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JANUARY, 1957

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EDITORIAL



"THE MOVING FINGER"

"The Moving Finger writes; and,
having writ,

Moves on: nor all thy Piety nor Wit
Shall lure it back to cancel half a line,
Nor all thy Tears wash out a Word
of it."

Rubaiyat of Omar Khayyam.

Hardly have the joyous sounds of Christmas faded into silence than mankind hears the bells toll in the New Year. The years of our earth have increased by one and Time has closed the door on another gamut of days. The year has become the past.

Looking back we see our attainments, our defeats; looking forward we see—What? Our future hopes, perhaps fears. And what does the future hold for our—yes OUR—Institute.

Let us consider. One of our great opportunities in the coming year is active participation in the great International scientific undertaking of the Geophysical Year. Here is the vision splendid of co-operation towards a single goal and we—the

Institute—are in the position to be active workers in the field.

And then the Convention. The time when we can air our problems around the table in friendly discussion. This may seem to be the affair of the few, but it is definitely not. The items discussed are those of individual members supported by the Division, finally carried to Federal level.

So much for some of our hopes; what of our fears? We must face Television interference. The problem is small at the moment. Television is in its infancy and Amateurs have prepared for most eventualities, but it must be expected that some difficulties will arise. We must not allow these to defeat us.

We must also face the problems surrounding Civil Defence. It may be necessary to make some sacrifices in order that we can play our part should unforeseen circumstances arise.

Thus enters 1957 and with the beginning of this New Year, WE—the Institute—can confidently look to the future.

FEDERAL EXECUTIVE.

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Design Notes on Transistorised Audio Amplifiers

HANS J. ALBRECHT,* VK3AHH

WHILE more than sufficient literature seems to be available on how to conduct cut-and-try experiments with transistors, it is generally difficult to obtain information on the proper engineering approach in designing transistorised amplifiers. It will therefore be attempted, in this article, to deal with special design aspects encountered with such amplifiers, based on transistor-network analysis and on the experience the author was able to gain in this field during the last few years.

To be useful, this article cannot cover the very fundamental information on transistors, and readers requiring such an introduction are referred to relevant books, booklets, articles, manufacturers' advertisements, etc., too numerous to list. An introduction of higher standard may be found in the two books mentioned as references.^{1, 2}

Similar to vacuum-tube technique, it is essential to operate a transistor within its power ratings and, for best results, within the linear portion of its characteristics. An additional requirement is the stabilisation of the amplifier circuitry, to keep the effects of ambient temperature within permissible limits.

Three circuit connections are possible:

- (i) **Common-emitter connection;** useful for amplification; input and output resistances are of the order of 1,000 and 70,000 ohms, respectively; counterpart to grounded-cathode operation.
- (ii) **Common-base connection;** useful for amplification; input and output resistances are of the order of 100 to 500 ohms and 200,000 ohms, respectively; counterpart to grounded-grid operation.
- (iii) **Common-collector connection;** mainly used for matching a high impedance to a low impedance load; input and output resistances are of the order of 100,000 and 2,000 ohms, respectively; counterpart to cathode-follower operation.

For an RC-coupled or direct-coupled cascade amplifier common-emitter or common-base stages or a combination of both may be utilised. The use of a common-collector stage as matching stage between the amplifying stages is feasible, although no advantage can be obtained in practice. In fact, it has been found that a cascade of three common-emitter stages results in more amplification than that of two common-emitter stages isolated and mutually matched by a common-collector stage.

If transformers are used as means of coupling one stage to the other, they must be so designed that an appropriate matching of the output resistance of one stage to the input resistance of the next stage is achieved.

Considering the loss in gain due to the mismatch from stage to stage in an RC-coupled or direct-coupled cascade

amplifier and thus the necessity of an additional stage to compensate for the loss, transformer coupling is advantageous if a minimum number of stages is a main objective. However, it must be pointed out that the use of more than one or two transformers is not advisable in a cascade amplifier because of the obvious tendency towards oscillation, similar to vacuum-tube technique. Furthermore, appropriate mid-gate transformers may be relatively expensive.

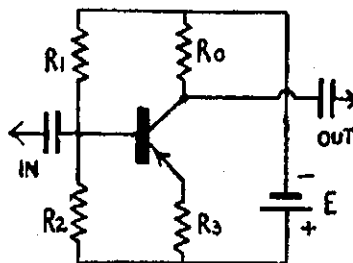
DESIGN CALCULATIONS

As indicated above, the circuit components must be so chosen that the quiescent operating point is within the straight part of the characteristics and that changes in the characteristics, due to variations in the ambient temperature, are automatically compensated.

To achieve this aim, the circuit may be arranged in several ways, to some extent depending on whether one or more separate supply sources are used. For various reasons the single-source circuit results in a simpler circuit, although the actual design may appear to be more complicated.

The figure depicts an amplifier stage in common-emitter connection with appropriate bias stabilisation. Fundamentally, the emitter current (I_e) may be regarded as being split up into collector (I_c) and base (I_b) currents, thus

$$I_e = I_b + I_c \dots \dots \dots (1)$$



Also, the collector current consists of the emitter current multiplied by the current amplification factor (a) plus the collector current at zero emitter current (I_{c0}). " a " is defined by the derivative of the collector current with respect to the emitter current, with the collector voltage kept constant.

We have
$$I_c = aI_e + I_{c0} \dots \dots \dots (2)$$

Referring to the figure and designating the current through R_1 by I_1 , and that through R_2 by I_2 , the base current is given by

$$I_b = I_1 - I_2 \dots \dots \dots (3)$$

And, neglecting the small potential between the emitter and the base,

$$I_2 R_2 = I_1 R_1 = E - I_1 R_1 \dots \dots \dots (4)$$

E being the supply voltage.

We can now proceed to discussing the actual design of the stabilising circuit, based on the above formulae. A so-called stability factor has been defined for transistorised amplifier circuits.¹

Mathematically, this factor " S " is the derivative of the collector current with respect to the zero-emitter collector current:

$$S = \frac{dI_c}{dI_{c0}} = \frac{1 + R_5/R_2 + R_3/R_1}{1 - a + R_3/R_2 + R_5/R_1} \dots \dots \dots (5)$$

Particularly the zero-emitter collector current (I_{c0}) is subject to changes with temperature. Fluctuations in I_{c0} appear in the collector current I_c , multiplied by S . The value of this factor should be as low as possible for optimum circuit stabilisation. In practice, however, a compromise must be made between economical current consumption and a low value of " S ", which means relatively large current drain. For audio amplifiers a factor $S = 2$ would give very good stabilisation. Nevertheless, one of the greatest advantages of using transistors is their enormously low current consumption and, consequently, the relatively large practical efficiency. This feature should not be jeopardised under any circumstances. The author found, by several designs, that a stability factor of six to nine is still acceptable for audio amplifiers. This value results in very low current consumption at reasonable and sufficient stabilisation.

The next step in designing an RC-coupled audio amplifier stage with single-battery supply is the calculation of each of the resistors R_1 , R_2 , and R_3 . From expressions mentioned above, the following formulae may be derived:

$$R_1 = \frac{E(S-1)}{I_c - SI_{c0}} \dots \dots \dots (6)$$

$$R_2 = \frac{S-1}{(1-S+aS)(I_c - I_{c0}) - \frac{I_c - SI_{c0}}{E}} \dots \dots \dots (7)$$

$$R_3 = \frac{a(E - V_c - R_0 I_c)}{I_c - I_{c0}} \dots \dots \dots (8)$$

where V_c = collector voltage } at operating point
 I_c = collector current }
 R_0 = load resistance

In a typical stage, a junction triode OC71 is used in common-emitter connection with $R_1 = 47,000$ ohms, $R_2 = 10,000$ ohms, $R_3 = 3,900$ ohms, and $R_0 = 1,000$ ohms, the supply voltage E being 4.5 volts. This is one stage of a fully-transistorised amplifier designed by the author early in 1956 and used as modulation amplifier at his station.

To illustrate the change of components if a different type of junction-triode transistor is utilised, details of another RC-coupled stage of the cascade amplifier just mentioned are given below. This stage contains an OC72 (ratings higher than those of the OC71, and cut-off frequency substantially lower but above the audio range) in common-emitter connection. $R_1 = 18,000$ ohms, $R_2 = 4,700$ ohms, $R_3 = 1,000$ ohms, and $R_0 = 470$ ohms; E being 4.5 volts.

* 10 Belgravia Ave., Box Hill North, Vic.

To arrive at these values design steps can be recommended as follows:

- (i) Select the type of transistor and consult the manufacturer's publication of characteristics for values of "a" and "I_{co}".
- (ii) Choose the mode of operation, load resistance R_L, and a suitable quiescent operating point from the characteristics published, defined by I_c and V_c at the operating point.
- (iii) Select a value for the stability factor "S".
- (iv) Substitute "a", "I_c", "I_{co}", "V_c", "R_L", and "S" in eqs. (6), (7), and (8) and thus determine values of R₁, R₂, and R_e.

Table 1 shows typical values of the quiescent operating points for two transistors available on the Australian market, namely P-N-P junction triodes OC71 and OC72, both operated in common-emitter connection class A. "a" is 0.98 for both types.

Typical data for quiescent operating point	OC71	OC72
—E supply voltage	4.5	4.5 volts
—V _c collector voltage	0.91	1.8 volts
—I _c collector current	0.73	1.82 Ma.
R _e	3,900	1,000 ohms

Table 1.

Similar to the cathode resistor in vacuum-tube technique, R_e has to be by-passed by an appropriate capacitance in order to keep the impedance in the emitter circuit at a negligible level for the audio frequencies used. Values of 10 to 200 μF. are practicable. This capacitor, as well as the coupling capacitor which is of the order of 1 to 10 μF. (because of the generally lower impedances in transistor technique), may be varied according to the frequency compression desired.

The "h"-parameters which are published by manufacturers may be used to obtain approximate data on gain, optimum load impedance, etc. In fact, these "h"-parameters are the elements of the h-matrix of a transistor stage regarded as a four-terminal network. A set of formulae can be derived on that basis but only four of the most useful ones are mentioned here:

For common-base connection:

$$\text{Voltage gain} = \frac{|h_{21}|}{D + h_{11}/R_o} \dots (9)$$

$$\text{optimum load impedance} = \sqrt[3]{h_{11}/(D \times h_{22})} \dots (10)$$

For common-emitter connection:

$$\text{voltage gain} = - \frac{|h_{21}|}{D + h_{11}/R_o} \dots (11)$$

$$\text{optimum load impedance} = \sqrt[3]{h_{11} (1 + h_{21}) / (D \times h_{22})} \dots (12)$$

$$D = h_{11} h_{22} - h_{12} h_{21}$$

The design of cascade transistor amplifiers of several stages is relatively difficult if compared with corresponding calculations in vacuum-tube technique. Whereas stage-by-stage computation is the usual method in the latter case, this

method cannot be recommended for transistor cascades. The main reason is that the input resistance of a transistor stage is so low that it actually governs the load resistance of the preceding stage, and so on. In practice, the load at the final output stage will be found to influence the input resistance of the first stage of the cascade. A far more reasonable approach is the use of matrices, and, as far as the author is concerned, no other method appears to be so well representative of the special features of transistor circuits. It may be added, for readers trained in this field of higher mathematics, that the h-matrix of each stage is best transformed into a cascade matrix which may then be solved for the entire cascade. This yields the overall matrix from which the overall relationships of input to output impedances, etc., can be determined.

The author designed his fully-transistorised modulation amplifier on this basis. The cascade amplifier consists of

The gain of the amplifier is more than sufficient for adequate modulation and appreciable volume reserve. Combined with a transistorised audio oscillator for m.c.w. modulation, the small unit is extremely useful and versatile.

REFERENCES

1. Richard F. Shea, et al., Principles of Transistor Circuits, Wiley (1953).
2. Frederick E. Terman, Electronic and Radio Engineering, McGraw-Hill (1955).

BOOK REVIEW

"HI-FI FROM MICROPHONE TO EAR"

By G. Slot

This is another publication (180 pages of 5½" x 8½") from Philips Technical Library written to meet the needs of music lovers seeking to improve the quality of reproduction from their equipment, by providing a complete survey for the non-technical reader of the technique of sound recording and reproduction.

(Continued on Page 7)

NEW SLANT ON TV AERIALS!!

Armed with the details of element lengths, etc., to construct a TV antenna, Les VK2AOR approached a local shop which sold, among other things, TV antennae, for information on the possibility, or otherwise, of obtaining some duralumin tubing.

The shop assistant enquired the reason for wanting dural tubing and Les, seeing a TV antenna strung from the roof, pointed up and said he wanted to make one of those aerials. Les was informed, most respectfully, that it would be almost impossible for him to successfully build a TV aerial because the elements of such aerials are filled with an electrolyte, a resonant gas, and that is why the ends of all the elements are sealed flat to keep the electrolyte inside. Les staggered speechless from the shop and is now firmly convinced that if the TV antenna he has constructed does not perform as expected it is because it has no resonant gas in the elements.

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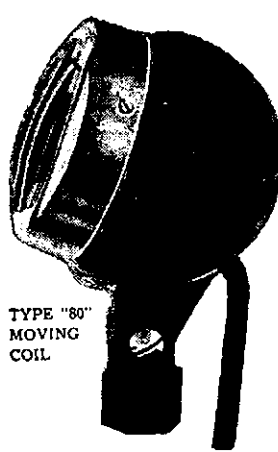


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TYPE "80"
MOVING
COIL

TYPE "8XA"

A quality Crystal Insert with "Zephyrfil" filter.

- Durable chrome steel cage.
- Hand or stand pattern.
- Good high frequency response.
- Full tilting head.



TYPE "8XA"
CRYSTAL

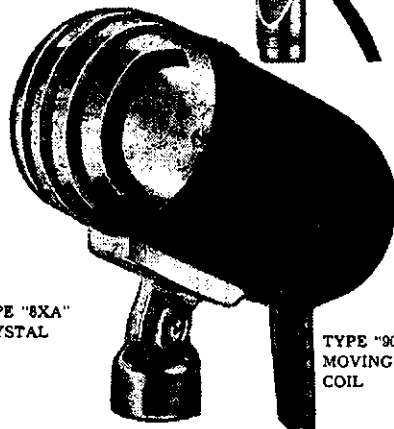


TYPE "40"
RIBBON

TYPE "40"

A high grade Studio Microphone, reasonably priced, for those requiring high fidelity.

- Imported magnets, highly efficient generator.
- Fully protected against dust and filings.
- Rotatable cage—360°.
- Chrome copper cage, black bakelite base, and steel gimbles.



TYPE "90"
MOVING
COIL

TYPE "90"

Precision built Moving Coil Generator provides good quality reproduction.

- Light weight, durable chrome and baked enamel metal case.
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- Excellent sensitivity.
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DIAGNOSIS OF TVI*

A SYSTEM OF LOCATING THE CAUSE OF INTERFERENCE

BY R. H. HAMMANS, G2IG

• This article will not tell you how to cure television interference but it does describe a deductive system of investigation which will help to find the cause of TVI in any particular case. Once that has been done, well-known principles which have been described in these pages many times in the past may be applied.

BEFORE TVI can be cured, an intelligent system of tracing and diagnosis by means of available evidence is highly desirable. In this article it is intended to systematise the complex business of ascertaining the cause rather than to offer means of effecting a cure.

This conception of tracking down interference to its final elimination is based on a series of "go" or "no go" trials, leading, according to the results, down a chain of observations and tests which will provide an answer which should be conclusive. A chart or "tree" is given for rapid reference and to show more clearly than the text the logical sequence of the method.

TYPES OF INTERFERENCE

There are three categories of television interference caused by Amateur transmitters:—

- Harmonic or spurious radiation from the transmitter and/or its aerial system.
- Response by the television receiver to signals outside its design pass-band.
- The generation of harmonics in non-linear elements in the vicinity of the transmitter which re-radiate and enter the receiver in the same manner as if they were radiated from the transmitting aerial.

Cases in category (a) must obviously be treated at the transmitter and the Amateur cannot escape responsibility. Those in category (b) can only be cured at the receiver and in general the G.P.O. is sympathetic towards the principle that the Amateur is not to blame. In category (c) neither the transmitting Amateur nor the receiver owner is to blame except in so far that either the Amateur or the receiver owner may have somewhere about his property metalwork which, due to corrosion or other form of bad contact, is producing the trouble. A corroded receiving aerial of course comes into category (c) and the owner has the cure in his own province.

Category (a) Causes which must be dealt with at the Amateur Transmitting Station

The system to be adopted in this case is as follows:—

1.—Connect the transmitter to a dummy load. Operate the transmitter in all other respects in the same manner as that used when interference is known to be caused.

Possible Results:

- Interference no longer caused.
- No change in interference.
- Appreciable reduction of interference.

If the results are as in (i) then it is clear that all the trouble is brought about by the signal radiated from the transmitting aerial. It may, therefore, be due to harmonic radiation, to receiver defects in category (b) or to effects in category (c).

If the results are as in (ii) there is strong evidence of harmonic radiation from the early or final stages of the transmitter and well-known methods of cure, such as screening, filtering of leads, etc., should be applied. It is unlikely that the receiver is to blame or that non-linear elements are involved since there should be no swamping signal, as would be the case if the transmitting aerial, instead of the dummy, were in use.

If the results are as in (iii) there is every likelihood of a combination of harmonic radiation from the transmitter itself as in (ii) plus further interference falling into categories (a), (b) and (c). The procedure, therefore, is to work on the transmitter screening and filtering, etc., until interference is eliminated on dummy load.

2.—When all interference on dummy load has been cured, the following test should be carried out. Reconnect the aerial to the transmitter through a low-pass filter of good or known performance.

Possible Results:

- Interference no longer caused.
- No change in interference.
- Appreciable reduction of interference.

If the results are as in (i) this is the end of this particular branch of investigation and the case is closed. However, if the results are as in (ii) there is strong evidence that the transmitter was blameless even without the low-pass filter and that the case falls into either category (b) or category (c) or both.

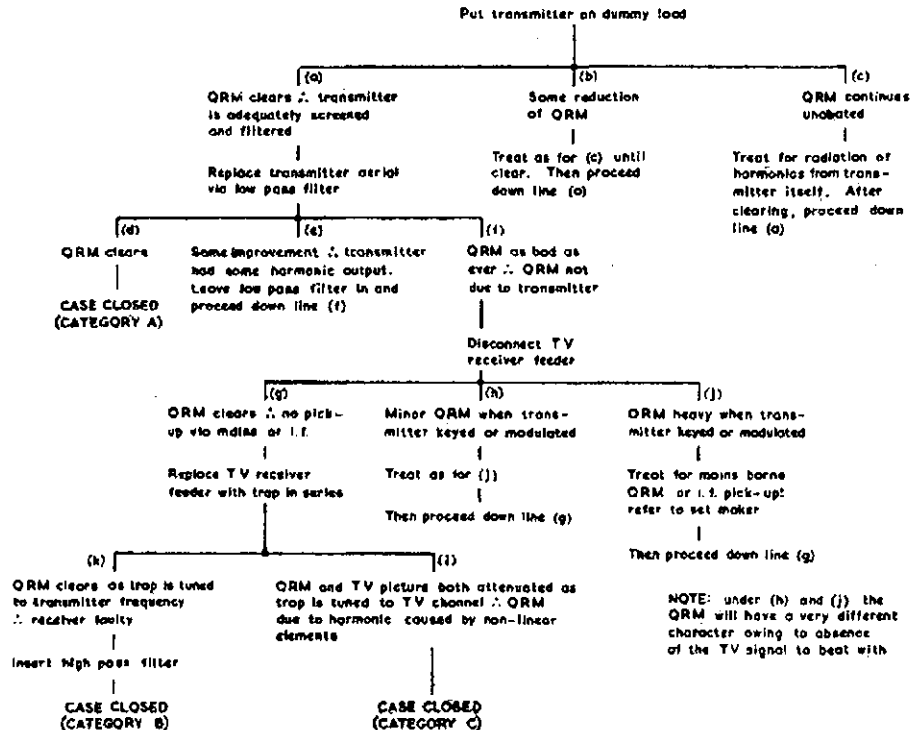
If the results are as in (iii) the transmitting station with the low-pass filter in circuit is probably now blameless and the remaining interference is due to causes in categories (b) or (c) or both. It is, of course, necessary to make sure the low-pass filter is really effective before these assumptions can be true.

