformers, Tales of phase-inverters, Factors in High Fidelity.

February, 1945.—Circuit for set used either as superhet, or t.r.f. Square wave testing, Make your own selenium cells.

March, 1945.—Superhet for D.C. with lamps, multi-meter with wide range, Reflex for Results, Moving coil meters.

May, 1945.—Reflex circuit with cathode follower, one-valve test oscillator using 6A8G, Audio oscillator circuit.

June, 1945.—Well-tried reflex circuit, Theory of microphones,

July, 1945.—Resistance and capacity meter, Tone compensation amplifier.

August, 1945.—The Decibel, Theory behind proper amplifier design.

September, 1945.—Camera-case portable, An answer to the cathode follower, Getting the best from a pick-up, Probe adaptor for v.t.v.m.

October, 1945.—Transitorn oscillator, Vibratory power supplies.

November, 1945.—Stereophonic amplifier, "Little Companion", Electronic filter.

December, 1945.—The "Hammond" electric organ, Noise suppressors.

January, 1946.—Champion amplifier, Simple service oscillator, Home-made filter chokes.

February, 1946.—The "Antitheorist," Improving DX performance, Signal tracer in miniature.

Put a cross alongside the numbers you require and post this page, or make out a list of dates you want. Remit the amount in 1½d. stamps or postal notes and address your letters to

AUSTRALASIAN RADIO WORLD

Balcombe Street, Mornington, Victoria

AS you've noticed, Philips Valves are now appearing in the smart new blue and yellow cartons . . . or at least *some* of them are. The change-over is being made gradually, due to the fact that considerable stocks of the old-type cartons must be used first. There is an acute shortage of carton board, and to scrap all old stocks would be inexcusable waste.

Although, for some time, you will receive your supplies of Philips Valves in both new and old cartons, *each and every valve is straight from the assembly line.* Old cartons for a time . . . yes! But the valves inside . . . *as new as the minute.*

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V10

CALLING CQ!

By Don Knock, VK2NO

That new 4 element horizontal rotary Beam in use at VK2OC, Wyong, N.S.W., is a winner for contact with Sydney stations similarly equipped. Signals both ways are well up in the S9 region. Similarly, the new beam at VK2BZ, Newcastle, another 50 miles further on, is responsible for dropping a strong signal Sydneywards, although temperature inversion effects play a part on occasions. In Gosford, VK2RU, has raised his signal level in Sydney by a considerable amount since his Ground-Plane system has been re-erected 12 feet higher.

* * *

The VHF meeting of WIA's 50 and 166 Mc/s. enthusiasts held on October 10, 1947, at Flo McKenzie's premises, 10 Clarence St., Sydney, was something outstanding in the way of lecture material. Geoff Parker, of C.S.I.R., regaled those present with the gen on "Radar and the Rainmaking Project," supported ideally and most interestingly by 16 mm. movies. The effect of clouds approaching and rolling over the Metropolis as displayed on the 3 cm. PPI screen was an indication of what goes on in and around us as distinct from the purely amateur aspect of radio. 20 members attended, and those that didn't may be considered losers. Noticed there were a couple of "5 metre OT's" in the shape of Perc Stephen (VK2PS) and Horrie Lapthorne (VK2HL). The latter is active as of yore, now on 51 Mc/s. A discussion on 166 Mc/s. technique followed the lecture and a suggestion was made by VK2NO that before making any definite plans toward stabilisation by crystal control a period should be allowed to elapse because of the possibility of a change in band, following on Atlantic City decisions. Next meeting of this VHF section was scheduled for a lecture by Mr. White (VK2AWW) on "Plumbing technique and specialised circuits for SHF's". Officer coordinating affairs of this section of WIA (N.S.W. Division) is Chas. Fryer (VK2NP). Secretary is M. Findlay (VK2PW).

* * *

One Sydney station has been heard on "Six," steadily calling friend Ross Weeden, (VK2PN) Tumut, but it is not known whether or not either heard the other. Schedules have been kept many times during the last two years between Ross and Sydney stations, including your scribe's, but with negative results. VK2PN is at an "awkward" distance for Sporadic E reflection either for Sydney or Melbourne, but may be lucky enough to experience some "extended local" type of working with either Metropolis by "ducting" or "inversion."

* * *

An outstanding feature of communication between VK2BZ, Newcastle, N.S.W., and Sydney stations on 50 Mc/s. CW on the evening of October 12 last, at 2100 hrs. EAT, was the presence of very marked and intense fading, with all the characteristic of lower frequencies. Signals ran between S7 and zero. VK2ADT, Cessnock, N.S.W., has been able to work with one or two Sydney stations on 50 Mc/s. CW and phone. He and VK2NO "made it" one evening recently during pronounced inversion conditions after a lot of trying at both ends. Latest Sydney station on the band with something good in the way of horizontal beams is VK2HO, Roy Hart, of Roseville. Roy doesn't use phone much, but is a hardened brass-pounder, and complains that QSO's by that medium are hard to get. Wait until a W or somebody overseas breaks through on the key, Roy . . . then hear the rush!

* * *

Things have been happening in fine style in the world of Five and Six metre in Britain. "Short-Wave Magazine" for August, included a listener report of reception in England of South African ZS1AX. Inter-G and G-European DX on "Five" has been commonplace for a long time in British activity and it is to be hoped that the British PMG will grant G's a band around the vicinity of "Five" despite recent decision of Atlantic City. The

(Continued on next page)

Experimental Radio Society of N.S.W.

The usual monthly meetings have included lectures on such subjects as "The AT5 VFO Unit" and "Q." At the meeting of October 9, Jim Corbin (VK2YC) gave a description of the W.I.A. activities and organisation. A full programme of lectures for the coming year has been arranged by the Technical Committee. A Field Day was planned for November 9, with operation of portable-mobile equipment on 7, 14, and 166 Mc/s. The usual hidden-transmitter hunt was enjoyed. ZL10E (ex- ZL4IA) who visited Australia last Xmas in the ketch "Ilex" for the Sydney-Hobart yacht race will be over here again soon. He will again be on the "Ilex" which will cross first to Brisbane, making Sydney later. As on the last voyage, a transmitter will be in use, mainly on 3.5 Mc/s. It is understood that another ZL amateur who will be operating on another yacht is ZL1BL. Meetings of the ERS of NSW are held at Melody Hall, George St., Burwood, and intending members can reach Hon. Secretary, W. Hayes, at 34 Nicholson St., Chatswood, Sydney.

HAM NOTES

(Continued)

G's have done such good work on "Five" that to rob them of that, or an adjacent band is daylight robbery of the worst possible kind. It shows scant gratitude on the part of Bureaucracy for "services rendered" by G amateurs in those not so far gone days when the Mad Dogs of Europe were battering at the Island Fortress. For the benefit of VK's who may not know this . . . on **Five** Metres . . . in the old 56-60 Mc/s. band . . . G's have worked **two-way** on lots of occasions with France, Italy, Holland, North Africa, Switzerland, Sweden, Denmark, Belgium, Czechoslovakia, Malta, and Gibraltar. As this is written comes word that G5BY has worked two-way cross-band (Five and Six) with a Canadian. I hope so, because nobody in G-land deserves such success more than Hilton O'Heffernan . . . a man who stuck at it through pre- and post-war years. In the Pacific area it is known that J9AAO on Okinawa has been reaching out in all directions on Six. He was heard for days in California before making a QSO and then he beat the band by working two-way with CE1AH in Chile, South America. That was on phone, for an hour at S7. A year or two ago that news would have called for a blazoning of headlines . . . now we are hearing of so much overseas DX on "Six" that one becomes blasé. Even so, Australians have yet to experience that kind of Six metre working, with the exception of VK5KL, Darwin, N.T., who has worked Hawaii.

* * *

A loss to N.S.W. in the way of 50 Mc/s. supporters is Flying Officer Les Page, R.A.A.F. (VK-2YQ). Les has for months provided an interesting contact out of the Sydney Metropolitan area, and just when he has re-built with a new TX, etc., he is posted South. Ballarat 50 Mc/s. men will no doubt be seeing a deal of ex-VK2YQ, who lacks no enthusiasm for the band, but doesn't like people who are members of the "Hi and Handle Brigade," or those who say they are using a "One Hundred Thomas Henry" in the final, or utterances of that ilk!

* * *

There isn't quite the activity on 50 Mc/s. in the various Metropolitan areas that one would expect. There are those who appear on the band with a grand flourish of trumpets and who eventually fall by the wayside and migrate back to the other (HF) bands. There are those also who have sprouted loudly on those other bands and who have asserted equally loudly about "what they are going to do on Six Metres," and how they would perform DX miracles, or words to such effect. They also don't seem to make much of a show and appear somewhat put-out to find that those already making good use of the band are not impressed. There are also the types that, after tortuous months, manage to get going and at once begin to pose as the Big Authority on all things VHF, and who decry well-established antenna and other practices in good service by those who have already worked all Australian States excepting Westralia, on the band. Ironically enough, the BA types don't seem to reach out anywhere but very locally. Finally there are those who won't own up to the fact that after weeks and months of messing around with receivers and what-not . . . they haven't even been able to **locate** the band. Any of the constant habituees would assist by checking an absorption Meter, but apparently they prefer to "walk in the darkness."

* * *

Where is the big splash on FM transmission in the 50 Mc/s. band that some people were so glib about a few weeks ago? Permission to use FM was heralded as "the biggest thing that has happened in amateur radio, etc." Whichever way you look at it, FM is just another way of **communication**, and AM doesn't do so badly, anyway!

* * *

Hope leapt high among a Sydney 166 Mc/s. coterie when a story got around that VK2NQ had been hearing VK3's on that band, on a recent Sunday evening between 2000 and 2030 hrs. What Neil was hearing was a rebroadcast of the WIA session done that night by VK2NO. Over in Kingsford, John Peell, VK2WJ was relaying the session on 166 for the benefit of the lads on that band. It so happened that the WIA broadcast gave a lengthy list of VK3's active on the 50 Mc/s. band and with VK2WJ's signal on 166 Mc/s. not reaching the Watson's Bay area too strongly, VK2NQ mistook the reference to several VK3 callsigns as being original.

* * *

Sunday, November 9, was a hot day in Sydney with a Westerly raging. This WX brought a 50 Mc/s. opening starting around 11 a.m. when VK2OC of Wyong, worked VK3ZL, Ballarat, for a fleeting glimpse. At 1 p.m. VK5's appeared on the Sydney scene and VK's 2MQ, 2WJ, and 2NO worked VK-5RT, also 5QR. S'Australians were the only DX heard in Sydney, but up in Newcastle, 70 miles further north, VK3's, 4's, 5's and 7's were splattering signals. VK's 2BZ, 2AHA and 2ADT (Cessnock) got in among them. In Gosford, VK-2RU also worked his first 6 metre DX as did VK2MQ, Sydney. Interesting news of the moment is that VK2WJ overheard a PAO say on

10 metres that he "had been hearing Australians on 6 metres," with the result that most VK 6 metre men are all agog. As this is written, it is but early November, and anything may happen before February next.

* * *

On the heels of various overseas reports of extra-territorial 50 Mc/s. DX, comes word from New Zealand that ZK1AA of Cook Island has been in QSO with a West Coast American. Also there is a report that J9AAO, Okinawa, has reached as far as Holland on Six . . . which all goes to make VK's feel a bit like Cinderella . . . out in the kitchen.

FLASH!

First indication of overseas signals in the 50 Mc/s. region in the Sydney/Newcastle area occurred on November 12 last, when at 1100 hrs EAT there appeared between 50 and 51 Mc/s., strong signals from teleprinter stations. Swinging the 3 element horizontal beam showed directivity to be slightly West of North. These signals held up until around 1430 hrs, and were noted by VK2WJ, 2ADT, and 2NO. Persistent calling and listening by these stations brought no luck, but VK2ADT reports hearing additionally a station on CW signing JFG/-2, 3 and 5. This was in at the same time as the teleprinter station harmonics and indicates that the signals were originating either in Japan or in the island regions North of Australia. Later, VK-2ADT had a QSO on Ten with J9AAO, Okinawa, who arranged to transmit daily auto-CW beamed on Australia between 1200 and 1800 hrs. GMT. Something should happen sooner or later. That same day, the 50 Mc/s. band remained lively and opened from 2130 hrs in Sydney and Newcastle for contact between N.S.W., Victoria, South Australia, Queensland, and Tasmania. Conditions were better in Newcastle than in Sydney, but on the evening of the 13th, a remarkable burst of signal strength between Brisbane and Sydney stations occurred from 1915 hrs. VK2NO was talking to VK2BZ, Newcastle, when VK4HR appeared on the dial at terrific strength, followed by VK's 4ZU, 4RY, 4PG (Bundaberg) 4BJ and others. The fun, for an hour, was fast and furious and signal level was so intense that interstation QRM was apparently in evidence with those using relatively inselective receivers. VK4RY told me that at times my signal was mixed up with that of VK3GG. Here in Sydney the Victorians were heard only in brief flashes. These conditions are a sample of the fun to be expected on "Six" during this summer season, and coupled with increasingly favourable high MUF, the International QSO possibilities are alluring. In fact, there are those among the Sydney stations who are already exhibiting a blasé attitude about Interstate DX on "Six". So far, however, the non-appearance in Sydney of Westralian signals keeps the N.S. Welshmen on the qui vive . . . who will snag the first VK6?

(Continued on next page)

HAM NOTES
(Continued)

No use Bob Cunningham saying he is too busy these times to take an interest in DX either, for plans at VK3ML's location at Frankston, Vic, include a couple of rhombics. What else would *they* be for, if not a spot of DX now and then? Bob is kept busy apart from the daily toil with the Presidency of Victorian Division of W.I.A.

* * *

If you hear three letter calls from Maoriland these times, they are not jolly Roger merchants, but perfectly "legit" stations. Over there they seem to have exhausted the supply of two letter calls, as we did in VK long before the war. The issuing of the three letter calls in ZL is but another sign of the steady growth of Amateur Radio population the world over.

* * *

One of the current 'inanities' extant on most bands, is this business about "VK so-and-so *returning* to so-and-so." Why this habit should have grown is difficult to see, for surely it is logically more correct to say that one is *replying* to the other station. Just one of those things that "catches on" like the absurd farewell of "Ta Ta" . . . !