At this stage of the investigation the transmitting station and, therefore, category (a) have been eliminated and only categories (b) and (c) remain.

Category (b) Causes which must be dealt with at the Receiving Station

3.—The system to be adopted in this case is as follows:—

Disconnect the receiver aerial and turn up the brilliance control until the



The chart devised by the author for the rapid diagnosis of television interference.

* Reprinted from R.S.G.B. "Bulletin", June, '56.

raster is just visible. Modulate the transmitter by speech or keying and check whether interference persists.

Possible Results:

- (i) No interference visible.
- (ii) Significant interference still present.

If the results are as in (i) then the interference is coming in via the aerial and the frequency of the interfering signal should be checked. This is best done by means of a tuned trap or traps which will cover the fundamental and appropriate harmonic frequencies of the Amateur signal (see section 4 following). If the results are as in (ii), then at least some interference is entering the receiver via the mains connection or is being picked up on the i.f. wiring in the receiver. Apart from putting r.f. chokes in the mains lead and trying elementary screening around obviously vulnerable i.f. circuitry there is not much that can be done by anyone but the set manufacturer.

4.—Reverting to section 3 (i)—the case where on removal of the receiver aerial no trace of interference is to be seen when the transmitter is keyed—the following tests should be carried out.

Insert a parallel tuned circuit, resonant at the transmitter output frequency, in series with the inner conductor of the receiver co-axial feeder. For 14 Mc. the tuned circuit should preferably cover at least a 3:1 frequency band so that at one sweep of the tuning condenser both transmitter fundamental and third harmonic can be rejected. For lower frequency bands the tuned circuit need only resonate at the transmitter output frequency but a second tuned circuit should be available to cover the television band.

With the transmitter keyed or modulated, and the television transmission on the air (preferably with test card C), rotate the trap condenser in the vicinity of the known resonance point for the transmitter frequency as determined with a grid dip meter.

(i) If a substantial reduction in interference is observed, then the trouble is either swamping (cross modulation) or i.f. break-through or image response. Which it is can usually be deduced from a knowledge of the receiver circuit, but it is of academic interest only since the receiver is at fault anyway.

When it is found that a trap resonant at the transmitter output frequency is effective in reducing interference, a properly designed high-pass filter of known performance should be inserted in the receiver feeder. Any remaining interference is probably due to causes in category (c).

(ii) If no appreciable reduction is observed on tuning the trap to the transmitter output frequency, the evidence is that the receiver is not at fault. Return the trap—or insert a second trap—to the television channel. Clearly, if the trap is operating effectively, it will seriously attenuate the picture. If the interference is due to a transmitter emission (such as a harmonic or spurious signal) or to a category (c) source, then the trap will attenuate the interference to the same extent as the picture. In earlier tests it has already been established that there is no transmitter output in the television band. Therefore, we have the case of a harmonic free transmitter and

a faultless receiver, yet harmonics are being received. From this it may be deduced that the cause is in category (c) and sheer dogged searching or inspired deduction are needed to find it and attempt a cure.

Category (c). Harmonics caused by Non-Linear Elements

The process by which non-linear elements cause harmonic radiation is akin to that on which metal rectifiers and semi-conductor rectifiers rely for their operation. Generally, any substantial lengths or areas of metal which make partial contact with one another will, by virtue of the existence of oxides and other substances due to tarnishing, behave like an aerial system having a detector at the centre or somewhere along its length. The metal will pick up large currents due to the strong r.f. field in the locality of the transmitter and these currents flowing through the rectifier will be of greater magnitude in one half-cycle than in the other. Thus a sine wave containing no harmonics will be converted into a wave of the same frequency but having an unpredictable and sometimes serious harmonic content. The metalwork, by the theory of reciprocity, re-radiates the original signal plus the harmonics it has itself generated.

The commonest causes are rusty joints in domestic plumbing such as gutters, drain pipes, gas pipes and electrical wiring conduit. Indeed, the phenomenon has been called for many years the "drain pipe effect" or "rusty bolt effect"—the latter, particularly in sea-going installations where an earth bolt has rusted, giving rise to the conditions described. More often than not the efficiency of the rectifier in the corroded joint is very poor and the proportion of harmonic re-radiated to the amount of the fundamental re-radiated is very low, but it must be realised that a field strength of many volts per metre at the fundamental is common in the immediate vicinity of the transmitting station, and a re-radiated harmonic field of 1/1,000,000 compared with the fundamental may be sufficient to cause TVI.

Occasionally, however, the nature and condition of a dusty joint may be such as to rectify quite efficiently, with the result that any modulation of the transmitter may become audible at the joint! At the writer's station, for example, a gutter pipe 20 ft. high and having a loose-fitting joint about 5 ft. from the ground was found to be emitting an audible tone when the transmitter was being modulated for test purposes. On disturbing the joint by vigorously shaking the pipe, the sound output vanished, but there was still a varying degree of harmonic radiation (as detected on a harmonic indicator) as the pipe was moved about.

Some of the most obscure causes, which are at the same time most difficult to cure, are rusty conduit pipes embedded in the plaster of walls. The only hope of tracing these is by means of a sensitive harmonic indicator, preferably in the form of a portable two r.f. stage battery-operated receiver working at the harmonic frequency and having a tuned loop aerial. The transmitter should be modulated and operated at full power while the portable receiver is taken around the neighbourhood exploring for

the points of origin and maximum harmonic indication. The tuned loop aerial will be found quite directional enough to pin-point even hidden conductors in walls and under floors.

After the source has been located it may be an altogether more difficult problem to eliminate the generation of harmonics. In the writer's house there are probably a dozen different instances of this effect, all of which are embedded in the plaster or underneath tongued-and-grooved flooring boards. One of the most disheartening things about this particular trouble is that houses immediately either side may also contain rusty connections which in most cases cannot be dealt with.

FURTHER AIDS TO DIAGNOSIS

One of the commonest forms of TVI is the diagonal "cross hatch" pattern formed on the picture. By observing and measuring the horizontal spacing of the light and dark bars it is possible to deduce the interfering frequency. For example, suppose the horizontal pitch of the pattern so formed is 0.25 in. on a screen 10 in. wide; then there will obviously be 40 complete cycles of the interference "beat" (or heterodyne) occurring in the 80 microseconds of active line duration of the television picture. If 40 cycles take 80 microseconds, then 1 cycle takes 2 microseconds and the frequency is 0.5 Mc. Similarly, a heterodyne of 2 Mc. would be represented by a horizontal pitch of one-quarter of 0.25 in., i.e., 1/16 in.

If the transmitter is on a frequency of, say, 14,333 Mc., its third harmonic will be exactly 43 Mc., and this harmonic will beat with the vision carrier of the London B.B.C. station on 45 Mc. to produce a heterodyne of 2 Mc. Thus, if the interference is due to the third harmonic, a 1/16 in. horizontal pitch pattern will be produced on a 10 in. wide screen (or, of course, 3/32 in. on a 15 in. screen).

Changing the transmitter frequency to exactly 14 Mc. will produce a 3 Mc. heterodyne and the pitch should reduce in width to two-thirds of the previous measurement.

The pattern will not usually be stationary because the television waveform is locked to the a.c. mains, which are not highly stable in r.f. terms. However, a quick inspection along one line of the raster will enable a fairly accurate pitch measurement to be made even if the pattern is moving quite rapidly. Any pattern having a pitch detectable larger than 1/16 in. on a 10 in. wide picture (in the case of 14 Mc. and Channel 1 for example) is indicative of a lower frequency heterodyne than 2 Mc. Such should be impossible if the trouble is really third harmonic since the transmitter would have to operate outside the high frequency end of the 14 Mc. band to produce any heterodyne appreciably lower than 2 Mc.

On the other hand, if the trouble is due to i.f. break-through or image response in the receiver, heterodynes of this order can be caused. Furthermore, due to "inversion" produced by the mixing process in the receiver, it is possible to increase the pattern pitch instead of reducing it when the transmitter is changed from 14,333 Mc. to 14 Mc.

Details of a Simple Mobile Whip for 40-80 Mx

BY FRANK W. FOWLER,* VK2APF

THIS simple whip has been devised for operation on 40 and 80 metres, for v.f.o. controlled pi output transmitters. It is not proposed to go into full technical details of the operation of the whip, but a few comments may be in order.

The writer has spent many hours trying to evolve something simple that, at the same time, will give reasonably good results on two bands. Let it be stressed that this whip is not the acme of perfection, but it works and is the answer for v.f.o. operation.

It was found that high Q coils are most desirable on a mobile whip. However, this is very nice for the xtal controlled operator who does not want to race up and down the bands, but for the chap who desires to QSY, he must either have a series of coils, and a set of xtals designed for operation in their respective pairs, or make provision to tune the whip.

There are many and varied ways of tuning a whip, but the simplest and most effective way is to use a slider to short out the end of the inductance not required. This is the method used.

In order to induce a greater flow of current in the lower section of the whip, it becomes necessary to load the top of the whip with some extra capacity. This can take the form of a hat, or extra length. The writer settled for extra length because of the increased gain in received signals, and to get away from fancy faldals.

The loading coil used is a fairly low Q coil, the reason being that as we are v.f.o. controlled, we can take advantage of its broadband characteristics and not have to have capacity tuning, as well as inductive tuning, to get right on the nose, which is essential with high Q coils.

The coil former consists of 1½ inch plastic water pipe, 8 inches long. This water pipe has good r.f. property and is very solid. It can be worked by heating to 212°F. in water and then will bend.

To take both ends of the whip, a couple of plastic screwdriver handles were turned down to fit into each end of the piping, and hammered in. Yes, you can hammer them in and the pipe will not split.

One hundred and twenty turns of 18 gauge B. & S. enamel wire was then wound on very tightly, being anchored to a one-eighth screw threaded into the pipe at each end. This screw was made to go right into the whip itself so that it would serve as a contactor for the ends of the coil.

Next a slider was fitted to the coil and a piece of phosphor bronze used as the actual sliding contactor, the slider rail being made from a piece of 8 gauge hard-drawn copper wire which was bent and screwed to each end of the coil—insulated from the top end of the winding and connected to the bottom end.

A flat file was then brought into use to make a clean surface for the slider

to slide on, then the whole coil was treated with clear lacquer.

Next a small coil consisting of 12 turns of 14 gauge B. & S. was wound on 1¼ inch diameter former and tapped at the seventh turn from the start.

The function of this coil is to act as an impedance matching transformer at the base of the whip. This coil is mounted right at the base of the whip and connected from the whip to ground. The feedline used is 10 feet of 50 ohm co-ax, the braid being earthed and the inner conductor for 40 metres is clipped to the tapping; for 80 metres, the inner conductor is connected to the top of the matching coil.

The loading coil is inserted at the junction of the first four feet section and the top eight feet. The reason for the eight feet on top has been explained earlier (extra capacity).

The whip in use at this station is one of the disposal types and was inserted in the plastic screwdriver handles by heating over a gas flame and then screwing in; on cooling down, the whip can be then screwed in and out as desired.

To tune the whip, connect the receiver to it and move the slider up and down the coil until a rise in receiver noise is heard, then tune in a station near the frequency that you desire to work on and again adjust the slider—one turn at a time—until the station is at its strongest level on the S meter. This adjustment is critical, as one turn will mean the difference of being able to load efficiently or not.

The whip will now accept power from the transmitter and it will be possible to QSY 10 Kc. either side of the frequency without any appreciable loss of radiation.

The above method of tuning was found to be the simplest and the most effective, not entailing any frequency meters, etc., and it is advised that it be adhered to.

In passing, ZLs have been worked on this whip from Tamworth on 40 and 80 metres, signals being R5 and S7-8 on 40 metres and as high as R5 S9 on 80 metres; and if you all know the ZL boys, you should know that they are not in the habit of handing out S9 reports indiscriminately.

The power used at this station is 4 watts on 40 metres and 8 watts on 80 metres. The reason for the smaller input on 40 will probably be told some other time.

BOOK REVIEW

(Continued from Page 3)

There are chapters devoted to recording and record manufacture, pick-ups, record players, tape recorders, amplifiers, speakers, etc. The section covering room acoustics is especially interesting.

Once you start reading this book, you will find difficulty putting it down, until you have read it right through.

"Hi-Fi from Microphone to Ear" is available from Philips Electrical Industries Pty. Ltd., 69-73 Clarence St., Sydney. Price £1/1/-.

RECEIVER NOISE IMPROVEMENT

BY D. G. HAWTHORNE,* VK3ZCD

An article recently published ("New Bottles for Old," "A.R.," Sept., '56) prompted the writer to try to improve the noise figure of some of the station receivers.

Sharp cut-off pentodes like the 6AG5 and the 6CB6 had previously been tried, but although there was an improvement in the noise level, trouble was experienced with intermodulation and overloading by strong local signals, particularly in the commercial bands.

Recently, a remote cut-off pentode, the 6BY7 or EF85, has become available locally. It has a novel base, transconductance of 6 Ma./V. (a noise figure better than that of the 6AG5) and a cut-off voltage of about —35 volts. Extensive internal shielding and a very low grid-plate capacitance, make it stable when used in conventional circuits.

The tube was tried in the writer's CR100; the cathode bias resistor of 150 ohms being connected to ground as the gain falls off rapidly with increasing

bias. The Marconi has a 100 volt screen line, but better results were obtained by using series supply from the B+ line via a 68,000 ohm resistor. No additional by-passing was required.

The a.v.c. does not operate until the signals reach a level where noise is no longer a problem, and so it was used (and needed) to prevent overloading of the second r.f. amplifier. Detuning the aerial circuit, as used by VK3AKZ, was not used, there being an increased probability of image response on the higher frequencies.

For receivers other than the Marconi CR series, use of a.v.c. with the 6BY7 depends on the design. The tube was tried in a receiver similar in design to the AR7, best results being obtained when the voltage was obtained from the junction of two 2.2 megohm resistors connected in series between the a.v.c. line and ground.

The improvement in the signal-to-noise ratio was similar to that obtained with a 6AG5, but with virtually no intermodulation with transmitters on adjacent channels.

* 4 Thompson Crescent, Tamworth, N.S.W.

* Flat 3, 11 Leopold Street, South Yarra, Vic.

AMATEUR CALL SIGNS

FOR MONTH OF OCTOBER, 1956

NEW CALL SIGNS

VK— New South Wales
 2APG/P—F. W. Fowler, 4 Thompson Cres., Tamworth.
 2AWW—G. D. Wheaton, 361 Armidale Rd., Tamworth.
 2AYW—J. B. Williams, Sattler St., Bega.
 2AZM—J. D. Molle, "Beringa," New Line Rd., West Pennant Hills.
 2ZDC—G. L. F. Collie, Boyce Ave., Wyong.
 2ZDJ—C. J. Jirsa, 154 Avoca St., Randwick.
 2ZDS—W. N. Sagers, 12 Henrietta St., Waverley.

Victoria

3ACG—C. F. Green, 20 Paloma St., South Oakleigh.
 3AEM—H. E. Mitchell, 1 Thompson St., Hamilton.
 3ZDW—F. R. Williams, 62 Wattle Valley Rd., Camberwell.
 3ZEB—S. J. Beaton, 101 McKinnon Rd., McKinnon.

Queensland

4ZAM—K. N. Long, 12 Rilatt St., Wavell Heights, Brisbane.

South Australia

5EU—H. S. Young, 18 Chisholm Ave., Burnside.
 5ML—A. M. Tonkin, 63 Lefevre Ter., North Adelaide.
 5QL—J. L. Weatherley, 70 Willison Rd., Elizabeth South.
 5ZBM—R. McGregor, 44 Albert St., Prospect.
 5ZBP—C. C. Poole, 38 Norma St., Torrensville.
 5ZCK—R. J. Krieg, 81 Angle Vale Rd., Gawler Rail.
 5ZCM—G. J. Muirhead, 14 Adelaide St., Magill.
 5ZCW—E. Westerman, 15 Central Ave., Clearview.

Western Australia

6SS—S. E. Slade (Dr.), 11 Colin St., West Perth.
 6ZAW—P. Salinger, C/o. 6AM, Northam.
 6ZBA—J. R. Bartlett, 28 Windsor St., East Perth.

Tasmania

7ZAA—R. K. Wilson, 11 Cunningham St., Burnie.

Territories

6DC—D. R. L. Callow, Mawson Antarctica.
 6DJ—D. H. Johns, Mawson Antarctica.
 6JP—J. D. Pinn, Mawson Antarctica.
 9AT—E. J. Roberts, No. 2 Donga 2nd St. Lae, N.G.

Western Australia

6GU—F. H. Harlock, 61 Sixton St., Inglewood.
 6JC—B. J. Coles, Flat 3, 200 Adelaide Ter., Perth.
 6ZAZ—C. G. Andrews, C/o. Broadcasting Station 6WA, Wagin.

Tasmania

7AL—T. A. Allen, Karoola Rd., Lindisfarne.

CHANGES OF ADDRESS

VK— New South Wales
 2IS—S. G. McLean, 16 Plunkett St., Drum-moyne.
 2NP—C. F. L. Bryar, 103 Tennyson Rd., Gladesville.
 2RI—R. M. Tutton, 25 Fourth Ave., Eastwood.
 2TY—R. W. Best, 54 Gladesville Rd., Hunters Hill.
 2VD—C. M. Barnett, "Sunny Haven," East Pde., Buxton.
 2ZS—W. J. Smith, Princes Highway, Bomaderry.
 2ABW—E. G. Baker, 6 King St., Eastlakes.
 2ALU—L. E. Pattison, 1 Campbell St., Wollongong.
 2AYA—G. A. Ahlstron, 24 Melville St., Strathfeld.

Victoria

3CZ—A. I. Berry, 6 Landen Place, Toorak.
 3RA—R. C. Greig, 10 Newington Gr., North Caulfield.
 3UG—F. N. Culliver, 18 Swanson St., Queens-cliff.
 3ZU—F. A. O'Donnell, 89 Sharpe St., Yarra-wonga.
 3ADP—D. C. Paice, Lot 24 Allister St., Mt. Waverley.
 3ADJ—D. J. Harkin, 25 Williams Rd., Briar Hill.
 3AXX—N. E. Turnbull, Station: 24 Bethall Ave., Parkdale.
 3ZAT—D. D. Tanner, C/o. J. Watkins, Howship Ave., Ringwood East.
 3ZDG—I. MacMillan, Station: 159 Dawson St., West Brunswick.

Queensland

4HF—C. H. Foley, Ionospheric Prediction Ser-vice, Black Weir, Townsville.