* * *

This scribe doesn't go deliberately looking for something to criticise but here comes a criticism of a G station heard on 14 mC/s phone on 10 September last. This lad persisted in interpolating sundry remarks with "Aitcheye," and gradually it was realised that he referred, not to a relative of the spinach-consuming sailorman, but to the fact that it was intended to express mirth. So now we have the era of camouflaged laughter in verbal form. Almost as bad as the people who used to shout a lot of "Heils" into ordinary conversation!

* * *

If you are interested in operating conditions and circuits for the 807 valve, and what amateur isn't, take a look at the article in August, 1947, Philips Technical Communications by G. M. Thompson AMIRE (Aust). It is about the most comprehensive article in language the "Ham" can understand that I've yet spotted on the subject of these valves. Those especially, who radiate sundry parasitics generated by 807's, should find the gen very useful. Incidentally, wonder why it is that those who run into such trouble on the 14 mC/s band in and around Sydney seem to have the bad luck to develop a gremlin or so around 145,000 kC/s? They excel themselves at causing QRM to important airways traffic. More care needs to be exercised about this kind of thing for the sake of us all.

* * *

Latest old hand at the game to put in an appearance is Jim Herd,

N.Z.A.R.T. 80 METRE CONTEST IN DECEMBER

FROM Jock White, ZL2GX, well-known New Zealand DX man, come details of a Contest to be held on the 3.5 mC/s band. Says he . . . "a few weeks ago we had a Contest on 80 Mx here in ZL and the band was well and truly thrashed. When all the din was over, a number of VK's were contacted who commented on the extra large number of ZL's on 80, and the fun they were having. They explained that they didn't call ZL stations as they thought the Contest was a purely local affair. In actual fact this is not so, as ZL's received points for each QSO and more points for outside contacts such as VK, ZK, FK8 etc. You can imagine that the boys here were on the look-out for VK contacts. In December we are holding our "Memorial Contest" to perpetuate the memory of those amateurs who lost their lives in World War II and the boys here will be very anxious to work as many Australians as possible. No doubt many VK's will welcome the prospect of a good work-out on 80 . . . in spite of QRM (to say nothing of QRN here.—D.B.K.) This contest is for 80 only, phone and CW. The Dates are December 6, 7, 13, and 14. Six figure Serial numbers are exchanged, the first three figures of which a station retains for each QSO, but the latter three are taken from the first three of the **number received** during the previous QSO. For the initial contact, the last three figures are zeros. A Certificate will be awarded the VK making the most ZL contacts during the Contest period." Here then is a chance for VK's to have some real fun with our colleagues in ZL . . . and if the BCI shadow looms large . . . why not put in some little time cleaning up the rig for CW . . . clicks are easy enough to cure . . . as are also spurious signals at lower frequencies. In any case . . . there isn't any doubt that in these times VK's don't make half enough use of 80. Main trouble in Australia is the heavy static loading on the band for lengthy periods . . . but there are stretches when comparative quiet reigns, even in summer. Now . . . if that hospital equipment not far from VK2NO will let up for a while . . . this station might also be in the picture.

—D.B.K.

BERU (1947) RESULTS

Through Ivan Miller, VK3EG, we have received the results of the recent British Empire Radio Union contest:

SENIOR CONTEST

Winner	*Points*
ZS2AL	1864
VK3HJP	1350
ZL1BY	1225
VK2EO	1118
G5WP	1558
VK2ADE and VK2DI	equal scores.

JUNIOR CONTEST

Winner	*Points*
ZL4GA	828
VS9AN	732
ZB1AD	658
VK4RC and VK5RX	equal scores.
G8IL	469

Owing to fuel restrictions no awards are being made in Britain this time. VK3EG is again maintaining his pre-war schedules with "Dud" Charman, G6CJ, and uses a vertical rotary beam on 14 mC/s and a 4-element horizontal rotary on 28 mC/s. Ivan is a CW man with a nice high-speed clip on a "bug," with a style that demonstrates just how a "bug" *can* be used.

VHF NEWS AND NOTES

VK3JK of Wangaratta, Vic. Jim is active occasionally on 7 mC/s with a very nice telephony signal. Quite like old times Jim.

* * *

If anybody offers you a good grade of American communications or Ham receiver these days, you will be well advised to take advantage of the offer, because it seems likely that what with the dollar situation and one thing and another, such things will be non-existant in quick time. On the other hand, there are local manufacturers with an eye on Amateur requirements, but whichever way one considers the receiver problem, it won't be dirt cheap. Prices are on the rise all the time and the manufacturer is hard put to it with his rising production costs to market amateur type receivers at what some people like to consider an amateur price. You can expect to pay at least £55 for a good locally made job, and around the £80 mark for an overseas (British) receiver. There *is* an answer to it all of course, and it is an obvious one. Why not make your own?

* * *

That "Six and Ten" Converter in the June issue of A.R.W. The captions intended for the photographs were omitted, and they explained in detail that the version shown was that of a commercially planned model with rotary turret band-changing instead of the miniature plug-in coils described. The Turret Model covers from 30 to 180 mC., in four bands with continuous coverage. It is not intended for amateur duplication unless the would-be constructor has access to and is versed in the way of a lathe. Conversely, the photos of the miniature plug-in coil mounts were omitted, but the method of construction can be followed fully from the text.

* * *

A few months ago, there was

Since our faithful Victorian correspondent Ken McTaggart (VK-3NW) has moved on to G-Land for a space of 2 years, your scribe lacks a source of VK3 VHF information. Until somebody comes to light with periodical Notes, the atmosphere must of necessity be that from a N.S.W. viewpoint. Interstate Notes on the latest VHF activities will be appreciated, and such may be mailed direct to the writer at 43 Yanco Avenue, Waverley, N.S.W., or c/- Philips Electrical Industries of Aust. Pty. Ltd., Head Office, 69-73 Clarence Street, Sydney.

* * *

Bad luck indeed for VK3BD and Australia in general that the QSO with the station signing LU-2CP (on the 50 mC. band) turned out to be the doing of some practical "joker." Radio Club of Argentina says that there is no LU-2CP in that country. Eric is reported to be looking darkly around Melbourne and suburbs with a double-barreled shotgun! Quite a few of us would be pleased to pull one of the triggers for you OM!

* * *

One unfortunate aspect of possible QRM during DX hunts on Six is the presence of harmonics from nearby stations working on the other bands. Although 50-54 mC., is not in direct harmonic relation to our other bands, there are odd harmonics that land there, and with telling effect. Often such "joeys" have people guessing, to say nothing of B/C and D/W receiver oscillator harmonics with a burbling form of modulation thereon.

* * *

Two stations in a difficult location for Sydney 50 mC., communication are reaching across the intervening country in fine style. They are VK's 2YQ and 2ALQ, the former being at Schofields R.A.A.F. Station, and the latter at Blacktown. Mileage is only around the 25 mark, but VK2YQ in particular is badly screened, being actually 60 feet *below* sea level. Despite that his signal is always around the S6 mark at Waverley. The answer? Carefully adjusted Ground Plane antennas at each end! VK2YQ says that the reliable nature of the communication should demonstrate amply to the VK4 50 mC., that it should be easy to work similarly between Brisbane and Ipswich.

active in the Sydney area on 50 mC., a station operated by a very keen operator. He had been prominent in such work since the pre-war 56 mC., days. No longer a young man—an ex-airman from the 1914-18 war, he is the sole support of an aged mother, widow of a soldier of that war. Recently they were obliged to leave tenanted residence after 15 years, with very little time to find elsewhere to live, A few weeks found them in a Housing Commission Camp area and Amateur Radio a thing of the past. Why? Some bureaucratic official says that aerials "will not be permitted." Thus does the way of life go in this era . . . it is a matter that the W.I.A. should take up at Canberra.

* * *

Since VK2FK lectured at the VHF Section meeting of N.S.W. Divisions of W.I.A. recently, on the "Adaptation of Disposals gear" to 166-170 mC., there has been a wholesale rush to that band. There are stations appearing thereon suddenly, with no previous VHF experience, and altered ASV receivers and transmitters. Concensus of opinion is "imagine what we've been missing for so long" . . . despite the fact that this writer and others have been trying to "sell" VHF's to the gang for ages.

—D.B.K.

HAM NOTES

(Continued)

Have just listened to a bit of smugness on 14 mC/s phone that "QST's Old Man" would have called "Rotten Operating" and about which he would have reached for the "Rettysnitch" or "Wouff Hong" is castigation thereof. It was a VK2 . . . a VFO exponent at that . . . who told the other lad . . . a VK3 . . . that "I only work around the frequency that I call on as a matter of course." You don't say so? What a lot of QSO's you must miss with the thousands of crystal controlled stations in other portions of the band! Also, it is assumed that an overseas station calling for a DX contact and sending QLM or QLH would be sending abbreviations completely foreign in nature . . . or perhaps nobody has ever told you about them?

* * *

That small illustration of a Bruce type array in August "ARW," page 37 . . . somebody slipped in the wrong caption. It should have read: "The rotary Bruce array used at VK2EM, then at Darling Point, Sydney, for 56 mC/s work in 1934. Despite the water-side location at sea-level, good long-distance contacts were obtained." Meanwhile, it is assumed that the other illustration to which the captain in print refers is lost among the comps or block-makers or somebody.

* * *

An interesting visitor to your writer's and other Sydney stations has been Arie Bles, PA Zero UM, from Rotterdam. He is an oil engineer and passed through Sydney en route for Broken Hill where it is expected he will infect the local boys there with some of his VHF enthusiasm. Arie is an associate of David Zaayer, PA Zero UN, the Philips Eindhoven engineer, who popped 6-metre signals into South Africa early this year.

* * *

Sydney 50 mC/s men who have virtually lived with the band from its inception are amused at the vapourings of a recent arrival there who loudly asserts that he will "show them how to use the band . . . I will use VFO . . . and no crystals or gentlemen's agreements for me." In the language of Mo or somebody . . . So what?

* * *

There's a difference in the way some of the W.I.A. broadcasts are put over . . . some States have snappy delivery with lots to keep members interested . . . others are full of generalities, inaccuracy in quoting callsigns . . . and lackadaisicalness. Better to be bashed in the ear than be bored.

* * *

From the sublime to the ridiculous? Maybe, but after seeing that article in June "Q.S.T." on a mC. Ground-Plane antenna, it was decided to try one on 14 mC. at VK-2NO. Having had such FB results with the system on 50 mC. hopes were high. They were justified, too, for the DX came rolling back in fine style, demonstrating the low angle properties of the antenna. There is a real snag though—if used for reception, the DX is there, but the local electrical noise, cars, etc., is there also—much accentuated. Reluctantly, therefore, the GP on "20" was vetoed at this station QTH.

SEA-GOING COMMENTARY

FROM VE7ALG/P, somewhere at sea, early in July last . . . "not been very comfortable since leaving Apia; only 200 tons of cargo and we are flopping about quite a bit. Re 14 mC/s . . . if I lived in U.S.A. I would go in for stamp collecting and QRT the DX game as it is nothing but a dog-fight. One night KB6AA was wrested from the W's, and, hearing the call, W's came back at both stations without waiting to see if they had contacted. However, they managed to sort it out. Early in the evening here, the W's fade out, and commercials wander all over the band. (What do *they* care about *our* precious kC/s?) Re 7 mC/s, after 3 days there wasn't a VK to be heard on the band. The nearest seemed to be ZL3 and Eastern U.S.A. with one or two West Coast stations sounding hollow. The whole band is like a receiver with the crystal filter in the most selective position. 3.5 mC/s is too static-laden to be comfortable out here. I met VR2IP and VR5PL at Nukualofa airport, Tonga. They have AR88 receivers and both work on 7 and 14 mC/s, but are keen to get going on 28 and 50 mC/s. At Apia I met Dr. Irvin at the hospital . . . a New Zealander. His rig uses 6L6 xtal and 6L6 PA plus a home-made receiver. ZM6AF is a young Samoan who is working G's. His receiver is an Echophone, something like the Hallicrafter S38. He also has a 6L6 in the final. I take a poor view of stations using phone in the CW portion of the 28 mC/s band, but if the CW men got going there properly, no doubt the phones would clear out. The remedy seems to be to sign HM if one operates on the LF end of the band, and then the enterprising one who goes right away from the QRM will be lucky . . ."

Reference by VE7ALG to the lack of CW operation on 28 mC/s, prompts a thought about possible future effects of the abolition in Australia of the probationary CW period for the new licensee. Perhaps, in a few years time there will be far more phone than CW. All the new hand needs to do now is to scrape through the 16 wpm demanded for the ticket, and then, after having qualified, to throw his key away. That is what will, in a majority of cases happen. If so, and assuming that the Atlantic City gas-house results in more room to breathe in than the phone man. Nevertheless, in this changing world, it seems that the use of the telegraphic morse code may eventually cease, what with phone, teleprinters, facsimile, and television in opposition.

—D.B.K.

For the benefit of those interested . . . the radiator length is 16 feet 8 inches; radials 16 feet 3 inches, and the feed by 50 ohm coaxial line to the TX link coil. Height of radials above ground was 20 feet. The GP on this band should be a "boomer" for the Ham in a quiet country location, if space is a consideration. It is definitely a better performer than the usual half-wave vertical.

* * *

The ex-Army Number 4 Set referred to in July "A.R.W." was long since passed on to another Ham. If anything of interest to Hams is available at this QTH, the word will be passed on, but it is realised that time must elapse before the word appears in print. For the benefit of country Hams and SWL's with a need for 2 volt battery valves of various types, the writer has available numbers of 2 volt valves of practically every known type, including European and American versions. There are one or two type 15 among them —the only indirectly heated 2 volt battery valve ever made. The replacement you need may be among these valves . . . many of them have never been used at all.