CANCELLED CALL SIGNS

VK— New South Wales
 2ST—E. C. R. Stoney.
 2AUO—A. E. C. Cooper.
 2AWE—R. M. Weston, Now VK2AYK.
 2ZAW—G. D. Wheaton, Now VK2AWW.

Victoria

3QF—F. Rowley.
 3WK—F. W. Soumpron.
 3ADO—D. Clarke.
 3ARC—R.A.A.F. College Radio Club.
 3AZC—L. Cumington.
 3ZBB—A. J. Bowman.

Queensland

4EW—E. H. White.

South Australia

5FY—R. A. Catmur.

Tasmania

7DJ—D. H. Johns, Now VK0DJ.
 7HY—H. M. Yeates.

Territories

IDC—D. R. L. Callow, Now VK0DC.

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VK—

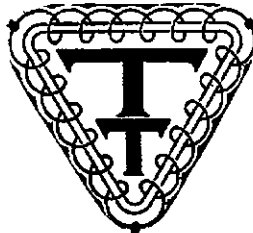
Victoria

3EC/T—E. B. Cook.
 3FE/T—W. J. Carlyle.
 3NR/T—N. G. Roberts.
 3ARS/T—R. C. Stephens.
 3ZAG/T—I. W. Herbert.

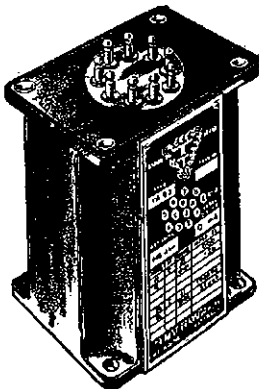
Western Australia

6EC/T—E. E. Cornettus.

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WEST. AUST.

R. D. Benjamin, 30 James Street, Perth.

THE TWENTIETH B.E.R.U. CONTEST

SIMPLIFIED SCORING AND LOGS

The main feature of the Twentieth B.E.R.U. Contest, to be held on January 26-27, 1957, is the introduction of a new system of scoring, making for simplified entries, and the replacement of scoring zones by a straight bonus for each new Empire area worked.

The old sliding scale of points, which began in the 'thirties, had many merits, but in recent years the percentage of logs received compared with the total number of participants has dropped sharply; it is believed that many Amateurs have been discouraged from making an entry by the complications of the old analysis sheet and the intricacies of "balancing the books." The new system eliminates these difficulties, and thus brings B.E.R.U. into line with most other R.S.G.B. events but, at the same time, retains the unique nature of this historic contest, considered by many Amateurs as undoubtedly the "highlight" of the DX season.

With the 1957 promise of high maximum usable frequencies and the likelihood of excellent DX conditions, the high frequency bands of 14, 21 and 28 Mc. should offer opportunities unequalled for many years (ionospheric storms permitting), particularly for Amateurs with restricted space for aerials and masts of limited height.

The Contests Committee is endeavouring to secure the maximum amount of overseas publicity for the 1957 event, but solicits the assistance of all members in bringing the dates and revised rules to the notice of stations throughout the Commonwealth. More than 400 stations participated in the 1956 event, but we hope to see a great increase in 1957. Remember B.E.R.U. offers the chance of completing your score of Empire prefixes for E.DX.C., B.E.R.T.A. or W.B.E. . . . make sure you are ready on all bands . . . and afterwards please submit an entry or check log.

RULES

1. The contest is divided into two sections, namely: (a) Senior—maximum licensed power; (b) Junior—maximum input 25 watts.

2. The contest (both sections) will start at 0001 G.M.T. on Saturday, January 26, and end at 2359 G.M.T. on Sunday, January 27, 1957.

3. The contest is open to all fully-paid-up members of the R.S.G.B. within the United Kingdom; to all British subjects outside the U.K. but within the British Empire and British Mandated Territories; and to members of British Forces of Occupation operating properly authorised stations. All entrants agree to be bound by the rules of the contest.

4. Only the entrant will be permitted to operate the station for the duration of the contest.

5. Entries must be set out as shown in the example herewith, using one side of the paper only. Entries must be post-marked not later than February 11, 1957, and must be addressed to R.S.G.B. Contests Committee, New Ruskin House, 28-30 Little Russell St., London, W.C.1.

The closing date for acceptance of entries is March 31, 1957.

6. Operation is restricted to the following bands: 3.5, 7, 14, 21 and 28 Mc. Transmissions must be of type A1 (pure c.w.) only, and frequent tone reports of T8 or less may result in disqualification.

7. Entrants must operate within the terms of their licences. The input to the valve or valves delivering power to the aerial must not exceed 25 watts in the Junior section.

8. Contacts may be made with any station using a British Empire or DL2 call sign, except contacts within the entrant's own call area. British Isles stations may not work each other for points, and contacts with unlicensed stations in places where licences are obtainable will not count for points. The decision as to whether or not a station is valid will rest with the R.S.G.B. Contests Committee. Only one contact per band will count for points, but duplicate contacts should be logged.

9. Each completed contact will score 5 points. In addition a bonus of 20 pts. may be claimed for the first contact with each new Empire call area (as defined in the appendix) on each band. All British Isles stations (G, GC, GD, GI, GM and GW) count as only one call area.

10. Serial numbers must be exchanged and acknowledged before a contact can count for points. The serial number of 6 figures is made up of the RST report plus three figures which may start with any number between 001 and 100 for the first contact and will increase in value by one for each successive contact, e.g., 087 for the first and 088 for the second contact, etc.

11. A trophy or miniature will be awarded to the winner of each section, and certificates will be awarded to the

first three entrants in each section. In addition a certificate will be awarded to the leading entrant in each call area regardless of the number of entrants in his call area provided that his score exceeds 1,000 points in the Senior section or 500 points in the Junior section. A certificate will be awarded in each call area in which there are ten or more entrants, to the runner-up, provided his score exceeds 1,000 points in the Senior section or 500 points in the Junior section.

RECEIVING SECTION

1. To count for points the log must show in columns (a) date, (b) band, (c) Time G.M.T., (d) station heard, (e) serial number sent, (f) station worked, (g) points claimed, (h) bonus points claimed. CQ or Test calls will not count for points.

2. Each logging will score points in the same way as contacts in the Transmitting Contest (see Rule 9 earlier).

3. The same station may be logged only once on each band.

4. Logs must be addressed and post-marked as for entries in the Transmitting contest.

APPENDIX

The following call areas are recognised for the purposes of scoring in this contest:—

G, GC, GD, GI, GM,	VQ9
GW—as one call area.	VR1 (Gilbert & Ellice Islands).
MP4 (Bahrein, Muscat and Oman).	VR1 (Brit. Phoenix Is.).
MP4 (Qatar).	VR2
MP4 (Trucial Oman).	VR3
VE1	VR4
VE2	VR5
VE3	VR6
VE4	VR7
VE5	VR8
VE6	VR9
VE7	VR10
VESA-L (Yukon Ter.)	VR6
VERM-Z (N.W. Ter.)	VR9 (Aden).
VK1 (Aus. Antarctic).	VR9 (Maldive Is.).
VK1 (Heard Island).	VU2
VK1 (Macquarie Is.).	VU4
VK2	VU4
VK3	ZB1
VK4	ZB2
VK5	ZC2
VK6	ZC3
VK7	ZC4
VK8	ZC5
VK9 (Norfolk Is.).	ZD1
VK9 (Papua).	ZD2
VK9 (New Guinea, Bismark & Admiralty Is.)	ZD3
VO	ZD4
VP1	ZD6
VP2 (Leeward Is.).	ZD7
VP2 (Windward Is.).	ZD6
VP3	ZD9
VP4	ZE
VP8 (Jamaica).	ZK1 (Cook Islands).
VP5 (Cayman Is.).	ZK1 (Lord Howe Is.).
VP5 (Turks & Caicos Islands).	ZK2
VP6	ZL1
VP6	ZL2
VP7	ZL3
VP8 (Falkland Is.).	ZL4
VP8 (Grahamland).	ZM6
VP8 (Sandwich Is.).	ZS1
VP8 (South Georgia).	ZS2
VP8 (Sth. Orkney Is.).	ZS5
VP8 (Sth. Shetland Is.).	ZS4
VP8	ZS5
VP8	ZS6
VQ1	ZS7
VQ2	ZS8
VQ3	ZS9
VQ4	ZS9
VQ5	AP
VQ6	ST3
VQ8 (Chagos).	4S7
VQ8 (Mauritius).	DL2

—Reprinted from the R.S.G.B. "Bulletin," May, 1956.

B.E.R.U. CONTEST, JANUARY 26-27, 1957

Name..... Section..... Claimed score.....
 Address..... Call Sign.....
 Transmitter..... Input..... Watts
 Receiver..... Aerial (a).....

Date	Band Mc.	Time GMT	Call Sign of Station Worked	My Report on his Signals	His Report on my Signals	Points Claimed	Bonus Points	Leave blank
26	14	0005	G3XXK	589001	589002	5	20	
26	14	0009	VK2ZZ	579002	589034	5	20	
28	14	0012	GM3YY	589003	579012	5	—	
28	21	0730	GW3XX	539004	589064	5	20	
Total (points claimed plus bonus points)								
20 plus 60 equals 80.								

—Declaration: I hereby certify that I have operated within the terms of my licence and in accordance with the rules and spirit of the contest. I agree that the decision of the Council of the R.S.G.B. shall be final in all cases of dispute. I certify that the input power to the final stage of the transmitter was.....watts.

Date..... Signed.....

DX ACTIVITY BY VK3AHH†

1957 Antarctic Personnel

PROPAGATION REPORT

3.5 Mc.: The only report on conditions on this band refers to an opening to Asia, 1900-2000z.

7 Mc.: Apart from the usual openings to the North American continent, contacts have been reported with Europe and Africa (1800-2000z).

14 Mc.: Conditions seem to have deteriorated somewhat, although all continents could be contacted during the month. Openings to Africa and Europe were observed between 0700 and 0900, and 1900 and 2200z. South America was represented around 1000-1200z.

21 Mc.: Openings to the American continents (0100-0500z and 1900-2200z) and Europe and Africa (around 0500-0800, and 0900-1400z) were not very reliable but provided reasonable contacts.

27/28 Mc.: During the month, this band opened to North and Central America (0100-0400z) and Europe (0900-1200z) according to reports.

NEWS AND NOTES

At the time of writing, Melbourne is enjoying one of the greatest privileges—that of being an Olympic City. Melbourne, as host to the XVI Olympiad, thus joins the rank of distinguished world capitals which have been host cities to one or more Olympiads during the last sixty years. In accordance with the true Olympic spirit, the Victorian Division of the W.I.A., through its Olympic Games Committee, has attempted to extend friendliest hospitality to Amateur visitors from overseas, and, I hope, we have been successful. The Olympic period saw the presence of the following DX Amateurs at W.I.A. functions:

- Manuel XE2JK, Senator of the Republic of Mexico and Chief de Mission, Mexican Olympic Team.
- Bob YA1AA, Team Official, Afghan Olympic Team, ex-W9MOW.

† Hans J. Albrecht, 10 Belgravia Ave., Box Hill North, E.12, Vic.
 * Call signs and prefixes worked.
 z—zero time—G.M.T.

Armas OH2NB, Coach, Finnish Olympic Team.
 Chester W0PBR, Manager, U.S. Olympic Cycling Team.

Other guests were ZM6AS, ZL2MN, ZL2SK, ZL2ABJ, and ZL2ABR.

The following news items have come to hand:

VR2DA is ex-VK2FA (from 2QL). Although the call sign DU0RT has been allocated to W6ITH, for operation from Freedomland (Spratley Islands), no further information is available at this stage (from NCDXC).

It has been reported that the club station Y1ZAM is experiencing difficulty in renewing its licence (from W6YY).

QTHs OF INTEREST

- (from W6YY, NCDXC, and VK7LZ, BERS195, and Rod de Balfour)
- EL2L—Sam Butler, Radio Station, Monrovia.
- Ex-KJ6BN—200 East McGaffey Street, Rosewell, New Mexico, U.S.A.
- EA9BJ—Via U.R.E.
- PJ2AW—Mathias Vrolijk, Fantein weg 4, San Nicolas, Aruba, Netherland West Indies.
- KX8BQ—Box 207, A.P.O. 435, San Francisco, California, U.S.A.
- HR1LW—Box 93, Tegucigalpa, Honduras.
- KT1AA—C/o. American Legation, Tangiers Zone.

ACTIVITIES

3.5 Mc.: Frank 2QL heard USK6EP.
 7 Mc.: 2QL reports EA6B (0750z), ZD6RM, Laurie 2AMB adds ZD6RM*, CR7AO*, VQ8AD*, VS1GX*, ZS2HI*, ZS6AJH*, and ZS5EU, ZS5IR, ZS5PM, ZS6ARF, FABG, DJ2HC, ZS2LB, VU2RM, Neville 2APL worked K4AQL/KG6*, and JA8AE*. Dave W1A-L3039 heard a long list of Wx.

14 Mc. C.w.: 2QL: HC1LE*, HK5CR* and ZS2MI, CR7AR, VQ5QJ, ZC5JM, VQ4KRL, PJ2ME, FG7KC, UG2KAB, VP2LU, XW8CR, and EA8BF, 2AMB: VP2LU*, VU*, PZ1AF*, CE3DZ*, VQ5GJ*, ZD6RM*, ZELJV*, VS*, OE*, ZS9R*, ZS6XL*, and FB8BR, FB8BD, ZS3SC, ZS3Q, GW, CE3CB, KV4, VQ6AB, LUB2W, VQ2GR, 2APL: CN8BK*, EA*, G*. Frank RFC: HB*, DL*, F*, SM*, CT*, PA0*, OK*, Doug 6BY: ZS9R*, PZ1RH*, John 5HI: VK9AJ* (Cocos Is.), Harry 5MY: PZ1RH*, Ray 6RK: VU2KL*. Col 7LZ: GM*, DL*, ZB1ZY*, Eric BERS195: CE3DZ, CR7AR, EI3BC, FB8BV, FE8AE, HS1VR, HZ1AB, W4EMF/KS4, VQ2GR, VQ5GJ, VQ8AD, YS1O, YV5HL, ZC5JM, ZS9Q, 3W8AA, 5AHH: G*, XE1A*, YV5BJ*, KT1AA*.

14 Mc. A.m.: 2AMB: ZS6XL* and EA8BH, OQ5FH, ZS3Q, VK9AJ, 5HI: VPIJH*, YV6DE*, KP4ZC*, HP1GD*, I*, F*, HP8QU*, G*. 7LZ: HK1DZ*, K2ASL/KP4*, KA*, Rod de Balfour: CT, GI, I, OZ, EA, F, ET2US, AP2U, VU, XZ2KN, JZ0PA, XW8AC, KA0IJ, F08AC, F08AD, JZ0PC, 4ST7L, HI6EC, CM9AA, CO2CY, KP4WD, KP4ZT, HK1DZ, PY2CK.
 21 Mc.: 2QL: LUIBA*, CE3ZO*, UA4HP*, ST2NG*, FABCR*, SPIKAA*, and K4VBO, HZ1AB, VQ4DT, UA1AF, 2AMB: CE3ZO*, LA*, XE1PJ*, and CE1AH, JZ0PC, JZ0PP, 2APL: YV5AB*, VE*, G*. 7LZ: G*, HR1LW*, KA*, PY3QX*, CE3AG*. Rod de Balfour: G, DL, GM, I, OH, ON, HB, F, VU, HZ1AB, JA, VPIEE, VP5EM, TI2RC, 3AHH: KZ5KK*.
 27/28 Mc.: 2QL reports OH*, G*, SM*, PJ2AN* and VS6, GM, GD, ON, 5HI adds KA*, VE*. 7LZ spoke to VE*. Rod de Balfour heard KM6AX, JA, KR6.

Rare QSLs were received by: 2QL: VR1B, VK9TW, 5HI: ET3LF, 7LZ: VK9AJ, TF6TP, BERS195: CE5AW, CR7AR, IS1FIC, JZ0AG, VK9TW, YJ1RF, ZC6GL. Rod de Balfour: KA0IJ.

Thanks to W6YY, the Northern California DX Club, and VKs 2QL, 2AMB, 2APL, 3FC, 6RK (QSP 6BY, 5HI, 5MY), and BERS195, W1A-L3039, Rod de Balfour (QSP 7LZ).

A Happy and Prosperous New Year to all readers with best DX for 1957!

APPLICATIONS FOR W.B.E. AWARD

All applications for the W.B.E. Award must be accompanied by a money order for seven shillings sterling currency, made payable to the R.S.G.B. The old price was 2/6, but on 1/9/56 the price went up to 7/-.

The following personnel of the 1957 Antarctic Team have taken out Amateur licenses:—

Macquarie Island

- VK0AA—W. J. Steurt (ex-VK1ZBS), 57 Cooks Av., Canterbury, N.S.W.
- VK0CJ—C. J. McNaughton, C/o. Gouge, "Sunshine," Wybong, via Muswellbrook, N.S.W.

Vestfold Hills (Princess Elizabethland)

- VK0AB—Alan Hawker (ex-VK3IB and VK1AC), 75 Lloyd St., Dimboola, Vic. (Cards to VK2EG).

Mawson

- VK0AC—Carl Nilsson, 53 Marine Pde., Sealcliffe, South Aust.
- VK0AS—A. H. Sandilands (Sandy), 23 Kennaway St., Tasmore, South Aust.
- VK0DC—David Callow (ex-VK1DC). (Cards to Federal Bureau).
- VK0DJ—David Johns (ex-VK1DJ and VK7DJ), 28 Waterworks Road, Hobart, Tas.
- VK0JP—J. D. Pinn. (Cards to Federal QSL Bureau).
- VK0PK—Peter King (Cards to VK2EG).
- VK0RE—Roy Arnell (ex-VK1RR), Box 8, Ararat, Vic.
- VK0ZM—Bernie Shaw (ex-VK1ZM), 23 William Road, Herne Bay, N.S.W.

Bill Storer, VK2EG (ex-VK1BS and VK1EG), Lot 11, Prince Charles St., French's Forest, Sydney, N.S.W., is handling cards on behalf of VK0AB and VK0PK. Cards for other stations listed above should be sent to the home address given or to the Federal QSL Manager, 23 Landale St., Box Hill, E.11, Vic.

D.X.C.C. LISTING

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. Cnt- No. rles	Call	Cer. Cnt- No. rles
VK4FJ	21 192	VK3JD	1 155
VK4HR	12 182	VK4KS	9 152
VK6RU	2 178	VK6KW	4 150
VK3ATN	26 177	VK4RW	23 147
VK3EZ	3 176	VK3LN	11 141
VK3BE	10 163	VK3AWW	14 140

C.W.