* * *

Having put in so much time and work on VHF's of late, mainly on 50 Mc/s, it is quite a change for your scribe to turn back to DX questing on 14 Mc/s, but because of skeds with old friends in G-land, such has been the case. 'Tis quite a few years since I set the alarm clock and arose with the kookaburras to push the switches and go out after the then elusive G's. These times they are anything but elusive, but the snag is to drop through the holes in the QRM curtain over there. Early morn at this end, things are oft-times not too bad, but at the same time the Englishmen have lots of QRM to contend with . . . the band is replete with W's, mixed up with Frenchmen and others. So that it is something of a red-letter day when one keeps a sked with Europe on 'phone and gets through a period of an hour or so with but the loss of a word or so. One hears old friends of pre-war days between 14 and 14.4 Mc/s, both on 'phone and CW. Among them I noticed no less a person than Britain's GOM of Amateur Radio, Gerry Marcuse, G2NM. He was busy pounding the key.

* * *

Somebody took me to task on the air one day because I referred to the 7 Mcs. band as a "seething bedlam." Perhaps I should have said, "at the week-ends particularly," but if anybody knows of a more fitting way to describe the congestion prevailing at that time, let's have it. It is of no use blinking the fact that congestion is at times terrific on our popular bands, but it is of little help to refer to it in studiously polite terms. Something about it all reminds me of an ants' nest, all dashing around shifting frequency—and the devil take the hindmost. Which reminds me—seeing that the rest of the world now has the full pre-war bandwidth of 7000 to 7300 Kcs., despite the presence of the broadcaster pirates; it is high time that the extra 100 Kcs. be returned likewise to VK's. Surely there can now be no claim that "these frequencies are needed for Service communications?" By the way, the DX angle is a good one on 40 as it always was long before the war. VK2ML worked a Mexican on two-way phone the other evening and subsequently heard the XE "go crook" in Spanish (or so it seemed) at some other Mexican who had tried to horn in on the QSO with a VFO. Nobody loves the mis-wielders of VFO's in any language! DX stations heard in the early morn at intervals at VK2NO include quite a few South Africans on CW and phone, and lately a few G's have been running up to S5 on phone.

BUNDABERG (Qld.) HAS FLOURISHING CLUB

FROM Barry Dunn, Hon. Secretary, details of activities of the Bundaberg and District Amateur Radio Society . . ." the club has recently been allotted a callsign, VK4BD, and will be active for a start on the 7 mC/s band. The transmitter is under construction. Official address is P.O. Box 97 Bundaberg and the club rooms are at High St., South Bundaberg. Members total 20 at present, and each Tuesday night classes are held for instruction in Morse code, theory, and regulations, with the object of providing for would-be licensees. Instructors are competent and lectures are followed by supper and a yarn about amateur doings. Amateur members include VK's, 4PG, 4BJ, 4XJ and 4AD. Although the band is not heavily populated, six metres is popular in Bundaberg, and a morse class is conducted nightly on the band with Arthur Simmonds VK4PG on the key. Many converters and receivers are used for reception. VK4PG has figured prominently in the interstate 6 metre DX, and recently made some unexpected contacts during a Victorian Field Day. Club officers are Arthur Simmonds VK-4PG . . . President.

Barry Dunn, Secretary, Hugh Clayton Treasurer, and Committee members Vic Brown, Martin Leis, Clem Grimwood, Jack Worth."

Undoubtedly a Radio Club with plenty of interest for VHF men. Membership is recommended to VK4's and intending VK4's in the area.

D.B.K.

Fluorescent tubes as RF indicators

The once popular neon lamp as a domestic pilot lamp is hard to come by these days, for purposes of RF voltage indication. Defective fluorescent lamps are handy for the purpose, providing that they have the gas content and coating intact, and even though the cathodes may be damaged or "open".

—VK2NO

Shortwave Review

CONDUCTED BY
L. J. KEAST

NOTES FROM MY DIARY

Certopetaleum Apetulum

Even if the gay decorations in the city stores failed to catch the eye of a busy man, the reddening of the Xmas Bush would remind one that the old bloke with the long ziff will be around soon and that points out to me this will be the last issue before the New Year, so here's wishing all my readers a Merry Xmas and a Happy and Prosperous New Year. But may I once more ask that amongst your New Year resolutions, you will really promise to send me more reports. Remember it does not matter whether the station has been reported a hundred times . . . it may so happen you have heard it at a time which shows us they are on a new schedule . . . and don't forget shortwave stations claim the prerogative of changing skeds or frequencies without notice. And don't we know it. So let us have those reports . . . they need not be lengthy . . . only correct. If you are not sure of your station, say so, and perhaps I can assist you to identify it.

Not as Quick as Sound

Have just received (Nov. 20) a card verifying my report of June 30 to Canadian Broadcasting Corporation. My air-mailed letter was posted in Sydney on July 1 and the reply card is postmarked Sept. 24.

Anyhow, it is a very attractive card and will nestle with my already large collection, which, incidentally, is NOT pasted on the wall but carefully preserved, as maybe in time to come it will be as amusing to my grandchildren as it is to me to occasionally glance at the old family album.

Spain Orders U.S.A. Gear

Airmail note from "Radio News," Chicago, reads: "We are informed that for the first time since 1936, American radio equipment is going to Spain. An order has been placed with a well-known concern in U.S. for TWO 5KW transmitters—one to be delivered to Madrid . . . the second to Fernando Poo Island. These transmitters are to be used by Compania de Radiodifusion Intercontinental to establish direct circuit from head office in Madrid to projected 200 kw. Spanish station in Musola on Fernando Poo Island off West Africa. It is probable the 200 kw. transmitter will also be ordered from U.S. especially as this is the only country where such powerful equipment has already been constructed. The Fernando Poo Island station to be called Radio Atlantica will not be in operation for a year or more. It is considered probable it will operate during (local) daytime in between 13-17 metre bands and around 25-30 metres at (local) night."

The final result of the Atlantic City International Radio Convention means an increase in shortwave bands from 6 m.c. to 21 m.c. by from 50 k.c. to 100 k.c. each and a stipulation that stations outside these bands must apply for frequency assignments inside the channels by 1949. This to Dx-ers means many changes of frequencies and a more concrete form of commercial broadcasting. These are the bands as supplied by Roger Legge: 2300-2495 (Tropic Zone only), 3200-3400 (Tropic), 3900-4000, 4750-5050 (except 4995-5005, Tropics), 5950-6200, 7100-7300, 9500-9775, 11700-11975, 15100-15445, 17700-17900, 21450-21750, 25600-26000.

The main amateur change is a reduction of 50 k.c. in the 10 m.c. band and a new 21 m.c. band, 21000-21450.

NEW STATIONS

ZL-3, Wellington, 11.78mc, 25.47m: In November issue I suggested to watch out for test transmissions of the New Zealand stations. This one has been heard and is reported by Hugh Perkins of Malanda with an R8 Q4 signal but a slight whistle on the carrier, also signal was marred by slight QRM from a transmitter on either side of station. At 9.48 p.m. they announced it was a test transmission and that in addition to ZL-3 they were on ZL-4 in the 15 megacycle band.

ZL-4, Wellington, 15.28mc, 19.63m: This is the station to which Mr. Perkins refers to above. This signal is a little stronger than ZL-3. Reports are asked for.

HRA, Tegucigalpa (Honduras), 6.05mc, 49.59m: "La Voz de Lempira" is a new station heard from 10 a.m.-1 p.m. and reported by Roger Legge of Binghamton, U.S.A. I doubt very much if we would hear it in Australia at that hour but it is a "likely" for Arthur Cushen.

YV3RM, Barquisimeto (Venezuela), 4.86mc, 61.34m: "Radio Universal" is a new one also reported by Roger Legge and seems to have the same schedule as the Honduras station, viz., 10 a.m.-3 p.m.

HTX1, Managua (Nicaragua), 8.32mc, 36.05m: And this one with a slogan, "Radio Managua," is heard from 10 a.m.-1 p.m. by

Roger Legge. (The above information was air-mailed by Roger Legge and for which many thanks.)

ZRB, Waterkloof (Pretoria), 7.445mc, 40.29m: This new South African Air Force station has been heard testing. Leaves the air at 9.40 p.m. ZBB is to be used primarily for weather reports . . . music to fill in gaps. Send reports to O/C, 64 Air School, Waterkloof, District Pretoria, South Africa. (Air-mail from "Radio News.")

6KG, Kalgoorlie, 4.835mc, 62.04m: "Radio Kalgoorlie" first heard on October 23 . . . signal fair; 9-11.45 p.m. at which time VUC2, Calcutta, blots them out. 6KG relays b.c.b. station . . . all commercial features. — Arthur Cushen.

JBBK, Pyongyang, Korea, 4.40 mc, 68.18m: This new Russian-controlled station is being heard from 6.30 p.m.-11.30 p.m. and is reported by "Radio News." It is a very noisy part of my dial. I can hear someone there and the language sounds like Russian but the static is very bad.

KZFM, Manilla, 11.8mc, 25.42 m: These people are reported by Miss Sanderson as being heard here at 8.30 p.m. with news and musical programme, but I think they are now on 11.9mc. Looks as though they have jumped from 9.515mc. Well, that's the fun of Dx-ing. Tonight they're here but tomorrow "Where are you?"

Whilst talking of the Philippines, I notice a little error crept in the November issue. KZRC, Cebu City, was shown as 9.515mc. This should, of course, have read 6.13mc.—L.J.K.

——, Singapore, 21.72mc, 13.81 m: Here is a new outlet for the Far Eastern Broadcasting Service of Singapore. Schedule is: 3.30-4.30 and 6-8.30 p.m. English transmission time is 7 o'clock. This is reported by Arthur Cushen.

Radio Roumania, Libre, Bucharest, 6.20mc, 48.39m: Arthur Cushen knows this one is correct as he has received a verification and, to use his own words, "To get a verie from this 'Undercover' station is indeed a surprise." English is from 5.30-6 a.m. They ask for reports and address is: Aleea Zoe No. 2, Bucharest.

Allied Forces Network Stations in Germany

(Official List)

American Zone, Frankfurt, 6.08 mc, 49.34m: 1 p.m.-7 a.m. daily.

British Zone, Nordwestdeutscher Rundfunk, Hamburg, 6.115mc, 49.06m: 3 p.m.-7 a.m. daily.

Russian Zone, Mitteldeutscher Rundfunk, Leipzig, 9.73mc, 30.83 m: 1 p.m.-8 a.m. daily.

Russian Zone, Berlin, 6.07mc, 49.42m: 1 p.m.-8 a.m. daily.

French Zone, Sudwestdeutscher Rundfunk, Baden-Baden, 6.32mc, 47.46m: 1.30 p.m.-7 a.m.

Shorts

CKRO, Winnipeg, 6.15mc, 48.78m: According to air-mail from Walter Welch, South Peabody, Mass., U.S.A., is due back on the air any day.

CKRX, Winnipeg, 11.72mc, 25.60m: Same remarks as above apply.

CR7IB, Beira (Mozambique), 7.155mc, 41.95m: Did anyone hear this station in an experimental broadcast to Europe, U.S.A. and Australia on November 2? Time

of broadcast was to be from 5-6.30 p.m.

TFJ, Reykjavik (Iceland), 12.235mc, 24.54m: "Radio News" says: "Still used occasionally for special broadcasts; if heard, send reports to: Horst Egilson, Secy. Rikisutvarpid, Reykjavik, Iceland. They will verify." (Listen for "Utvarp Reykjavik—Utvarp Reykjavik."—L.J.K.)

International regulations have caused SABC to change 9.912, Johannesburg, frequency to 9.87 mc . . . former having been outside allocation.—"Radio News."

The European aerial system of the Canadian Broadcasting Corporation consists of two towers each 379 ft. high, one 217 ft. and a fourth 165 ft. The aiming and reversing switches for the aerial curtains are remotely controlled from the transmitter building.

The Arab broadcasting station at Jaffa in Palestine is situated at Beit Jala, 3000 ft. above sea level, and operates with a power of 7.5 kw. Frequencies in use are 6.79mc (44.18m), 6.17mc (48.62m), 6.135mc (48.90m) and 3.32mc (90.36m).

YFA-10, Makassar, Celebes, 5.05mc, 59.40m: Much improved in strength from 8.30 p.m.-1 a.m. —Arthur Cushen.

XMAG, Nanking, 4.27mc, 67.01m: AFRS programme at 9.15 . . . good signal. This station verifies. Address: SSO Army Advisory Group, APO 909, c/- Postmaster, San Francisco, Cal., U.S.A.

TAP, Ankara, 9.465mc, 31.70 m: Can be heard opening at 1 a.m. Listen for mail-bag session on Mondays at 7.30 a.m.

WLKS, Kure: Note frequency is now 6.065mc, having chosen this in preference to 6.105mc. They are asking for reports.

KNBA, San Francisco, is reported back on 6.06mc at night.

XEJG, Guadaljara, 4.82mc, 62.24m: Miss Sanderson reports hearing this Mexican at 10.15 p.m. when they give chimes on announcement followed by news in Spanish, after which music. (At my listening post it is too noisy to permit of hearing a 200-watt Mexican, unfortunately.—L.J.K.)

PCJ, Hilversum, 15.22mc, 19.7 m: Now broadcasting to Australia on Tuesdays from 7-8.30 p.m. Also heard on 17.77mc, 16.88m and 6.035mc, 49.70m.

RNB, Brussels, 21.45mc, 13.98 m: Latest schedule is: 9-10.30 p.m.; 2-3 a.m. and on 17.845mc, 16.81m from 4.55-6 a.m.

FGA, Dakar, 11.715mc, 25.61 m:: This French West African is on the air as follows: 5.15-5.30 p.m.; 10.15-11 p.m.; 4.45-8 a.m. Are also on 6.917mc, 43.35m, at the above times. I think call on this frequency is FZK-6.

Arthur Cushen states that a letter from Dr. Valazquez Prieto, owner of station "La Voz de Nicaragua," on 6.76mc, 44.28m, advises call-sign is now YNVP. (Listeners will remember it as YNPS. My records also show a station YNDS on 6.76 and at Managua, too. According to "Universalite" Roger Legge says, besides having the calls YNA through to YNZ assigned to Nicaragua, they also have HTA through to HTZ, which accounts for HTX-1, Radio Managua, on 8.32mc, 33.98m.

ZRB, Pretoria, has had a little trouble with transmitter but will be on the air soon. Will welcome reports. No IRC necessary.—"Radio News."

Chinese stations have returned to Standard Time, so broadcasts will be one hour later.—"Radio News."

Ken Boord of "Radio News," Chicago, has picked up KZRM, Manila, on 11.905mc, but says signal is poor.