Call	Cer. Cnt- No. rles	Call	Cer. Cnt- No. rles
VK4FJ	29 224	VK5BY	45 193
VK3BZ	6 222	VK3CX	26 192
VK3FH	15 216	VK2EO	2 183
VK4HR	8 212	VK4EL	9 175
VK3XU	48 201	VK5RX	23 169
VK3KB	10 200	VK3YL	39 168

Amendments

VK4RW	47 131	VK3RJ	42 119
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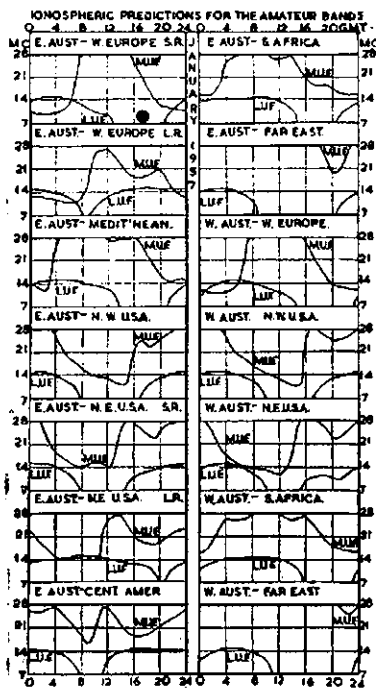
OPEN

Call	Cer. Cnt- No. rles	Call	Cer. Cnt- No. rles
VK2ACX	6 239	VK3JE	12 163
VK4FJ	32 232	VK2NS	16 162
VK3BZ	4 231	VK3HG	3 190
VK4HR	7 224	VK4EL	10 175
VK8RU	8 211	VK6KW	13 171
VK3XU	61 209	VK2DI	2 170

Amendments

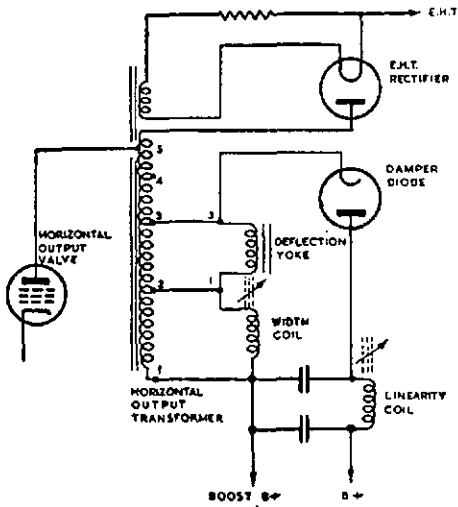
VK4RW	52 165
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PREDICTION CHART FOR JAN., '57



RADIOTRON TELEVISION VALVE SERIES

The damper diode in a TV receiver increases the efficiency of operation of the horizontal deflection circuit by recovering energy from the magnetic field which is set up — in the yoke and output transformer — by current from the output valve. Briefly the operation is:—



SIMPLIFIED DIAGRAM OF HORIZONTAL OUTPUT AND E.H.T. CIRCUITS.

- (1) A voltage of approximately saw-tooth wave-form is applied to the grid of the horizontal output valve with the "pulse" of the saw-tooth in a negative direction.
- (2) This negative pulse in the grid wave-form cuts off the plate current of the horizontal output valve so that a large positive pulse is developed across the inductance of the horizontal output transformer.
- (3) This positive pulse sets up, and becomes the first quarter-cycle of, a damped high-frequency oscillation in the plate circuit.
- (4) During the first half-cycle of the damped oscillation the cathode of the damper diode is positive with respect to the plate and the damper diode cannot conduct.
- (5) During the second half-cycle the cathode becomes negative with respect to the plate causing the damper diode to conduct.

- (6) The diode conduction current flowing in the horizontal output transformer (and thus in the yoke) is in fact the first part of the sweep deflection current in the yoke.
 - (7) As the damper-diode current decreases towards zero, the saw-tooth voltage on the grid of the horizontal output valve is passing from cut-off to less-negative and then positive grid voltages.
 - (8) The horizontal output valve consequently starts to conduct and draws a steadily increasing plate current through the output transformer and yoke thereby providing the second half of the sweep current.
 - (9) During the period of damper-diode conduction the horizontal output valve is cut off and current flows into the capacitor across the linearity coils, charging them to a voltage some hundreds of volts higher than the normal B+ supply voltage.
 - (10) The plate of the horizontal output valve is supplied from this boost supply, thereby making use of the power recovered by the damper diode from the magnetic field of the deflection yoke and output transformer.
- The damper diode thus provides the first half of each cycle of deflection current in the yoke by rectifying the damped oscillation in the output transformer and then allows the power recovered to be used in the plate circuit of the horizontal output valve.

CHARACTERISTICS:

HEATER VOLTAGE	6.3 volts
HEATER CURRENT	1.2 amps.
CAPACITANCE (Heater to cathode)	7.5 μ F

MAXIMUM RATINGS (damper service)

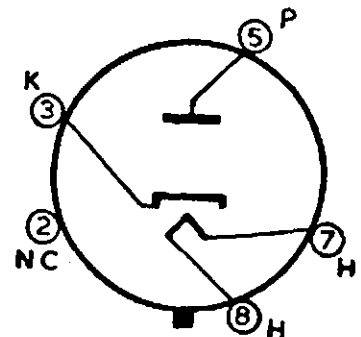
PEAK INVERSE PLATE VOLTAGE* (absolute max.)	4400 volts
PEAK PLATE CURRENT	750 mA
AVERAGE PLATE CURRENT	125 mA
PLATE DISSIPATION	4.8 watts
PEAK HEATER-CATHODE VOLTAGE (absolute max.)	4400 volts
(heater negative with respect to cathode).	

*The duration of the voltage pulse must not exceed 15% of one horizontal scanning cycle.
 †For further information on the 6AX4GT and other Radiotron Television Valves, consult the TV1 Booklet. Additional copies of this advertisement are available free and post free on request.



6AX4GT[†]

SOCKET CONNECTIONS



- (bottom view)
- Pin 2 — No Connection (Do not use.)
 - Pin 3 — Cathode
 - Pin 5 — Plate
 - Pin 7 — Heater
 - Pin 8 — Heater



AMALGAMATED WIRELESS VALVE CO. PTY. LTD.

47 YORK ST., SYDNEY

Australian DX C.C. Alphabetical List of Countries by Prefix

The list of Countries hereunder and as amended from time to time in Federal Awards Notes is the Official List to be used in connection with the issue of the Australian DX C.C. Award.

The list below shows first the Prefix, the Country, and the Zone Numbers in parenthesis (as used for "CQ" W.A.Z. Award).

- AC3—Sikkim (22)
- AC4—Tibet (23)
- AP—Pakistan (21, 22)
- BV (C3)—Formosa (24)
- C (unofficial)—China (23, 24)
- C3—See BV.
- CE—Manchuria (24)
- CE—Chile (12)
- CE7Z, LU-Z, VK1, VP8, Antarctica (13, 29, 30)
- CE0—Easter Island (12)
- CM, CO—Cuba (8)
- CN2, KT1—Tangier Zone (33)
- CN8—French Morocco (33)
- CP—Bolivia (10)
- CR4—Cape Verde Is. (35)
- CR5—Port. Guinea (35)
- CR5—Principe, Sao Thome (36)
- CR6—Angola (36)
- CR7—Mozambique (37)
- CR8—Goa (Port. India) (22)
- CR9—Macau (24)
- CR10—Port. Timor (28)
- CT1—Portugal (14)
- CT2—Azores Is. (14)
- CT3—Madeira Is. (33)
- CX—Uruguay (13)
- DJ, DL, DM—Germany (14, 15)
- DU—Philippine Is. (27)
- EA—Spain (14)
- EA6—Balearic Is. (14)
- EA8—Canary Is. (33)
- EA9—Ifrni (33)
- EA9—Rio de Oro (33)
- EA9—Spanish Morocco (33)
- EA0—Spanish Guinea (35)
- EI—Eire (14)
- EL—Liberia (35)
- EQ—Iran (21)
- ET2—Eritrea (37)
- ET3—Ethiopia (37)
- F—France (14)
- FA—Algeria (33)
- FB8—Amsterdam and St. Paul Is. (39)
- FB8—Kerguelen Is. (39)
- FB8—Madagascar (39)
- FC—Corsica (15)
- FD—Fr. Togoland (35)
- FE8—Fr. Camerouns (36)
- FF8—Fr. West Africa (35)
- FG—Guadeloupe (8)
- FG—Saint Martin Is. (8)
- FI8—Vietnam (26)
- FK8—New Caledonia (32)
- FL8—Fr. Somaliland (37)
- FM—Martinique (8)
- FO8—Clipperton Is. (7)
- FO8—Fr. Oceania (32)
- FP8—St. Pierre and Miquelon Is. (5)
- FG8—Fr. Equat. Africa (36)
- FR7—Reunion Is. (39)
- FU8, YJ—New Hebrides (32)
- FW8—Wallis & Futuna Is. (32)
- FY7—Fr. Guiana and Inini (9)
- G—England (14)
- GC—Channel Is. (14)
- GD—Isle of Man (14)
- GI—Northern Ireland (14)
- GM—Scotland (14)
- GW—Wales (14)
- HA—Hungary (15)
- HB1, 9—Switzerland (14)
- HC—Ecuador (10)
- HC8—Galapagos Is. (10)
- HE—Liechtenstein (14)
- HH—Haiti (8)
- HI—Dominican Republic (8)
- HK—Colombia (9)
- HK0—Arch. of San Andres & Providencia (9)
- HL—Korea (25)
- HP—Panama (7)
- HR—Honduras (7)
- HS—Thailand (26)
- HV—Vatican City (15)
- HZ—Saudi Arabia (21)
- I—Italy (15)
- II—Trieste (15)
- I5, MS4—Italian Soma-aliland (37)
- IS1—Sardinia (15)
- JA, KA—Japan (25)
- JY, ZC7—Jordan (20)
- JZ0—Neth. New Guinea (28)
- K, W—United States of America (3, 4, 5)
- KA—See JA.
- KA0—Bonin and Volcano Is. (27)
- KB6—Baker, Howland & Phoenix Is. (31)
- KC4—Navassa Is. (8)
- KC6—East Caroline Is. (27)
- KC6—West Caroline Is. (27)
- KG1—See OX.
- KG4—Guantanamo Bay (8)
- KG6—Mariana Is. (27)
- KH6—Hawaii (31)
- KJ6—Johnston Is. (31)
- KL7—Alaska (1)
- KM6—Midway Is. (31)
- KP4—Puerto Rico (8)
- KP6—Palmyra Group & Jarvis Is. (31)
- KR6—Ryukyu Is. (25)
- KS4—Swan Is. (7)
- KS6—American Samoa (32)
- KT1—See CN2.
- KV4—Virgin Is. (8)
- KW6—Wake Is. (31)
- KX6—Marshall Is. (31)
- KZ5—Canal Zone (7)
- LA, LB—Jan Mayen (40)
- LA, LB—Norway (14)
- LA, LB—Svalbard (40)
- LU—Argentina (13)
- LU-Z—See CE7Z.
- LX—Luxembourg (14)
- LZ—Bulgaria (20)
- M1—San Marino (15)
- MB9—See OE.
- MP4—Bahrein Is. (21)
- MP4—Kuwait (21)
- MP4—Qatar (21)
- MP4—Trucial Oman (21)
- MS4—See 15.
- OA—Peru (10)
- OD5—Lebanon (20)
- OE, MB9—Austria (15)
- OH—Finland (15)
- OK—Czechoslovakia (15)
- ON4—Belgium (14)
- OQ5, 0—Belgian Congo (36)
- OX, KG1—Greenland (40)
- OY—Faeroes (14)
- OZ—Denmark (14)
- PA0—Netherlands (14)
- PJ2—Neth. West Indies (9)

- PJ2M—Sint Marteen Is. (9)
- PK1, 2, 3—Java (28)
- PK4—Sumatra (28)
- PK5—Borneo (Indonesia) (28)
- PK6—Celebes & Molucca Is. (28)
- PX—Andorra (14)
- PY—Brazil (11)
- PZ1—Neth. Guiana (9)
- SM—Sweden (14)
- SP—Poland (15)
- ST—Anglo-Egyptian Sudan (34)
- SU—Egypt (34)
- SV—Greece (20)
- SV—Crete (20)
- SV—Dodecanese Is. (20)
- TA—Turkey (20)
- TF—Iceland (40)
- TG—Guatemala (7)
- TI—Costa Rica (7)
- TI9—Cocos Is. (7)
- UA, 3, 4, 6—European R.S.F.S.R. (15, 16, 17)
- UA9, 0—Asiatic R.S.F.S.R. (17, 18, 19, 25)
- UB5—Ukraine (16)
- UC2—White Russia S.S.R. (16)
- UD6—Azerbaijan (21)
- UF6—Georgia (21)
- UG6—Armenia (21)
- UH6—Turkoman (17)
- UI8—Uzbek (17)
- UJ8—Tadzhik (17)
- UL7—Kazakh (17)
- UM8—Kirghiz (17)
- UNI—Karelo-Finnish (16)
- UO5—Moldavia (16)
- UP2—Lithuania (15)
- UQ2—Latvia (15)
- UR2—Estonia (15)
- VE, VO—Canada (2, 3, 4, 5)
- VK—Australia (29, 30)
- VK1—See CE7Z.
- VK1—Heard Is. (39)
- VK1—Macquarie Is. (30)
- VK9, ZC2—Cocos Is. (29)
- VK9—Nauru Is. (28)
- VK9—Norfolk Is. (32)
- VK9—Papua (28)
- VK9—Territory of New Guinea (28)
- VO—See VE.
- VP1—Br. Honduras (7)
- VP2—Leeward Is. (8)
- VP2—Windward Is. (8, 9)
- VP3—Br. Guiana (9)
- VP4—Trinidad & Tobago (9)
- VP5—Cayman Is. (8)
- VP5—Jamaica (8)
- VP5—Turks & Caicos Is. (8)
- VP6—Barbados (8)
- VP7—Bahamas Is. (8)
- VP8—See CE7.
- VP8—Falkland Is. (13)
- VP8—South Georgia Is. (13)
- VP8—South Orkney Is. (13)
- VP8—South Sandwich Is. (13)
- VP8—South Shetland Is. (13)
- VP9—Bermuda (5)
- VQ1—Zanzibar (37)
- VQ2—North. Rhodesia (36)
- VQ3—Tanganyika (37)
- VQ4—Kenya (37)
- VQ5—Uganda (37)
- VQ6—Br. Somaliland (37)
- VQ8—Chagos Is. (39)
- VQ8—Mauritius (39)
- VQ9—Seychelles (39)
- VR1—Gilbert, Ellis & Ocean Is. (31)
- VR2—Fiji Is. (32)
- VR3—Fanning Is. Group (31)
- VR4—Solomon Is. (28)
- VR5—Tonga Is. (32)
- VR6—Pitcairn Is. (32)
- VS1—Singapore Is. (28)
- VS2—Malaya (28)
- VS4—Sarawak (28)
- VS5—Brunei (28)
- VS6—Hong Kong (24)
- VS9—Aden and Socotra (21)
- VS9—Maldivé Is. (22)
- VS9—Sultanate of Oman (21)
- VU2—India (22)
- VU4—Laccadive Is. (22)
- VU5—Andaman & Nicobar Is. (26)
- XE—Mexico (6)
- XW8—Laos (26)
- XZ—Burma (26)
- YA—Afghanistan (21)
- YI—Iraq (21)
- YJ—See FU8.
- YK—Syria (20)
- YN—Nicaragua (7)
- YO—Roumania (20)
- YS—Salvador (7)
- YU—Yugoslavia (15)
- YV—Venezuela (9)
- ZA—Albania (15)
- ZB1—Malta (15)
- ZB2—Gibraltar (14)
- ZC2—See VK9.
- ZC3—Christmas Is. (29)
- ZC4—Cyprus (20)
- ZC5—Br. North Borneo (28)
- ZC6—Palestine (20)
- ZC7—See JY.
- ZD1—Sierre Leone (35)
- ZD2—Nigeria (35, 36)
- ZD3—Gambia (35)
- ZD4—Gold Coast, Br. Togoland (35)
- ZD6—Nyasaland (37)
- ZD7—St. Helena (36)
- ZD8—Ascension Is. (36)
- ZD9—Tristan da Cunha and Gough Is. (38)
- ZE—South. Rhodesia (38)
- ZK1—Cook Is. (32)
- ZK2—Niue (32)
- ZL—New Zealand (32)
- ZM6—Br. Samoa (32)
- ZM7—Tokelau Is. (31)
- ZP—Paraguay (11)
- ZS1, 2, 4, 5, 6—Union of South Africa (38)
- ZS2—Marion Is. (38)
- ZS3—South West Africa (38)
- ZS7—Swaziland (38)
- ZS8—Basutoland (38)
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- 3A—Monaco (14)
- 3V8—Tunisia (33)
- 3W8—Cambodia (26)
- 4S7—Ceylon (22)
- 4W1—Yemen (21)
- 4X4—Israel (20)
- 5A—Libya (34)
- 9S4—Saar (15)
- Aldabra Is. (39)
- Bhutan (22)
- Comoro Is. (39)
- Fridtjof Nansen Land (40)
- Kermadec Is. (32)
- Mongolia (23)
- Nepal (22)
- Tromelin Is. (37)
- Wrangel Is. (19)

FIFTY-SIX MEGACYCLES AND ABOVE

Australian Amateurs are advised to keep a look out for ZK1BS, in the Cook Islands, on 5 metres. He is desirous of making contacts with VK.

VICTORIA

At the November Fox Hunt the turn-up was rather disappointing. In fact it was one of the smallest turn-ups we have ever had, but perhaps the hounds were all saving themselves for the Olympic Fox Hunt. However, the hunt went on as usual and the first hiding spot the Fox 3LN chose was behind a shed in Ransome Park at Royal Park, next he hid in very long grass at Camp Pell, then in a car park in Ascot Vale and in the next spot he did his famous disappearing trick. It was in some rather rough country at Maidstone, one minute the hounds saw him, the next minute he had disappeared and then before they knew what was going on he reappeared round behind them again. What happened in between just nobody knew, but our guess is that some of those hounds will be visiting that spot again just to convince themselves that the Fox didn't take on some ghostly form and pass straight through bricks and mortar. Bob 3OJ acted as control station and was assisted with cross bearings from Ian 3ALZ, thanks Bob and Ian. The final location was held at the home of Ron 3ANO and Dot Jones in Sunshine where the gang had supper together and the usual S9 plus natta. All admired Ron 3ANO's shack. Ron has a very nice set-up, he has a room quite apart from the house all to himself and with his armchair and his mike, it's just an Amateur's idea of paradise. His equipment also is exceptionally nice, he has a 5 panel 8 ft. rack covering all of the low frequency v.t.o. driving a pair of 807s in the final and the operating table is the console type with beam motors and indicators, plus receivers. Ron builds all his own equipment and everything was very beautifully finished showing very creditable workmanship.

Thank you Ron and Dot for inviting the Group to your home to finish off a pleasant evening.

Even standing room was at a premium at the last V.h.f. Group meeting when there were 36 present to hear a very interesting lecture on T.V. by Keith 3HK, who brought in his home built t.v. rx to demonstrate and describe to the Group. He is getting a very excellent picture and also sound too is very good and his workmanship brought forth the admiration of all present. He uses a Lorán c.r.o. as a basis for the t.v. rx. The picture tube is a 5CP1 with r.f. power supply, the turret and i.f. strip from a Rebecca R1045 radar transceiver. The sound i.f. uses two stages, the first being an i.f. amplifier and the second a limiter followed by ratio detector and audio amplifier 6SL7 and 6V8. The sync. separator uses a VR65A, the frame osc. is a Miller transistor type using VR65A and 6SH7 phase inverter. The line osc. is a cathode coupled multi-vibrator type using 6SN7 and another 6SN7 as a phase inverter.

We were very pleased to have two international visitors at our meeting. They were Bob YA1AA (ex-W9MOW, ex-VU2DJ), from Kábel in Afghanistan, who works on 5 and 20 mx and who is incidentally the only licensed Amateur in Afghanistan, his location is situated 80 miles from the Russian border. He gave a very interesting short talk on his hobbies which are s.s.b. and hi-fi binaural. Our other visitor was Francois La Fortune, from Belgium, an Olympian here to compete in the shooting and an s.w.l. in Belgium.