Miss Dorothy Sanderson, of Malvern, Victoria, sends another fine list of loggings:

Malaya, Ceylon, India

Hanoi, 29.40m, 10.20mc, 10

p.m.: News in French, Music. Fair signal in spite of much noise.

Saigon, 25.47m, 11.78mc, 9 p.m.: Music and news in English.

VUD-8, 13.94m, 21.51mc: 8 p.m.: News in English and music.

VUD-9, 25.27m, 11.87mc, 9.30 p.m.: News in English and music.

VUD-10, 16.80m, 17.83mc, 9.45 p.m.: News in English and music.

VUD-2, 41.17m, 7.29mc, 10.30 p.m.: News in English and good music.

VUC-2, 41.61m, 7.21mc, 10.45 p.m.: English news and music.

VUD-7, 19.79m, 15.16mc, 1.30 p.m.: News in English and music.

SEAC, Ceylon, 19.83m, 15.12 mc, 7.45 p.m.: Forces service of music.

SEAC, Ceylon, 19.69m, 15.23 mc, 9.15 p.m.: Music and news.

Pnompenh, 24.26m, 12.36mc, 10 p.m.: News in Chinese. Fair signal.

Radio Batavia, 31.41m, 9.55mc, 8.30 p.m.: News in English and music.

Java, 26.10m, 11.25mc, 10 p.m.: News in English and commentary. Music.

YDC, 19.81m, 15.14mc, 8.30 p.m.: News in English and music.

YFA4, 32.24m, 9.25mc, 7.30 p.m.: Church service and organ music.

Radio Batavia, 29.10m, 10.36 mc, 8.45 p.m.: News in English and music.

Radio Biak, 37.59m, 7.98mc, 9 p.m.: AFRS One-Night Stand Session. Calls Batavia. News in Dutch.

FK8AA, 48.70m, 6.16mc, 7.45 p.m.: News in French and music. R9.

Singapore, 13.81m, 21.73mc, 7.15 p.m.: British Far Eastern Service.

Radio Malaya, 49.92m, 6.01mc, 9 p.m.: News and music for local listeners.

Africa

CR7BU, 60.97m, 4.92mc, 6.15 a.m.: Musical programme. News.

Capetown, 51.00m, 5.88mc, 6.15 a.m.: Good musical programme. News.

FZI, 25.05m, 11.97mc, 9.30 a.m.: News in English and good music.

CNR3, 33.04m, 9.08mc, 5.30 p.m.: News in French and music. Strauss music and Ave Maria.

OTC3, 30.80m, 9.74mc, 6.30 a.m.: News in English and music.

China

XTRA, 30.84m, 9.73mc, 8.45 p.m.: Musical programme and news. Chinese.

XORA, 25.66m, 11.69mc, 9.15 p.m.: News in Chinese and music.

XMTA, 24.70m, 12.21mc, 8.15 p.m.: Western type music and Chinese news.

XGOA, 30.84m, 9.73mc, 7.45 p.m.: Music and news, Chinese.

XLRA, 25.10m, 11.49mc, 9.15 p.m.: Music and news, Chinese.

XGAS, 25.68m, 11.68mc, 10 p.m.: Music and news.

XGOY, 31.06m, 9.66mc, 8.45 p.m.: Concert Hall Session.

XGOY, 25.17m, 11.92mc, 9.30 p.m.: News and music.

XNCR, 49.82m, 6.02mc, 9.15 p.m.: News in Chinese. Announced as XNCR.

XTPA, 25.73m, 11.65mc, 8.30 p.m.: News in Chinese and music.

XGOY, 41.96m, 7.15mc, 9 p.m.: News in English and music.

XMAG, 67.01m, 4.27mc, 9.15 p.m.: AFRS programme.

Philippines

KZPI, 31.58m, 9.50mc, 9.15 p.m.: Music and news.

KZRC, Cebu, 48.94m, 6.13mc, 9.45 p.m.: Musical programme interference by VLR2.

KZRH, 31.12m, 9.64mc, 8.15 p.m.: News for Far East and music.

KZMB, 30.93m, 9.70mc, 7 p.m.: Operates Thursday and Sunday only. Basketball matches. Music.

KZFM, Manila, 25.42m, 11.80 mc, 8.30 p.m.: Musical programme and news.

Siam, Malaya, French Indo-China

HSPP, 50.00m, 6.00mc, 9.15 p.m.: English news and music. Morse.

Singapore, 19.61m, 15.30mc, 9.15 p.m.: News in English and music.

Singapore, 30.92m, 9.69mc, 8.30 p.m.: News in French and music.

Singapore, 62.20m, 4.82mc, 10.15 p.m.: Musical programme and news.

Singapore, 25.56m, 11.73mc, 8.15 p.m.: News in Dutch and music.

Singapore, 44.31m, 6.77mc, 9.15 p.m.: News and music.

Hanoi, 25.21m, 11.90mc, 9.45 p.m.: News in French. Music. Chimes.

Singapore, 13.81m, 21.73mc, 7.15 p.m.: News. Stock Exchange reports. Health bulletins.

Speedy Query Service

M.H. (Hobart) is worried about disposals valves and their type numbers.

A.—There seems to be two different sets of valves of, for example, type VT105. According to American lists this is equivalent to a 6SC7. But in the English lists this is a valve equivalent to type ML6. There is a world of difference between a 6SC7 and an ML6.

* * *

J.M. (North Sydney) and others who enquire about the triode amplifier with negative feedback.

A.—This was published in the August, 1947, issue, which is still available from our back dates department at 1/- post free.

SUBMARINE RECEPTION

I don't do very much writing these days, but on reading your Query Service page of August issue, wherein you asked for enlightenment regarding reception in a submerged submarine. I felt an urge to do what I could to help! Hi!

Although I spent about 6½ years in the Navy as a P.O. Telegraphist, I haven't served on a sub., but from my experience of broadcasts to ships, and a few inquiries I have made, it seems that reception is possible on low frequency only when submerged, 44 Kc/s. being one frequency used by Belconnen radio during the war. English Naval radio stations also used 16 Kc/s.

Reception is restricted though, to fairly shallow depths and depends to a large extent on the direction in which the sub is lying.

The sub's aerial is a completely rubber covered affair and it is also possible to tune a transmitter while submerged without danger of signals being radiated, although final adjustments to aerial tuning must be made when the aerial is clear of the water.

I haven't been very active since the re-opening of the ham bands, in fact my first ham transmissions were made on a ship while around the islands and since being discharged, the obligations imposed by various duties, including working up an electrical business, have meant a "W/T silence" on my part, hi!

Yours fraternally,
C. A. YOUNG,

VK6CY,
52 Attfield St.,
Fremantle, W.A.

P.S.—It might be interesting to note that Belconnens transmissions on 44 Kc/s. could also be copied very successfully on 88 Kc/s. almost anywhere around the islands, but whether normal harmonics or radiation from aerials or stays, I couldn't say.

—C.Y.

BARGAIN CORNER

Advertisements for insertion in this column are accepted free of charge from readers who are direct subscribers or who have a regular order placed with a newsagent. Only one advertisement per issue is allowed to any subscriber. Maximum 16 words. When sending in your advertisement be sure to mention the name of the agent with whom you have your order placed, or your receipt number if you are a direct subscriber.