The first Field Day of the summer season for v.h.f. operators was held on 16th December. Further Field Days will be held on the third Sunday in February, March and April, but at the moment these dates are still only tentative pending the date to be set for the National Field Day.

Rules for V.h.f. Field Days

The bands that may be operated are 144 Mc. and above. Any one station may be contacted once only on each particular band on each field day.

Scoring.—One point for each air line mile in each contact and extra bonus points will be awarded to the operators who make the three longest distance contacts on each band, these contacts will receive double points. The distance to be arrived at during the QSO.

The time duration of the Field Day will be the 24 hours of the Sunday on which the Field Day is being held.

Both portable and home stations are eligible to participate, but in each contact one station at least must be a portable. Home to home station contacts cannot claim points. An attractive certificate will be awarded to the winner of each field day.

Logs to be forwarded to the Secretary of the V.h.f. Group, Mr. Bob Stevens, VK3OJ, 17 Jervis Street, Burwood, within 14 days of the date of the Field Day.

Make sure to take a map and compass or ruler with you to work out the mileage. To avoid the disappointment of finding someone else at your favourite field day location, book your mountain top with Phyl Moncur, 235 Union Road, Ascot Vale, and it will be advertised in the 3WI Sunday morning broadcasts.

It has been suggested that Thursday evening, between 8 and 10 p.m. should be set aside as hook-up night with particular emphasis on the Western District where there is a whole host of stations looking for Melbourne contacts.—P.M.

QUEENSLAND

This past year of v.h.f. activities in South-Eastern Queensland, particularly, has been quite a memorable one. Firstly, we have seen quite a rapid increase in the number of limited and fully licensed Amateurs on the v.h.f. bands. Whilst we consider 2 mx to be THE v.h.f. band it has been noticed that a few of the "dyed-in-the-wool" d.c. boys are casting furtive glances at the possibilities of a.c. bands.

As most local activity is centred around 144 Mc. some interesting things have been accomplished in the way of converter design, extended transmissions, etc., to say nothing of the frequent and pleasurable 2 mx d.f. meetings.

It is quite evident that the weakest link in v.h.f. communication is, perhaps, the rx. The popular solution is the construction of effective low-noise, high gain converters associated with a good communication rx. Quite a few of the boys have thrown up "five-over-five" and "sixteen elements" which really pay off when the going gets tough.

4JO (Brisbane) has at long last brought 4CB (Maryborough) and 4ZAF (Warwick) together and although results were not good, they were encouraging, as conditions were rather poor at the time. Better conditions, we think, should do the trick! Good luck to you!

Two mx conditions have unfortunately varied quite considerably to the extent that the usually reliable 5/9 Brisbane-Warwick path, has at times been badly affected by heavy OSB of considerable duration. On the other hand, however, the difficult coastal path to Palm Beach, near the N.S.W.-Qld. border, has at times really opened up to a good 5/9.

Speaking of Warwick previously, reminds me that 4ZAA and 4ZAT went mobile for their last holidays and on passing through that city knocked up 4ZAF at 2315 hours. 4ZAF didn't see why he should be out of bed and 4ZAE (in Brisbane) shouldn't so—a long distance phone call to 4ZAE—the result strangely enough, was a nice QSO which ended about 0040 hours.

4ZAT and 4ZAA that same night left Warwick and tried the next morning to reach Brisbane from Stanthorpe (130 miles approx.), but without success. The boys subsequently ended up in Victoria, I think, and brought back some interesting stories and plenty of new v.h.f. contacts.

We really have enjoyed ourselves at the W.I.A. hidden tx hunts. Our sincere thanks go to Mrs. 4JO for the excellent suppers she provided after the "show" was over. As our numbers increased we held several on the spot barbecues as occurred on a recent Sunday afternoon when 4LM and his associates "set the stage." The hunt took the boys to Mt. Crosby and to an inspection of the tremendous underground pumping station there. Yes! We certainly have enjoyed ourselves immensely at these hunts, but out of all our hilariously funny incidents comes a claim for an Australian record! Our friend John 4EP, who has a pilot's licence for his Jaguar car, located the hidden tx at night, through strange suburbs, in the amazing time of ten minutes! The distance in a straight line from the starting point to the tx (according to the Lands Department) was 5 miles 35 chains. Not a bad effort at all, John!

Incidentally, these hunts are open to all who profess an interest in radio and anyone who wishes to participate may unconditionally do so. Drop in at the W.I.A. meetings where the boys will give you much information of the subject.—4ZAE.

SOUTH AUSTRALIA

Interest recently seems to have centred on "building," just about everyone spoken to has mentioned some plan or another under way, be it antennae, or finals, so we should have a crop or two of newer or bigger and better rigs on v.h.f. soon.

Dave 5ZAM, who paid me a visit recently, reported his gear going well and in spite of temporary antenna has regular skeds with Ray 3ATN and keeps in touch with the Mt. Gambier

gang via 2 mx. Dave is to try a skeleton slot soon to drive his 5 over 5. Gordon 5XU has fixed up a vertical J antenna for 5 mx and uses it on Sundays to put the W.I.A. session on that frequency simultaneously with 7146 Kc. He is interested in reports on that band, the vertical should give general coverage.

Reports of t.v. sigs being seen and heard in Mt. Gambier from Melbourne indicate good v.h.f. conditions for the oncoming summer months, so we should see some new records this year, which with our new frequencies (50-60 Mc.) will make the interest grow.

It is the intention during the next few months to "highlight" a v.h.f. personality and his rig so that in turn we may become more familiar with both "who's-who" and what is doing.

Reg 5QR was visited, and contacted, and arising from such get-together am able to provide an insight into that worthy v.h.f. type and how he does it. His record of achievements on v.h.f. need little comment for they have been recorded elsewhere, and being active on 1, 2, 6 and now 5 mx, has given him plenty of scope for breaking new ground and being in many "firsts." The v.h.f. work is only a part of general activity for the d.c. bands have not been neglected, some very juicy certificates witness that.

The antenna set-up is good—and getting better, the Christmas tree consisting of a 16 el. Colinear on 1, a similar 16 el. on 2, a 4 el. on 6 now being reduced for 5 mx, and finally a G4ZU. All this on the same structure, completely motorised with remote indicator, an ideal set-up. The direction indicator has a great circle map with a balanced needle following the antenna around, so there is no excuse fellows, he will d.f. you for best results.

The tx set-up is flexible in operation, all of them switched for either c.w. or phone, the latter being done via plate and screen on all rigs, by 807s A.B1.

For 288 Mc. he uses the usual line-up from the xtal, trebling with an 832 to 96 Mc., then treble again to QRP/640 and a straight amplifier using another QRP/11. A very smart set-up this. On 144 Mc. a 6J6 does the trick trebling to an 832 on 144 Mc., thence 829B final with 75w. input, and on 56 Mc. he has an 815 driving an 829B. The outputs of these rigs go via antenna relays to open wire lines to the various sky wires, the ceiling of the shack having a collection of these on their way aft.

The rx assembly follows a pattern also, for example the 288 Mc. xtal front end starting at 7.8 Mc. overtones osc. 6J6 thence double through N78 to 46.8 Mc., a 6J6 lifting this in two stages to 280.8, this beats against a p.p. r.f. 6J6, push push mixer 6J6, thence another 6J6 with some tying of elements as a cath. follower to the appropriate rx allocated for that work. For 2 mx a 6J6 line-up does the trick, but this time the fifth harmonic is used the r.f. set-up being the same as for 288 Mc. The 5 mx converter is within the same chassis.

A very nice operating table and position puts the final touches to a real progressive shack, the current holidays being applied to complete the layout. Oh yes, a most comfortable chair provided for visitors, of whom, as you can guess, he has many.—SEF.

WESTERN AUSTRALIA

The W.A. V.h.f. Group held another Fox Hunt on the evening of October 20. As usual, the cars started from King's Park and on this occasion, the fox was Ralph 6ZAD, assisted by Stan 6ZAS and John 6ZAG. Congratulations must go to these gents as they apparently put a lot of thought into selecting the spot for hiding the transmitter and only four of the participants found the tx at all. The spot chosen (with fiendish consideration) was alongside the Swan River in Riverton and practically all of the participants went from one side of the river to the other and, by road, this amounted to quite a distance covered. First to track down the fox was Sid 6SJ and his crew. He was followed closely by Don 6HK, whose crew consisted of his fiancé, Pat, and Barry ex-6BR, and John 6ZBA. Many sad stories were exchanged and a general post-mortem of the hunt held at the QTH of one of 6ZAD's relations in Applecross. An enjoyable supper was served to all and then all cars headed for home.

On November 17, the Group held a meeting at the QTH of Frank 6CC. In the absence of 6SJ, Rolo 6EO took the chair. A very welcome visitor at the meeting was John 6AF. After the general business had been dispensed with, Tom 6ZAF gave a talk on circuits suitable for Civil Defence rigs and also the merits and demerits of various tubes for same. Then 6ZAD gave a talk on antennae. Some of the antennae discussed were ones used by D.C.A. in D.M.E. equipment and were quite new to some of the members present, certainly to yours truly. Both of these talks were very interesting and thanks are forwarded to the two speakers.—6ZBA.

NEW SOUTH WALES

Owing to late arrival of copy, the New South Wales notes appear on page 19.

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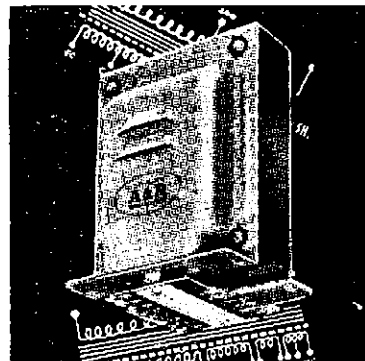
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OLYMPIC MESSAGE

VK3WI co-operated recently with VK7WI in receiving a message of greeting from the Greek Radio Amateurs in connection with the Olympic Games in Melbourne. The message was transmitted from Mt. Olympus in Greece to VK7WI, operating portable from Mt. Olympus in Tasmania and was later passed on to VK3WI and handed to the Chief Executive Officer, Olympic Games Committee in Melbourne.

The message read as follows:—

"From Attica Amateur Radio Club, SV1SV, to Wireless Institute of Australia, Tasmanian Division, portable VK7WI, on the occasion of the beginning of XVI Olympiad in Melbourne. We, the Greek Radio Amateurs, address

our warmest greetings to our Australian colleagues and ask you to transmit the following message to the Committee organising the Olympic Games in Australia. This message is communicated from the place of Olympia where the holy light remains burning since three thousand years ago symbolising the idea of courteous competition in peaceful achievements. 'We wish the knightly spirit and the faith in ideals which expresses the meaning of Olympiad prevail in this magnificent gathering in Melbourne, and in the conscience of world-wide athletic youth'."

It may interest members to know that the Tasmanian Tourist Bureau office in Collins Street, Melbourne, made a small display of this message.

YL CORNER

BY PHYL MONCUR

Our YXL for this month is Muriel Sinbeck (Mrs. 3ANS) who is the mother of two small male tube harmonics. Muriel has one of those bubbling-over sort of personalities with loads of enthusiasm for everything she enters into. As well as looking after her "Ham" and his two little "pork chops" she manages to combine a spare time occupation of giving driving lessons for those desirous of gaining another sort of ticket. Here is her contribution to our column:—

YOICKS, YALLYHO AND DON'T SPARE THE HORSEPOWER

Upon hearing loud bangs and much activity coming from the direction of our family "Bomb" one sunny Sunday morning, I thought, ah! looks like a nice run to the country this afternoon. But, horror of horrors, on investigating, what met my eye but the glove box out upon the ground and various other innards of the car strewn hither and thither.

"What goes on?" I managed to get out when I had finally collected my wits. To which my OM said, with that bright mysterious gleam in his eye we XYLS have learned to dread, "Just wait till you see this, we'll clean 'em all up next time." "Clean who up?" I stammered, "what on earth are you doing?" "Well," he says, "the speaker goes here, the receiver will go there and the power supply will go in the boot, you see, pretty nifty huh?"

Well frankly I didn't see and to cap it all off it seemed there was to be a contraption, looking like a smaller version of my rotary clothes line out front, with some ingenious method of rotating same. This being called the "beam."

"Gosh, fair go," I stormed, "as if it isn't bad enough having to put up with all that Yakkity Yak! here, without taking it with us too." Well, when my OM had finally calmed me down, explanations were carried out and I was given to understand that we were to be in the next "Fox Hunt," though for the life of me I could not see what foxes had to do with it at all. I told my OM as much, whereupon I was addressed with his favourite term of "Listen Log, it's not a real fox at all, but one of the boys in another car and we have to chase him and catch him." "Well," I muttered, "what a way to spend an evening. Chasing some silly clot (my apologies Len) all over town, just to do that. If you ask me, you're all mad."

Of course the work proceeded and at last the big night arrived. We were all set to go. With our supper in the boot, a makeshift bed on the back seat for our two harmonics, my OM frantically making last minute adjustments to the receiver and myself at the wheel, we were off to the starting point. Imagine my surprise when on arrival there I was introduced to other XYLS and YLs who I understood were to be "Navigators" or "Chaffeurs" and all seemed very keen about it all. I preferred to reserve judgment until later in the night.

Eight o'clock came and away went the "Fox" (3LN) and his XYL Phil doing a grand job as scorer. After about ten minutes or so the "Hounds" (that's us) were let loose and off we went. Some in one direction, some in another, but all with antennae gyrating madly and so the "Hunt" was on.

Somewhere around twenty minutes later, when we had been in on the first "kill," I started getting interested and before the night was over I'd caught the bug and was really enjoying it, in spite of myself.

During the course of action we all got somewhat overheated with excitement. In my case as much from the constant barrage of directions that had been fired at me with machine-gun like precision, by my OM. Such things as "turn left two streets up," "Turn right next corner," "Go back a bit," "Not that way Log, I meant back there," Oh my! The harmonics too came in for a bit of chastising. "Quiet in the back there, Look! you'll stay home next time." While I muttered to myself, "if there is a next time."

At last, after a merry chase here and there and finding ourselves in some very queer places, the "Pack" decended on the "Prey" from all sides at the final location of the evening. This being the home of one of the Amateur Fraternity and his XYL who had kindly thrown open their door to us all. Over our suppers of sandwiches and Thermos hot teas, we nattered and tallied up our points which were divided into the miles travelled. The lowest score of them all winning the "Meet."

The OMs had a look at the Host's "Rig" for no "Ham" would be guilty of calling on another without a quick look over the "Shack," and after a hearty round of "Goodnight all, see you next month," we headed our trusty "Steed's" nose for home. My OM, now driving, turned to me and with a very satisfied grin, said, "Well Mum, what about it now, will we be in the next Hunt?" And what did I say? "You bet we will." While from the back seat came a chorus of contented snores from our harmonics.

The Fox Hunts and likewise the Transmitter Hunts have three very keen fans at our QTH and just let our OM try to get out of it. HE'S GOT NO HOPE. 73 Muriel Sinbeck.

Well YLs and XYLS, we've got this column of ours going pretty well, don't you think? But we've got to keep it going. And that's where you all come in, how about some more contributions.—P.M.

S.W.L. SECTION*

The Christmas season having passed, now comes the time for making those New Year resolutions. So why not first of all resolve to put pen to paper and tell me a little of YOUR doings. I'd be very pleased indeed to hear from you. So far we have heard from the following VK areas: VK2, 3, 4, 5, 6, and 7, in other words all mainland States and Tasmania. How about you VK1 (A.C.T.) and VK9 boys making yourselves known? Still, I hope you have enjoyed the year just passed and wish you all the best for this one coming. But, please, please do try and help us make a bumper show for our notes from now on.

NEW SOUTH WALES

Key Clicks are audible against the background of motor engines roaring in Coolamon again this month. Our most consistent VK2 correspondent, Stan Abbey, is mobile, but whether with radio gear or not, I don't know. However, I believe that he has not done much listening but instead has been rampaging around

* Compiled by Ian J. Hunt, WIA-L3007, 211 St. George's Road, Northcote, N.16, Vic.

showing off his driving skill. Jack Ashley, from the same village (or is it a town boys?) has been experimenting with a converter for 10 mx as his rx has not been functioning too well on that band. Jack is evidently cleaning up the gear preparatory to cleaning up the DX in this new year. I'm also told that f.m. has been a topic of much interest to a couple of the locals, namely 2AJO and 2ZBJ.

Stan said it was good to learn of another VK2 listener, but that he thinks there must be more. He suggests they may be frightened of seeing their names in print or maybe they can't write. Come on you VK2s and let's hear more from you. What's happened to Bill Davey these days, busy building a t.v. rx or some such small item Bill?

VICTORIA

November Group meeting.—This meeting was held on Tuesday, 27th, at the rooms, 181 Queen St., Melbourne; thirteen members being present. Mac Hilliard, from VK5, was welcomed to the premier State to stay. Frank Nolan reported on band conditions, while Michael Ide reported on his activities in general and also gave a brief but most interesting description of his tape recorder (home built of course). Ian Hunt was asked a question as to what happened at the Olympic hidden tx hunt.

It was decided that no meeting will be held for the month of December due to the holidays and that the January meeting would be a free night. So come along and join in our activities as you can be assured of a most interesting time. The Group meets on the last Tuesday evening of each month at 8 p.m. at the address given above.

To conclude the November meeting Ian Hunt gave a talk on antennae and described many of his experiences in that line. The talk was kept elementary for the sake of the younger members and it is hoped that they learnt at least a little from it.

VK3 Correspondence.—That unrelenting cow-ham-boy, Dave Jenkin, has managed to milk a little more ink from his pen to keep us in the picture of the latest doings in Orbost. He hasn't been hearing much DX, only Ws and KH6s on 7 Mc. c.w. and also an II on that band. His new rx is now completed except for soldering most of the joints, which up till now have just been twisted. However, despite oscillator trouble he feels that he's now getting somewhere with it at last. I guess it will be really and truly operating by the time this appears in print.

Another very interesting letter was received from Henry Zaal, of Traralgon, in which he tells of the Convention recently held in Leon-gatha. It appears that Henry was the only s.w.l. and associate present full time at the Convention. Terry Phefey was present for the Saturday night meeting and one of our best known associate members, Phyl (boy scout) Moncur put in an appearance. Thus we associates were represented. Whilst activities were in progress Henry picked up some experience in the tx hunt and says that next time he'll have his own hunting gear.

Bert Stebbing was present at the recent tx hunt and although he was standing right on top of the elusive apparatus still couldn't seem to find it. Ian Hunt salvaged quite a fair length of the antenna from amongst the trees but found himself on the wrong side of the river. He was aghast at one stage when it seemed that a visiting ZL Amateur was in danger of falling into the Yarra River. (No! No notes on the end of the wire, Geoff.) Expecting Len Poynter to appear with a cathode ray tube hanging around his ears soon. He's apparently getting really stuck into this t.v. business.

SOUTH AUSTRALIA

John Campbell writes again this month and lets us into all the secrets from over there. There were no special functions at the last Group meeting, but a new issue of VK3 SWL Cards were received. Len Cragen has obviously been very busy listening as he has heard the following stations recently. 14 Mc.—CTIPK, KJ8BS, VK1IJ, VK9TW, W4ANA, ZL2LY, 21 Mc.—BV1US, CE1AH, DU6IV, JA4AH, JZ0PC, KA2KS, KH6BPF, KR6AB, KV4BB, VK9BW, VS2FD, VS4BO, Ws, YV, ZL1ST, ZL4BO, 28 Mc.—GM3DHD, JA9BE, KH6AQJ, OH2OV, OH5NW, SM5CXF, VE4RO, VE7HE, VK9DE, VS6BE, W6-7-8-0, ZL1-3-4, ZS4FF, ZSSCU, ZS6GF, 4STYL.

I have also heard that a Christmas social was to be held for the VK3 Group so it will no doubt be very interesting to find out all about it.

That, however, is all the news for this month. I would like to thank all those who have written showing an interest in these notes during 1956 and assure you that your efforts are very much appreciated. Good wishes to all for this New Year and we hope you have success in your various activities.



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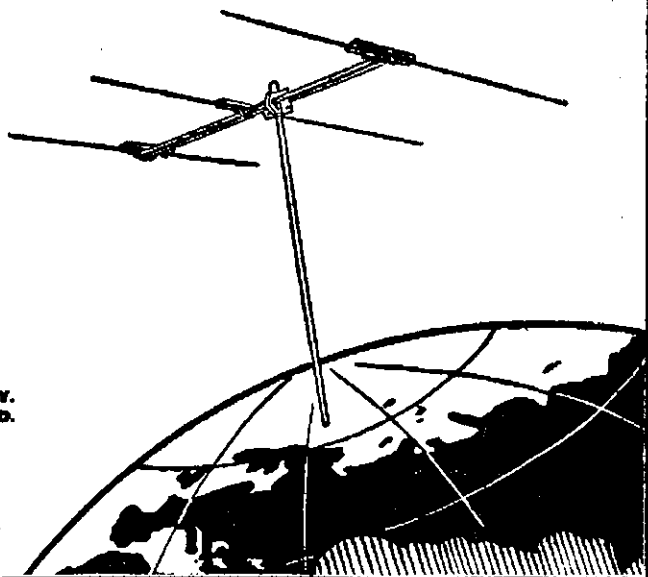
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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

With the coming of the New Year and the exchange of Season's Greetings, it is also appropriate to thank all who have helped during the Old.

Special thanks are due to the various committees—Magazine, Contest, etc.—who have spent hours in their particular duties. Along with these are the members who serve on Traffic Nets, as QSL Officers, Awards Manager, Correspondents, etc. It is the work of these people that makes the Institute function.

To one and all we say, "THANK YOU!"

VISIT OF VK3 PRESIDENT

A visit of some interest was that of N.S.W. Divisional President, Mr. J. Corbin, VK2YC, Jim, who had come over to attend a Civil Defence School at Mt. Macedon, had a few days available in Melbourne during which he was able to meet members of Federal Executive.

Among the variety of subjects discussed was the one which prompted his visit to VK3, the matter of Civil Defence and it is confidently expected that new moves in this field will be forthcoming in the near future.

SUCCESSFUL AMATEUR CANDIDATES

The following is a list of candidates who were successful at the examination for the Amateur Operator's Certificate and Amateur Operator's Limited Certificate held on 9th October, 1956.

New South Wales

- N. F. Wilde, "Wyoming," The Village, Blayney.
- R. H. Palmer, Wee Waa St., Boggabri.
- G. F. Barham, 10 Beaufort St., Northmead.
- R. S. Lawton, 5 Rogers Ave., Haberfield.
- S. W. Steinwunde, 66a Anzac Pde., Maroubra Junction.
- R. Crooker, 11s Arden St., Waverley.
- B. J. Dwyer, 30 Highgate St., Bexley.
- A. M. La Macchia, 14 Rutven St., Bondi.
- J. Preston, 41 Clamie St., Kingsgrove.
- F. Matthews, 15 Campbell St., Parramatta.
- D. W. Rickard, 15 Campbell St., Parramatta.
- P. B. Card, 17 Watson St., Bondi.
- A. A. Phipps, 194 Princes Highway, Sutherland.
- J. F. Dalstead, 14 Barbara St., Fairfield.
- S. J. Brown, 5 Kentwell Ave., Thornleigh.
- B. P. Keig, 178 Wooloware Rd., Cronulla.
- G. E. McPhee, 102 Wollii St., Kingsgrove.

Victoria

- L. R. Schulz, 174 Nelson St., Nhill.
- C. W. Wright, 4/76 Maj. 3 NS Trg. Bgde., Puckapunyal.
- F. D. S. Wescott, 40 Queens Ave., St. Arnaud.
- A. F. Elliott, 31 Fenton St., Ascot Vale.
- L. C. H. T. Robertson, 6 Curraong Ave., Camberwell.

- J. Sapir, 1 Kyeamba Cr., Toorak, S.F.2.
- E. C. Linden, 723 Toorak Rd., Kooyong, S.E.4.
- V. L. Tremawon, 2 Hurleston St., Prahran.
- R. A. Low, 8 Airline Ave., East Prahran.
- T. P. Said, 22 Rosebank Ave., Strathmore.
- B. MacRae, 1 Symonds St., East Hawthorn.
- R. R. Longworth, C/o. Electric Signals, 19-23 King St., Melbourne.

Queensland

- C. W. Everdell, Gleneagle, Beaudesert Line.
- F. R. Parker, 69 Boundary Rd., South Townsville.
- R. C. Britton, 42 Railway Ave., Townsville.
- G. C. Jenkins, 25 Adrian St., West Mackay.
- G. F. Fooley, 35 Aberdeen Ave., Maryborough.
- R. D. Grandison, 141, Mt. Crosby.

South Australia

- H. Dreimann, 28 Days Rd., Croydon.
- R. A. C. Washington, 252 Torrens Rd., Croydon.
- H. M. Blythe, 57 Jervois St., Vermont.

Western Australia

- T. S. Long, 108 Spencer St., Bunbury.
- C. F. Jaeschke, Moora, W.A.
- G. E. Maxfield, C/o. 6WA Radio Station, Wagin.

Tasmania

- R. W. Harrex, 54 Creek Rd., Newtown.

The above list does not include candidates who, although they failed in the examination for a full certificate, qualified in the subjects for a Limited Certificate. Such candidates are issued with a Limited Certificate on application.

If any have gone astray, I will be happy to replace on request. My new assignment is now on Mayaguana Island and I hope to be operating from there as a VP7 in a few months. Another VP5 has departed and will presently be operating as a ZD8 from Ascension Island. He is Rod VP5RR. Current QTHs of both mentioned stations are: Seth F. Hodson, VF5FH (ex-W6HNX), R.C.A.-M.T.P., Mayaguana, A.A.F.B., care Patrick A.F.B., Cocoa, Fla., U.S.A. Rod Randolph, VP5RR, R.C.A.-M.T.P., Ascension A.A.F.B., care Patrick A.F.B., Cocoa, Fla., U.S.A. Lennart Qvarfordh, operator of SM8CSH/MM aboard one of the largest tankers afloat—S.S. Petro-Emperor, 40,000 tons—is often heard on 14 Mc. c.w. from various ocean locations. Lennart hopes to visit VK before long and is looking forward to meeting Hams at the various ports visited. All will be welcome. He uses a 8148 with 65w. and rx is an HQ140X.

QSL traffic through the Federal Bureau took a steep rise during November. Just under 6,000 cards were handed.

Several VK cards have been returned from Morocco by the QSL Manager of the A.A.E.M., Box 2060, Casablanca. The endorsement giving reason for non delivery is "Non Member." Should many countries follow the lead of South Africa, Sweden and Morocco, the QSL Bureau system is doomed, for stations despatching cards have no knowledge as to whether the addressee station is a member of the national society of his country.

The D.A.R.C. advise the following alterations in the dates of the phone section of the W.A.E.D.C. Contest: First Week-end: 8th December, 1200 hrs., to 9th December, 1956. 2400 G.M.T. Second Week-end: 18th January, 1200 hrs., to 20th January, 1957, 2400 G.M.T.

The D.A.R.C. also advise the following results of their 1955 W.A.E.D.C. Contest: C.w.—VKs 2GW 5,359 pts., 2EO 4,218, 2AFA 190, 3CK 430, 5WO 390, 5JT 130, 6RU 273, 6EJ 242. Phone—VKs 2ACU 248 pts., 5WO 42, 9DB 1,562.

—Ray Jones, VK3RJ, Manager.

FEDERAL AWARDS

W.A.V.K.C.A. AWARD

Certificates have been issued as follows: Mike and Key Club, KAZNY; Takeo Kuwahara, JA1CR; Ivar Svensson, SM7AVA; H. V. C. Randall, ZC5VR; K. Wydder, HB9DS; Otto C. Miller, K6ENX; Naofji Hasegawa, JA2BL; Hsiao Shono, JA1AA. Total Certificates issued to date, 45.

—G. Weynton, VK3XU, Awards Manager.

NEW SOUTH WALES

At the November meeting of the New South Wales Division, Mr. James Sinclair, who is Assistant District Commissioner of the New Guinea Administration, gave a most interesting talk on his work as a Patrol Officer in New Guinea. Many interesting colour slides were shown for the first time to the meeting and all voted it a most enjoyable talk and really "something off the beaten track," as Mr. Sinclair was the first white man to visit many of the areas shown on the slides!

The next big Divisional activity is the annual Hamfest, to be held over the holiday week-end, January 26, 27 and 28. This year at least some of the activities will be held at VK2WI—now in its official location at Quarry Road, Dural. The usual large roll up of city and country members is expected at the Hamfest, which is becoming the main meeting ground for City and Country, offering such a grand opportunity for a State-wide get together prior to any Federal Convention. See you at the Hamfest! Here's hoping you all had a very Merry Xmas, and may your antenna radiate throughout 1957!

HUNTER BRANCH

The November meeting of the Hunter Branch was held, as usual, at the University of Tech-

nology with 13 members in attendance, including John FK8AB. It was announced by the social committee that as no Christmas Party was to be held this year, the cash in hand would be used to purchase presents for all children of members of the Hunter Branch.

Associate Stewart Fairburn was welcomed back after his visit to the United Kingdom, and Stewart entertained members present by showing a large number of transparencies which he had taken during his travels. John FK8AB whose ship was in port for a few weeks, addressed the meeting and gave an account of the activities of FK3 in Noumea.

Members of the Branch made their usual journey to Woy Woy at this time of the year. Those members seen were Norm 2ANA and family, Harold 2AHA and family, Betty XYL of President Bill 2XT, Leo 2QB, Les 2AIR and family, Bill 2ZL, Varley 2SF and family, Chris 2PZ and family, Fred 2AGY, Duncan 2MC and family, Ken 2ANU, Geoff 2VU, Associate Ray James and Associate Bob Bailey and family. In the Scramble, Harold 2AHA took first prize with Geoff 2VU running second. Geoff also took out third prize in the 144 Mc. Hidden Tx Hunt.

President of the Branch, Bill 2XT, has been down to VK3 to see the Games and has now returned with some definite ideas on t.v. rx's. Lionel 2CS has taken an interest in Local Government of late. Rodney 2CN has been on quite frequently until recently when the death of his father caused postponement of Ham activity. Bill W6AL and KYL Carrie visited Ron 2ASJ and Harry 2YL during their trip through Newcastle. Bill W6AL sends 73 to all his Hunter Branch contacts and regrets time did not permit more personal visits.

Bill 2PJ active from his new shack; pleased with results from small rig on his yacht also. At Maitland, Bill 2AMM still busy getting nursery (plants, not kids!) business under way, so no Ham work yet. Associate Sid Daniels now a "back room boy" in Electronics Lab. at Uni. Old timer, Edgar 2MR, heard testing again. Bill 2ZL had trip to "big smoke" and visited junk shops, also the old fox looked up YL Hams! At "Westie," Bob 2AQR has got his rig working again. Johnny 2DZ gets on his pet band of 21 Mc. at times, but t.v. sales, etc., keeping him pretty busy. Alan 2PT moving into home he purchased from Ken 2KG, who has acquired a new one, so they, and also Athol 2ZAE, will be QRT for a while. Jack "The Mayor" Hamilton putting plenty of audio on 2ASJ's carrier as 2nd op.

UPPER HUNTER GROUP

2GV back on the air after a short sojourn in hospital; welcome back Tas and trust that you were handled with care. Had words with 2OS in person, Nev. is having rx difficulties, started a re-build way back and no time since, hi! No news from 2RC, of Pikes Gap—big smoke out in your direction Roy—hope that all's OK. Geoff 2VU mostly on 2 mx. came down to 40 mx for the Woy Woy Scramble and ran second to the old veteran, 2AHA; nice going Geoff, we'll make it yet. 2ANU working 80 mx when conditions are good and 2 mx is dead. Had the pleasure of a visit from 2ZCB, of Scone, during the month, have tested the 2 mx path from Muscle Creek to Scone Les, it is f.b. so go to it. T.v. signals have been received in Singleton on 200 Mc. during the month—watch out for t.v. Alec. 2VU and 2JZ will soon have their troubles, hi!

Hope you all had a Merry Xmas and have a Prosperous New Year, with great advances in Amateur Radio for 1957.

SOUTH WESTERN ZONE

Congrats to Don 2RS for his fine effort in the R.D. Contest, very good work Don. Les 2ZBJ, at Uranquinty, has been advised of a shift to Ballarat, so once again this zone loses a very active v.h.f. man. All the very best in your move Les from all in the zone.

Stan Abbey and Jock Ashley, the two Coolamon Associates, are still slugging it out on their way to sitting for the ticket. Hope to see as many of the zone who can possibly get down to the Headquarters Hamfest at the end of January. Roll up chaps and show Sydney that we can also travel.

Hope all zone members and associates had a very Merry Xmas and have a Bright and Prosperous New Year. On behalf of this zone we extend New Year Greetings to all Australia, not forgetting "Amateur Radio."

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VICTORIA

The December general meeting was family night and the best attended general meeting for the whole year. President Gordon 3TF arranged with Father Xmas to come along with a gift for all the kiddies and we were shown some very excellent films. Two documentaries, kindly arranged by Roth 3BG, in conjunction with the Commonwealth Oil Refineries, also two very amusing comedies for the children.

Visitors included Senator Manuel Willis (XE2JK), of the Mexican Delegation; Chester WOPBR and Bob YA1AA. Senator Willis, XE2JK, made a presentation to the Victorian Division of a pennant from the Radio League of Mexico, and the President, Gordon 3TF, then presented XE2JK with a badge of the Wireless Institute of Australia as a memento of his visit to VK3.

Ron Higginbotham, 3RN, was presented with the Gadsden Trophy for his long years of service and untiring efforts in connection with the publication of "Amateur Radio." A very great honour, but most richly deserved.

The following new members were welcomed to the Institute: Full members—Messrs. R. A. Smith, 3QP; E. R. Kelly, 3ZAK; J. Sepir, 3ZEE. Associates—Messrs. C. E. Schneider, D. G. Baulch, D. J. Dunlop. Junior Associates—Messrs. R. A. Esple, D. N. Holmes, R. G. Tacey.

At the conclusion of a very jolly evening, supper was served and we must congratulate our President's XYL, Nina, who did the majority of the cooking, also Marg (Mrs. 3ALY) and our Administrative Secretary (Mrs. May) who both lent her a hand.

There will be no general meeting in January, the next general meeting will be held on February 6, 1957. The Victorian Division office in Queen Street will be closed for three weeks from 18th January to 10th February while the Administrative Secretary, Mrs. May, takes her annual holidays.

Owing to the Olympics, the Bi-Monthly All-Band Scramble was not held in December, but the next Scramble will be held on Monday, 4th February, 1957.

We had an Interstate visitor of note here in VK3 recently in Jim Corbin, 2YC, President of the VK2 Division. Jim was over here for the Civil Defence Emergency School held at Macedon and many VK3s had great pleasure in meeting Jim.

Our Technical Editor, Ken 3AFJ, hasn't been at all well lately, he's got a nasty pain in his tummy, but manages to carry on with his job cheerfully. We all hope your trouble clears up soon Ken.

THE OLYMPIC DINNER

The Annual W.I.A. Dinner which, this year, was known as the Olympic Dinner was an outstanding success. There were 80 present and the guests included Senator Hannan, who supported the toast to the Wireless Institute of Australia and made an interesting statement in regard to the remission of sales tax on equipment used by Amateurs. Other guests included representatives of the Postmaster General's Department in Messrs. Pearson, Punch and Dobbin, and also Mr. McDonald of the Australian Broadcasting Control Board. International and Interstate Amateurs here in Melbourne for the Olympic Games included Aramas OH2NB, Chester WOPBR, Les ZM6AS, Hilton ZL2MN, Jim ZL2ABR, Bill VK2XT and VK4GA. Chester WOPBR had with him his pocket sized personal broadcast portable receiver which interested everyone. Its dimensions were 4" x 6" x 1 1/2" completely transistorised and gives 600 hours life from two tiny batteries 1 1/4" long.

There were also representatives of the Advertising Trade and Mr. Bert Fringle, of A.W.A., responded on their behalf and complimented the Wireless Institute on the fine work it has done over the years. Among the VK3s we were pleased to see some of our country members and several of our real old timers.

The Dinner was held at the Prince of Wales Hotel, St. Kilda, and was very capably organised by Doug 3DU. The organising of the seating arrangement was particularly good; in this Doug was assisted by his XYL Audrey who made out the place cards which had the Amateurs' names and call signs and the guests' names printed on them and these they pinned to their lapel and served as an introduction to one another. Audrey also made out a very handy directory card showing the seating arrangement which was placed at the entrance to the dining hall and helped considerably in getting everyone seated quite quickly.

Congratulations and thanks are extended to Doug 3DU for the success of this important event.

80 METRE TRANSMITTER HUNT

It was a lovely fine, pleasant, sunny Sunday afternoon and our VK3 Amateurs and their families turned up in full force to greet our Olympic visitors. There were 120 attended the hunt and among the Olympic visitors were Bob YA1AA from Afghanistan, Peta ZL2ABJ and

Geoff ZL2SK from New Zealand, Evan VK4EF from Queensland, Gil VK7-SWL from Tasmania and several of our VK3 country Amateurs.

Len 3LN hid the tx and it was located at Deep Rock Swimming Pool in the National Park at Studley Park. The aerial he used was five circles extending over a quarter mile area, feed line was a co-ax feed line which was taken from an over-hanging tree through the water and underground to a position 30 ft. from the river where the tx, batteries and keying motor were buried under ground.

The first one to locate the tx, the winner, was Jack 3VZ, who arriving in haste at the location and hot on the scent, jumped out of his car armed with grid dipper, then turned back with the remark, "better turn the gear off," and then proceeded to track down the tx. A quarter of an hour later someone called out, "Jack, you've left the engine of your car running." Well, he did remember to turn the most important thing (the rx) off, anyway. Reg 3ZAD was second and Eric 3ADU was third.

In true Olympic style they stood on a dias with their heads through Olympic circles and were presented with tx hunt type, gold, silver and bronze medals cut out of plywood and suitably painted and endorsed by 3LN. The

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presentation was made by one of our guests of honour, Bob YALAA, with Mrs. 3LN doing the boy scout act, complete with scout hat and scarf and carrying the medals on a cushion.

The outing was a grand get-together and finished with a picnic tea on a grassy bank in a very picturesque part of our Yarra River. The next tx hunt will be held during February, when the date is arranged it will be advertised over 3WI Sunday morning broadcast. Jack 3VZ, the winner, will be hiding the tx.

SOUTH WESTERN ZONE

The zone hasn't been very active since the last Convention held in Ballarat. Still only the same old few holding things together, so come on chaps and rally yourselves now that Xmas is over as it is very good to hear that we have retained the Kinnear Trophy for another year.