FOR SALE. D.W. 5-volve superhet, in leatherette cabinet, as new. £12/10. 5"-1500 ohm speaker, 10/-, new 5-valve chassis, 5/-. John Ambers, 82 Prince's Highway, Arncliffe, N.S.W.

FOR SALE. Pair of 813's, £5 ea. Pair 866's, 25/- ea. STC plate transformer, 1500/1500 at 300 ma. £4. All new. Write O'Brien, 27 Dolphin Street, Randwick, Sydney.

R.A. (Camberwell) wants to know if F.M. transmissions are still being carried out in Melbourne.

A.—We understand that the experimental F.M. transmitter at Jolimont is now on the air all day from 9 till 5, relaying the National programme. We have not yet managed to run an article on how to build your own receiver for F.M. as it would mean a heavy outlay, which is hardly warranted until the future of F.M. has been definitely announced.

* * *

G.H. (Dulwich Hill) and several others, who wrote about the English pick-ups which we mentioned recently, wants further details.

A.—We find on going into this matter further that these jobs are of the lightweight moving-iron type and that, although they do not actually need a pre-amplifier stage, they do need a correcting stage to compensate for the bass cut in recordings. They have a splendid top note response and are capable of exceptional all-round performance, but have this minor drawback of needing a correcting stage. We have experiments on hand to discover the best way of going about this correction and as soon as finality is reached you will be communicated with.

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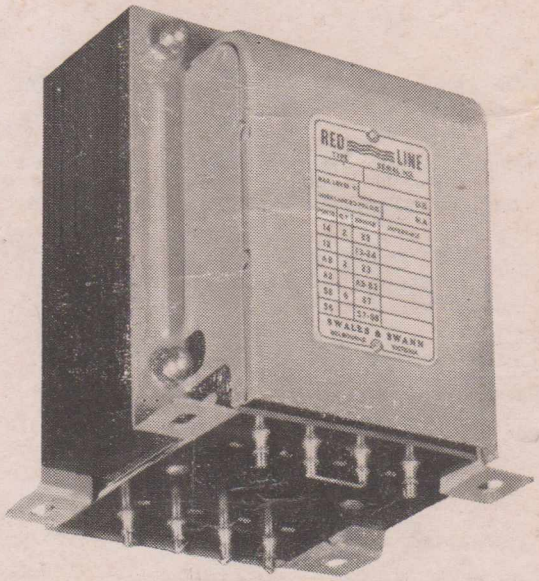

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Frequency Response: Linear within 0.2 db.
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12 Henries, 175 mA .... Type 201515 £1 11 0

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★ *as described by Mr. D. T. N. Williamson in "Wireless World," April and May, 1947*

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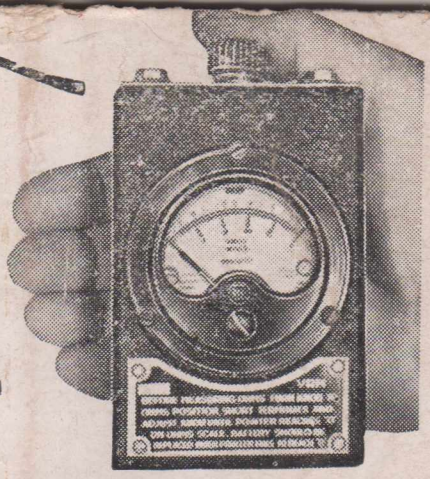
Put your hand out for the best Xmas present ever!



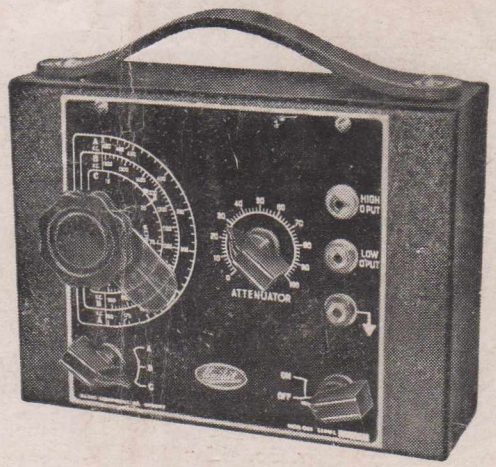
Here are four "must have" instruments to put a gleam in the eyes of many radio enthusiasts and servicemen. Any one of them can be yours this Christmas for an extremely low and reasonable sum.

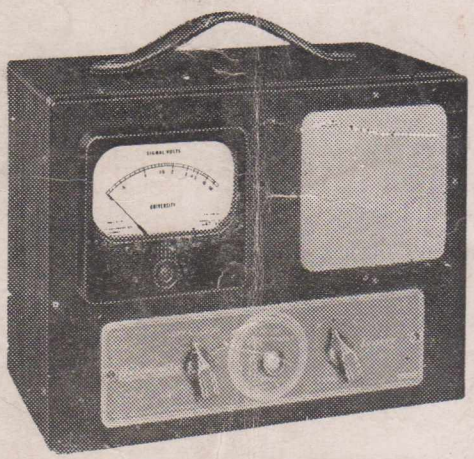
THE VRM TESTER (above)

This handy, pocket-size tester speedily and conveniently checks voltages and circuits The VRM is a voltmeter with several ranges combined with an ohm meter Sensitivity is 1000 ohms per volt. Features 2½" meter and clearly calibrated multi scale. Price £4/10/- (plus tax).

New OK1 Oscillator Kit (right)

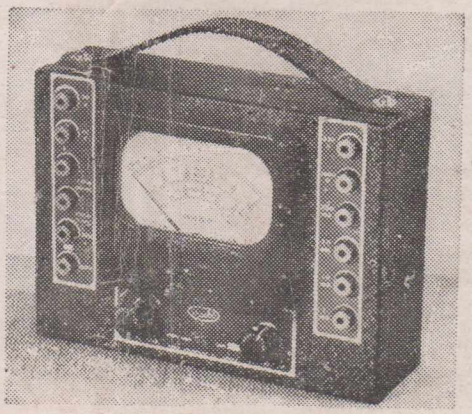
Designed to give years of accurate service, yet simple to build at home with a few ordinary tools, the new University OK1 oscillator kit covers all fundamental frequencies in the average receiver. Dial is specially calibrated. Kit uses standard batteries. Every OK1 kit is complete with instruction book giving pictures and wiring diagrams, and all parts. Price, £7/10/- (plus tax).





Model STB Signal Tracer (above)

Tracing the signal RIGHT THROUGH the radio receiver from start to finish, the new "University" S.T.B Signal Tracer makes fault finding easy and quick. When the probe strikes a faulty section, indications are given on both meter and speaker. Portable—light—sturdily constructed, the S.T.B. is the versatile post-war service instrument you MUST have. Price, £14/-/- (plus tax)



Model Mk1 Multimeter Kit

Handy companion to Model OK1 and same neat size—6in. x 8in. x 2½in. Uses popular 4in. square type meter with clear multi scale. All wiring instructions and constructional details are given with the kit and photographs and circuit diagrams make assembly simple All parts are prefabricated so that fitting is easy Price, £7/12/- (plus tax)

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