From the zone we thank all who attended the State Convention to represent our zone. The zone hook-up has been badly attended on 7 Mc. at 10 o'clock each Sunday since the Convention. 3XI and 3JA come on and there isn't anyone else, so how about cranking up those tx's chaps? Bertie 3VA seems to be bashing Inigo Case's (3ACE) ears, of Birchip; never mind Clyde, Bert has also had a visit from John 3JX and Keith 3VI, but only to talk all about hi hi!

John 3ARJ is still getting a few minutes for radio. Harry 3KI is not very active at present as he is constructing a caravan so it looks as though he might finish up with a G09 rig built in same. Wat 3UT, from the Casti country, isn't very active at present either. Norm 3EQ is busy building a beam for t.v. which will be taking him from one type of screen to another. Jack 3JA hasn't been very active owing to illness in the family.

If anyone has any photos of the last Convention held at Ballarat and could spare some, please send same to Bill Wines, 48 Crawley St., Warrnambool. Well chaps as it is now 1957, I wish all zone members a happy and prosperous New Year and may all that you wish for, come your way.

NORTH EASTERN ZONE

As my spies have all developed glass wrists and have gone to the Olympic Games, there is no zone activity to write about. On behalf of the zone, I would like to wish everyone the cheers of the season and best of DX for 1957.

CENTRAL WESTERN ZONE

By the time these notes are being read Chas 3IB will be on his way down to the cold regions of the South Pole again. He has been appointed Radio Supervisor of the new base to be established on Vestfold Hills, this location is approx. 400 miles east of the already well known Mawson Base. We all wish Chas a happy trip and stay on this new venture, guess that it will not be long, after they get settled, when we will hear Chas on the air relating to us the happenings and experiences on this new Base.

Recently a Hobbies Exhibition was held in Stawell and Keith 3AKP went to quite a lot of trouble in installing an Amateur Station at this "do". It was an outstanding success and we must thank Keith for all the work he put into this. Jim 3DP, Allan 3HL and your scribe helped out with some operating. Also thanks to the stations we worked during operations; there seemed to be someone there to help us out all the time.

GEELONG AMATEUR RADIO CLUB

At a recent meeting, Bill 3BU entertained members at his new QTH and gave those present a fine demonstration of t.v. application and

noise and tx interference. Various types of antennae were used and a low powered tx alongside showed what type of t.v. could be expected. Later the same evening many films of Conventions and events around Geelong were shown on 8 and 16 mm. film. To conclude a most interesting evening Mrs. Brownbill regaled those present with a fine repast.

The warmer weather is bringing out the mobile and d.t. equipment. Tx hunts on 80 mx are the rage here and Ted 3AEH hid the tx near Ocean Grove. His location was well camouflaged—however the place getters were as follows: 1st, Kevin Mills; 2nd, Vic Clark; 3rd, R. Highway. Other hunts were held during the afternoon with excellent results.

Bob 3IC had us down to his shack and we were royally welcomed and treated. The contents of Bob's shack were eagerly studied; the band was rather noisy for contacts but we saw his BC348 in operation. Bob's sister saw to our inner wants and we yarned for so long that the night slipped away. Many thanks to Bob and his sister for their hospitality.

The usual Xmas Party was held in the Club rooms where we renewed friendship with old acquaintances. We all send our best wishes for the New Year.

FIFTY-SIX MEGACYCLES AND ABOVE

(Continued from Page 13)

NEW SOUTH WALES

Popularity of 2 mx is greatly enhanced by the growing activity of more and more Hams and newcomers heard around the dial almost every evening now. The monthly meetings of the Group are always well attended and all members are very keen and willing to assist one another in every way. The Committee has in mind to instruct on such matters as Constructional Practices for V.H.F. Grid Dip Oscillators, Beam Antennae, I.F. Channels, Transmitters, Beam Feeders and the like, and it is felt that members of the Group will all enjoy as well as benefit from the instructions which are due to commence early this year.

The regular monthly Fox Hunt-Hidden Tx Hunt was held on 5th Dec. from 2005 hrs. to 2135 hrs. when Dave 2AWZ operated his portable/mobile gear hidden at Sugar Loaf Point. About eight or nine cars took part and assembled at Ryde and then took off in various directions for the hunt. Scores were: 1st 2ANF, 50 minutes; 2nd, 2ZCF, 70 min.; 3rd, 2AFM, 85 min. Others were directed to the spot by Dave.

From the Northern Area we have heard that Roy 2HO has been putting in a good test signal and has been worked by 2VU and 2ANU. Bob 2ARG has been worked by 2VU and heard by 2ANU. On Nov. 17 tests were carried out between Tamworth and Sydney, 2APG/P operating on 2 mx from 2ATD's QTH was heard by 2HO, 2HL, 2APQ, also 2VU and 2ANU at good strength, c.w. and phone being used. Les 2ZCB, of Scone, called on 2ANU to see what makes things tick, and now the path between Muscle Creek and Scone is S9 both ways, using 3 over 3 beam and quarter wave vertical on vehicle. Both 2ANU and 2VU came 3rd in Tx Hunt at Woy Woy—road blocked, so had to take off on foot, hi!

Activity on the move in Tamworth and should greatly expand with the formation of the Radio and Electronics Club, which it is believed has a membership of twenty and still growing. T.v. tests have taken up most of 2VU's time of late—mainly in the test of antennae—and it is interesting to note that the 16 element phased array runs rings around all others. 2ZEK, in Blayney, has been heard in Sydney at 59.

Well chaps, I now wish you all a Happy New Year with plenty of DX on 2 mx.—2AFM.

OBITUARY

BILL YOUNG, VK4YA

During November, Bill Young, VK4YA, passed away and with his passing the Queensland Division lost an untiring worker for the W.I.A. Bill held the job of Secretary of that Division through the period when activity was almost at a standstill and had it not been for the hard work of Bill and the other chaps on Council the W.I.A. Queensland Division might have folded up.

In 1936 Bill found his health falling, but kept on with the job to the best of his ability. On medical advice he had to give up the job and, shortly after, he suffered a serious stroke which almost took him from us then.

He had a partial recovery but was completely invalided and went to Ipswich to live with his brother. As his health improved, he fired up his rig again and though we could not hear him here in Brisbane on 20 metres unless skip was very short, we could hear the DX replying to his calls.

Ham Radio did wonders for him in the last months of his life as an occupational therapy. Bill had been a Ham for thirty years and the ranks of Amateurs have lost an ardent follower.

W.I.A. members and "Amateur Radio" extend to his relatives their deepest sympathy.

QUEENSLAND

BRISBANE AND DISTRICT

At the end of November the Junior Chamber of Commerce held a Hobbies Show at the City Hall and the W.I.A. was asked to take part in it with a working Ham Station. A working "bee" got an exhibit into shape and things went off wonderfully with a good attendance of both Hams and the general public. The Exhibition was part of the "Junior Chamber's" drive against juvenile delinquency by trying to interest the younger generation in a hobby of some sort, though one bright character said the Ham Radio exhibit was an excellent way to encourage youths to become delinquents, after all "you don't have to be mad to be a Ham, but it helps." Peter Evans, the President of the Junior Chamber, agreed to have a special QSL card printed for VK4WI for the stations which contacted the exhibition station. The show gave the public a wonderful idea of how Amateur Radio worked and with a two metre link between the City Hall and 4TN's shack, we were able to use both his tx and rx for plenty of DX contacts.

A welcome visitor to Brisbane during November and December was Arthur 4FE, that "beachcomber" from beautiful Thursday Island. Arthur took his turn on the roster of operators at the Hobbies Show and attended the Christmas "Get-together" at Anzac House. Arthur is trying very hard to have Thursday Island declared a separate country for DX C.C. listings so that he can have an open slather with DX. Why, he even tried to have Magnetic Island, near Townsville, declared a separate country so that he could conduct a "DX-pedition" over there each Sunday when he was in residence at Townsville. We're afraid his spell on Heard Island spoiled him and made him discontented.

A Happy New Year

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Our congratulations to two Associate Members who were successful with the October examinations: Cliff Jenkins, of Mackay, passed the A.O.C.P. and Cress Everdell, of Gleneagle, passed the L.A.O.C.P. Unfortunately, we have lost Cliff Jenkins to the VK2 Division as he has shifted to Moree to take up a position on the new broadcast station there.

Another "old-timer" (in Ham Radio, not in age) has come back into the W.I.A. after getting the urge to become active again. He is Jack Young, 4JY, who got his ticket back in 1930 at the same examination that Vince 4VJ got his. Welcome back, Jack!

Well we will take this opportunity to wish everyone the very best of luck for 1957 and hope that the New Year brings everything you wish yourselves.

MARLBOROUGH

Pride of place this month to Graeme Pooley, who passed his A.O.C.P. Grahame has a converted AT5 almost ready, will modulate with 807s. First antenna will be an extended double zepp. A 12 tube rx also to be built.

4CB only on 2 mx so far, 10 mx quad not yet on the tower. 4BG has tower ready to hoist and plans a G4ZU beam in place of the old three element 14 Mc. job. 4AI still silent. Alan had a 40 ft. mast snap in a recent blow.

TOWNSVILLE

I missed the last meeting for the year, held at Graham's place on 29/11/56, due to the fact that my relief went sick and so I had to turn up for toll instead of ragchewing with the boys. Two of the club students were successful in gaining full certificates at the last A.O.C.P. examination. Good wishes to Bill and Bob and hope you are soon on the air. You can always beg, borrow, or steal off the gang to get the rig on the air.

Have to report a visit to the far north by George 2AUR, of cubicle quad fame, but unable to get any converts. He failed to sign the pledge while here, looking for the shack that runs the full-gallon on tap. The club hopes to have a get-together shortly, as soon as the Secretary is well enough to stand the pace. No doubt Eddie is well on the road to recovery. Vern 4LK called in on a quick visit to Townsville. John 4DK has tower erected but so far no beam; too busy no doubt with the local polo scare. Allan 4BE very quiet since his return from the south. Ted 4EJ put in the week-end chasing the finny tribe with new powered dory. Never see or taste any fish here. Ted. John 4DD still believes in 10mx band and no other dispute an almost silence after dark.

Howard 4HF put in an appearance on the ragchew on 40 mx; come in more often, the mat has not been taken in yet. 9BS failed at the last moment to arrive despite the warm welcome that awaited him. His many friends are disappointed that he failed to get past 4NG, at Bockhampton. No skeds with Mareeba lately so no news of the boys in the far north. Owen 4OV, of the far west, been absent from the band on Sunday mornings. Many boys calling you Owen; have a spell from work—relax and join the group. Bright New Year loaded with DX for all.

SOUTH AUSTRALIA

Our last get-together consisted of the ever popular "tender night". Yes, there were various "tenders," some not successful, but by and large not an unsuccessful night, kicked along by Dougal 5BY and Norm.

They work hard those two, in a good cause, why Dougal even took his pipe out to light it on five different occasions and forgot to apply the match!! Ever call CQ and forget to throw the main switch? Same feeling I should say.

At these particular programmes the general business gets short shift, apart from formal minute appts, visitor welcomes and QSL card distribution the only item that did get a hearing was the President's request, that anyone who has items for agenda for the forthcoming Federal Conference should submit same to the Divisional Council in writing for consideration, etc.

The A.O.C.P. Class progress was reported and the very healthy number now attending has greatly encouraged that "stout" type indeed not only him for it's a healthy sign that so many are entering the fold, we want new blood continuously, so we hope those now studying make the grade, stick to it chaps, it's well worth the effort you are now applying. Listen to the W.I.A. sessions each Sunday at 1000 hrs. (7146 Kc.) and you will be kept up to date with progress and activities. That session is for you new-comers as well as the old timers. Norm will keep you posted on announcements re the class, for new accommodation is necessary.

We had our final glimpse and handshake with two very good friends who are now on the high seas returning to G land, namely, Bob Langfield and John Torr. They both stated they had thoroughly enjoyed their honorary membership and the fellowship it provided, appreciated the hospitality granted by many here, and expressed a desire to return. Thanks Bob and John, we liked your company and hope to see you again some day, and in the meantime hope to work you from home QTHs.

It was bad luck for them that they both obtained VK5 licences a week before sailing and struck the worst conditions on 7 Mc. that we have had for ages. Better luck next time.

The tribander beam has now settled down fine and does all of which it is claimed capable. Don't be misled by what it does on 20, it's good there, but really hot on 15 and 10 mx where its design is centred. For the benefit of those interested, the whole dope has been consolidated and in the hands of a good "copying" department and will be made available to those asking. So, if you want a beam on each of those bands and don't have the space for full sized jobs or the inclination to stack them, this condensed version is the answer. (Hope to receive the details for an article.—Ed.) Have had quite a few visitors, some with cameras who have taken details, so the information is now fairly general.

Sorry the general country sections, namely South East and North West, are missing this month, but due to early lodging of copy, my scouts from those areas have not made it in time, so we will double up next month for them.

Have not heard our Pirie friend of late, do not know if he is still building t.v. equipment, or are you "looking" Ern? Let's hear from you and report progress.

Sunday mornings of late have not been quite so good, the 40 mx skip has been a bit long, but in spite of that Chas 5ON is heard well from his new QTH, Luke 5LL pounds in fairly well, Athol 5LQ cannot be left out (he is at the lower end of the drain) for he patiently awaits his turn, your air manners are commendable old chap, even if you do not appreciate Les 5AX on n.b.f.m. Dave 5BF—who was at the last meeting by the way—bobs up to report activities his way. Wal 5DF is still flying model planes, but finds time to tune up on 40 mx now and again. Col 5RO is making a name for himself on 15 mx and doing real well on rare DX, a rotating dipole does the trick and with very modest power too.

Amongst those not heard recently are Joe 5JO, Frank 5MZ, Perce 5PH, Ron 5WC, Rex 5KY; what's happened fellows? Are you all on 10 mx these days?

Hope you all had a Happy Christmas and that you find the sunspots to your liking for 1957.

TASMANIA

NORTHERN ZONE

My scribes around town have informed me that we are going to lose 7GM and 7ZAW in the near future. I feel sure that the Northern Zone members will sadly miss them both, if the rumour is true. Bad show for the zone Gordon and Perc, but our good wishes go with you both wherever you both go. Please don't forget us all. Believe Henry was down Latrobe way in November, but missed out seeing 7JO, who was away with the gang on Mount Olympus in Tassy chasing five circles with the Amateurs in Greece; must have been cold up there Jim, or had you an extra bottle of Scotch or Rum with you?

Max 7CA informed me that t.v. signals have been received on Mount Arthur at a strength of 40 m.v., may not sound much at present, but it is a pointer to things to come in the future, so we may have t.v. sooner than we expect.

Our first hidden tx hunt in November got off to a bad start. Only two cars took part with rx's. Ray 7RK and Perc. 7ZAW with 7PF and his XYL. Henry turned up at the start with the Hillman but had to retire home to his XYL with the 'au. Max 7CA started out from his QTH—but was dogged by bad luck. Climbing one of our many hills, his car leads caught fire; after minor repairs started chasing the signal, then the vibrator supply gave up the ghost. Better luck next time Max.

By the time these notes appear in print, most of us will have recovered from the after effect of excess Christmas pudding and the trimmings that generally follows, which reminds me that I forgot in the last issue—"A very merry Christmas, Prosperous New Year, and lots of good DX."

NORTH WESTERN ZONE

During November I went back to the old QTH at Queenstown to relieve Leon 7JP for his annual leave. Saw the 7JP antenna farm on the hill as mentioned last month. Leon has a

cubical quad outside the window, which is conveniently turned by two pieces of cord. There is also an extended lazy H which is conveniently supported by two nearby hills. Have just had a report from Denis 7DR by s.s.b. land line about the December meeting for the North Western Zone. The Associates apparently turned up in their usual numbers, among them being Ken Hancock, Athol Lockett and Max Ives. How's that A.O.C.P. course going Max? Johnny Lee was also present during the early part of the evening, but disappeared, being found later on the top shelf. A funny place to be, me thinks. Possible Associates from Burnie, David Searl and Gerry Wells, present too. The usual welcome to you chaps.

George 7XL was in attendance for this meeting. What's this George, no audience for your music, or did the locale of the meeting bring you out? Understand the meeting decided to hold a hidden Tx Hunt in February, 1957, on 80 mx. Discussion also took place on a Constitution for the zone, a copy having been obtained from Hobart. Another auction sale took place, again the hammer of Ted 7EJ. That's another £6 for kitty.

Roy TRN liberated the moths and now has a mod. checker. Fine thing, Roy. Guess I'll be right to borrow same anytime? Have had speech with one of our West Coast Associates, Rev. Lln Brebant since my arrival here. Lln is very keen and is considering building a converter or two, to replace the dual waver. Any old bent, converters about for passing on? Harry 7BR, the Southern scribe, heard also on s.s.b. land line during this week, but appeared very busy. Thanks for remarks on prolific style Harry.

All the best for the New Year from the Wild West Coast.

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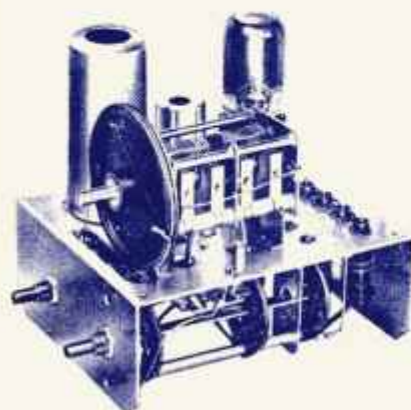
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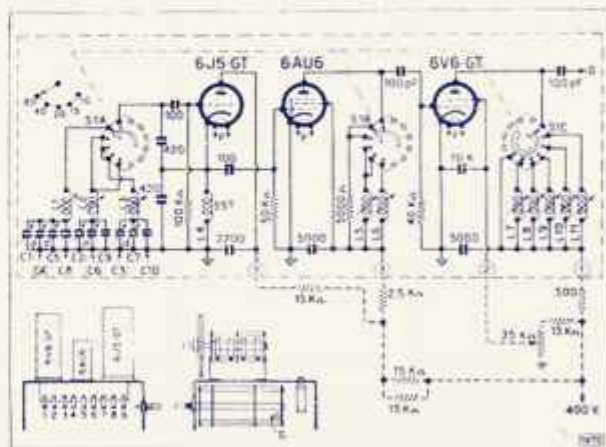
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3537 Kc.	5900 Kc.	6522.9 Kc.	7012 Kc.	7475 Kc.
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WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI: Sundays, 1100 hours EST, 7146 Kc. and 2000 hours EST 56 and 144 Mc. No frequency checks available from VK2WI. Intrastate working frequency, 7125 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 57.5 and 148.25 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3580 and 14342 Kc. 3580 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5MD and VK5WI by arrangements on all bands to 56 Mc.

VK6WI: Sundays, 0930 hours WAST, on 7146 Kc. No frequency checks available.

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VK9WI: Sundays, 1000 hours EST, simultaneously on 3.5, 7, 14 and 144 Mc. Individual frequency checks of Amateur Stations given when VK9WI is on the air.

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EDITORIAL



NEW TECHNIQUES FOR EMERGENCIES

At the commencement of a New Year it is usual to make resolutions for the ensuing twelve months. This year should be no exception. Now that the Olympics are concluded and Christmas dispensed with, it is time to think once more of our hobby and its impact on our lives over the coming year.

A recent conference in Melbourne dealing with Civil Defence and communication networks pertaining to it bring to mind a very appropriate subject for serious consideration. How many of us have thought about the future of emergency communications? Not too many, I would wager. The days of the dynamotor, portable generator set and electric power line are numbered when one seriously considers the impact (literally) of an atomic bomb on a city such as Melbourne or Sydney. As all our present electronic and radio communication devices are based on a supply of electric power we must look for something more readily available and less vulnerable than batteries and less cumbersome than genemotors. Where then is our source of electric power to be obtained? One of the only answers is that eternal source of energy—the sun.

New techniques have shown that therein lies a solution, for solar cells of miniature proportions paralleled together have already been used with good results to power transistor transmitters and receivers. The pipe-dream of being able to carry both your receiver and transmitter in your pocket is now almost reality. A miniature super-het communications

receiver fully transistorised has already been built and proven, and many varieties of single and dual stage transistor transmitters have also been air-tested with remarkably good results. Although all of the necessary transistors and small components are not yet available on the Australian market, you can rest assured that this position will soon be rectified by the enterprising radio dealers throughout the country.

For those that are particularly interested in the miniaturised emergency equipment and for those with a yen to experiment, herein lies an ideal opportunity to exploit your ingenuity, at the same time making a really worthwhile contribution to a phase of our activities which will pay dividends should such a fateful emergency ever arise.

This aspect of the art should therefore be your goal for 1957—to experiment in the new art of transistorisation, contribute articles to your magazine on this enthralling subject, discuss production of miniature components with your radio dealer and last, but not least, "pass the good word" along by example and demonstration on the air. The reward for your endeavours will be the ultimate satisfaction of the public in general and your fellow Amateur in particular, knowing that the Radio Amateur is a pioneer who will always be the first to explore new techniques and employ them for the public good.

FEDERAL EXECUTIVE.

[An article by VK3AHH on a Miniature Transistorised Transmitter will appear in the next issue. Further articles of this nature would be welcome from readers.—Editor]

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Can We Tune a Beam Correctly Near the Ground?

BY H. F. RUCKERT,* VK2AOU

EVERY Ham who has owned a beam and compared its performance with that of other antennae will wish for beams on all bands. It takes time and effort to build a tower or to erect a pole and to mount the bits and pieces for a beam. Only too often we find that we have no energy left after getting the beam in place. Most of us are not experienced in climbing and we seem to find that the distance from the beam to the ground is at least three times the actual height, if we dare to look down at all.

Mum and the kids, and also the life insurance agent, are not very happy about our climbing project. Some people recommend the taking of an umbrella to soften the fall in case we get into trouble. The writer was probably no exception when he searched the book of books, the A.R.R.L. Antenna Book, dozens of "QSTs" and many other sources of wisdom and experience to

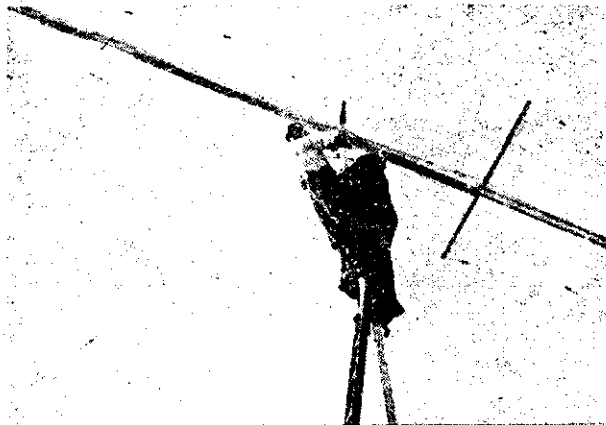
Many fine beam-building descriptions in "QST" show us how, with much patience, help from nearby Amateurs (even the local fire brigade) and dozens of test series, the beam gets the final touches to ensure the calculated performance. The more work and money we have invested, the more afraid we are that the next storm may ruin it all.

In spite of this knowledge of the experience of others, I went on to build a 44 ft. pole and a three element V.P. beam, a 'la Mosley. Our house is a typical single story bungalow, so we could not use the method described by W3HTF in February, 1956, "QST," and the back yard was not big enough to lay the 44 ft. pole down, so that the pole assembly had to be done in the driveway, beside the house.

Twenty-five ft. sections of $1\frac{1}{2}$ " x 3" were bolted together with $\frac{1}{2}$ " coach bolts and the centre was twice as strong. Galvanised cloth line, as used on the

the back yard 5 ft. 6 in. above the lawn, which is 2 ft. above a very moist layer of clay. In this position the beam was only just clear of the gutter of the garage, the wires which should support the grapes next summer and other domestic installations.

Using the grid dip meter, the three elements were then tuned to the recommended V.P. beam frequencies. As the g.d.o. is mains operated (via the lawnmower cable) thick rubber gloves were used, so as not to run the same risk as W3JSI (March, 1956, "QST"). Being engaged in the electric capacitor industry, I had a fair idea that the elements would have far less capacity to ground at 44 ft. than at 5 ft. 6 in. Calculations gave some clue, but my back yard did not provide the ideal earth required by the formula that I found in the book. Still, hoping that the detuning would not be too serious, the beam was pulled up and tested.



find an easy way out and to answer the question: "Can we tune a beam correctly near the ground?"

There was no answer describing a short cut for the procedure. Beam owners I asked had usually been using the tables in the handbook and tuning the beam elements with a hacksaw, hoping for the best and that surrounding objects would not upset the handbook data.

The matching is even more of a problem, but, tired by now of construction work and pole climbing, many leave the array tuned "near enough." Doing the job this way we often don't feel too happy, having no proof of the correct "tuning up" of our beam. Many a Ham has discovered that the front-to-back ratio is by no means as good as it is in the book and the next contest delivers the hard-to-swallow pill that we still haven't the strongest DX signal in town.

masts of sailing boats, was used to support the pole. A 23 ft. double pole, resembling a ladder, was put in the ground with a concrete foundation.

As can be seen from the photograph, a $\frac{1}{2}$ " pipe was used as turning axle to flop the top section of the pole over so that the installation of the beam and all adjustments could be carried out near the ground. It is a one-man job to pull the top section around 150° to the vertical position. The XYL is handy to watch that the guy wires don't get fouled up in the trees, guttering or clothes line. So far we believed that we had found a very smart method of lowering the beam for tuning, pulling it up for test, and repeating the procedure till everything was right.

I did not follow the building instructions for the first V.P. beams, as published in "QST." The element length and spacing were chosen for a 21 Mc. beam of full size. Large diameter self-supporting coils were wound and placed in the middle of each element. The beam was now placed on a step ladder in

Local reports mentioned that the signal was better than with the 8JK, windom and dipole antennae used previously, but reports on the front-to-back ratio were not uniform and varied between 0 and 2 S units. The receiver confirmed these rather unsatisfactory results. The next week-end saw the beam back on the ladder.

An aperiodic field strength meter was put together, using a GE diode and was coupled to a receiving antenna consisting of a dipole wound in a spiral on a long broom-stick. The tuning of the elements was adjusted for best forward gain, with the field strength meter at a distance of 2 wavelengths away. The back of the beam was then turned towards the f.s.m. and lowest backward radiation was achieved by a very slight adjustment of the reflector coil spacing. The receiving dipole was then placed very close to the director and this extremely critical adjustment repeated. A check showed that the adjustment for lowest backward radiation had not affected the forward gain materially.

* 25 Berrille Road, Beverly Hills, N.S.W.

Next the coupling link on the radiator coil was adjusted for best output. Some idea of the s.w.r. could be gained with an absorption frequency meter, by walking along the feeder, lying 1" above the ground and it proved to be not too bad. Up went the beam again. The next night a G8 was worked, but other VK2s still had a 2-S-point advantage with their two element beams!

Back to the books which were saying that not only the tuning of the elements, but also the s.w.r. varies as the beam height above ground is varied. It was a half hour job to solder up a Maxwell s.w.r. bridge on a piece of bakelite. I then remembered the statement by W6IBD on page 34 of February, 1953, "QST": "The resonance frequency is always there where the s.w.r. is lowest, regardless of what the s.w.r. may be." Therefore the s.w.r. bridge was the necessary gadget to determine the actual resonance frequency of a beam in its operating location!

My s.w.r. was 1:7 at 14 Mc. and 1:1.3 at 14.5 Mc. remaining low up to 15 Mc. and then slowly rising again. On the ground the beam had been tuned to 14.15 Mc., therefore the detuning of the beam due to the changed height was about 300 to 400 Kc. in this particular case. The front-to-back ratio on the high end of the 14 Mc. band was quite good.

Next week-end down came the beam again. The v.f.o. was set near 13.8 Mc. and the beam tuned as previously described, but to a frequency 350 Kc. lower to allow for the capacity loss when mounted 44 ft. high. Results: The results were most satisfying and interesting. The s.w.r. was now 1:1.4 at 14 Mc. and never above 1:1.3 anywhere in the range between 14.1 to 14.35 Mc.

Most of the DX skeds are arranged near 14.330 Mc. because this section of the band is usually QRM free. 85 DX countries were worked on phone with 100 watts during only 700 QSOs during the DX conditions prevailing near the sunspot minimum in 1954-55. Many successful dog fights are recorded and quite often the report has been "the best VK signal on the band at the time" (perhaps the competition was not on the air!).

We have no hill-top location, though the soil conductivity is good. 60 ft. high two element beams of full size usually do not get better reports.

CONCLUSION

The conclusion is: Beams can be tuned correctly on the ground if we choose a lower frequency, which may be determined with the help of an s.w.r. bridge. Though we were rather doubtful whether the very critical adjustment of the reflector for maximum front-to-back ratio would hold, tests with the receiver and transmitter showed that 5 to 6 S points (each 6 db) were still achieved, which is very satisfactory. There are also very sharp nulls on each side.

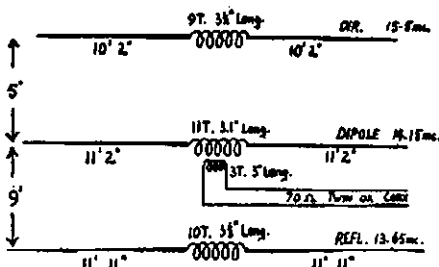
21 AND 28 Mc. OPERATION

With 21 Mc. coming good and 28 Mc. showing signs of life more frequently, tests were made to see if this beam would work on higher frequencies as well. The s.w.r. bridge showed smaller ratios with increasing frequency, so we

called CQ on 21 Mc. There was a pleasant surprise when VKs and ZLs reported that this 14 Mc. beam on 21 Mc. gave 5-7 S points gain over the 7 Mc. long-wire antenna used a few minutes before. My receiver, with its calibrated S meter, confirmed the result.

European DX partners declared that the signal is only one S point weaker than the strongest VKs on 21 Mc. at the time. The front-to-back ratio here is only two S points because the very critical adjustment cannot be expected to be correct for two bands. We are still looking for a satisfactory explanation of just why the beam is so good on 21 Mc. The element length and spacing is correct for 21 Mc. The loading coils may form a series tuned circuit between the half elements with the ground capacity combining them into a full size plumbers' delight beam. I wonder if this explanation will receive the "OK" of the experts?

Testing the beam on 28 Mc. showed that the s.w.r. is even better than on 14 and 21 Mc., but the spacing and tuning of the elements is wrong to give a good front-to-back ratio. A few contacts were made around the Pacific area, but the performance was no better than with the dipole. So we at least have a good beam on two bands without having to change anything except, of course, the tuning of the band-switching transmitter.



Cods: 25" Ø 10" long.
Tubing: 3/8" & 1/2" Diam.

Short 20 Metre Three Element Close Spaced Beam.

LIGHT CONSTRUCTION

The t.v. antenna type rotator I use is not very strong and turns rather slowly when there is some breeze, the usual case when living within a few miles of the coast. In order to minimise the load, the lightest possible construction was used; this also reduces the danger of breaking the tubing elements.

The total weight of all six tubes is only three pounds and the beam, including the 1.2 x 2" x 14' long boom is only 20 lb. The beam stood up quite well to the many gales and frequent thunderstorms during two years of operation. Only once a reflector tube was bent and fell slowly the day after it was hit by a sudden blow during a thunderstorm. This was fixed by putting a slotted piece of tubing over the critical section near the outside stand-off insulator.

One photograph shows the axle was put through the 23 ft. supporting double pole and the middle of the 44 ft. main pole. The steel supporting cables, which prevent bending of the pole when the beam is flopped over, can also be seen.

The other photograph gives an idea of what the beam looks like when it is up in the air. Four guy wires are fastened at the upper end of the pole and again at the top of the double pole. The pole also supports a 40 metre zepp antenna for 80 and 40 metres.

The feeder is a 70 ohm double co-ax cable in the shack and 70 ohm twin lead outside. A seven core cable comes down from the motor and direction indicator to the shack. There is a locking device underneath the boom. It is a 4 ft. long arm of 1" x 2" timber with a fork shaped iron at one end, which can be controlled from the ground to hold the beam in a given direction and to relieve the motor gears of the strong swinging load when the beam is not being used. The loading coils were not covered, as there is (usually) no snow or ice in Sydney.

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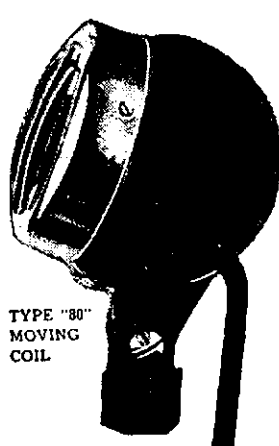


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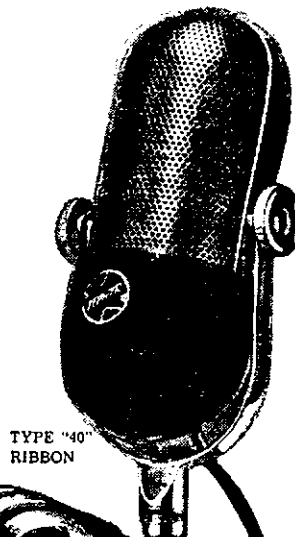
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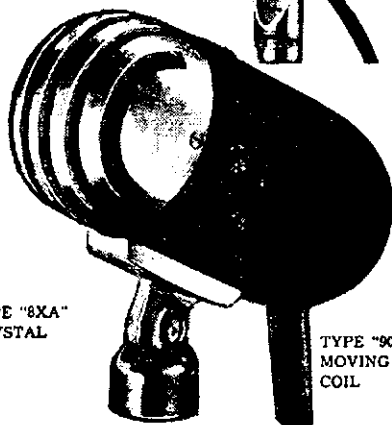


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AVAILABLE FROM ALL LEADING TRADE HOUSES

A Modulator for the QRP Rig

BY M. RILEY,* VK2ARZ

REFERENCE to the circuit will reveal several useful features. Three tubes are used and the heater circuit is wired so that either 6 volt or 12 volt operation is possible by completing a simple modification.

Bias for the output stage is derived from the heater network by means of a selenium rectifier. When the heaters are operated from an a.c. source the rectifier and filter circuits produce a d.c. voltage approximately equal to the peak value of the heater supply. When the equipment is operated from a d.c. source for mobile or portable operation, a "positive grounded" accumulator will produce a slightly lower bias voltage. In particular 15v. d.c. is developed from a 12.6v. r.m.s. supply. This value is quite suitable for use with a 12AU7. The optimum load applied to the unit is then about 2,500 ohms. Satisfactory results are obtained, however, when a load of 6,000 ohms is used (as in the case of the Type A Mark III.). More complete modulation may be obtained by modulating the screen of the transmitter buffer stage in addition to the plate and screen of the p.a.

If 6 volt operation is desired the 12AU7 may be replaced by a 12AX7. This stage should then be operated with about 4 volts of grid bias and the optimum load becomes nearer 5,000 ohms. A reduction in h.t. current may also be obtained.

The r.c. filter used in the bias circuit is quite adequate to eliminate hum when the heaters are a.c. operated.

*6 Barings Road, Mortdale Heights, N.S.W.

● The modulator to be described was developed by the writer for use in conjunction with low power transmitters. In particular it was found to be useful for modulating a Type A Mark III.

It should be noted that the 12AX7 has a lower plate dissipation rating than the 12AU7 and that the use of tone modulation (particularly for extended periods) may lead to damage of this tube.

Although the unit was found incapable of producing more than about 2 watts of undistorted audio when loaded with a 5,000 ohm resistor, the output is sufficient for speech use with transmitters running up to 8 watts input.

If more output is desired, the use of a better output transformer and about 25v. bias is recommended for the 12AU7.

The use of two 12AX7 tubes connected in push-pull parallel is also a possibility worth considering.

CIRCUIT

The first stage uses a 6SH7 pentode pre-amplifier. A grid stopper and plate by-pass eliminated troublesome feedback which developed when the unit was used in conjunction with a two metre transmitter.

The second stage is a triode connected 6SH7 driver. Negative current feedback is introduced by the use of an unby-

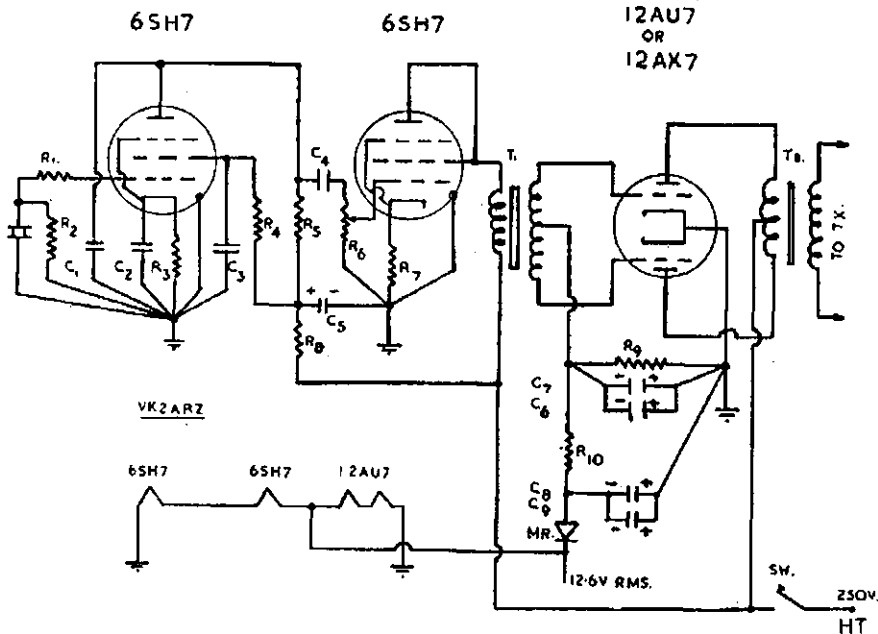
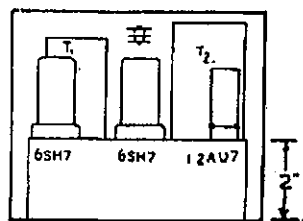
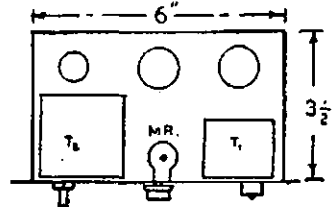
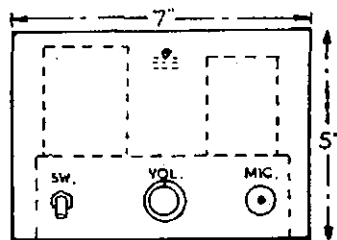
passed cathode resistor. The driver transformer is a junk box item marked "Stancor A4719". It should be a step-down, "single ended plate to push-pull grid" type.

The selenium rectifier used to derive the bias voltage was a disposals oddment and its ratings are unknown. It is called on to deliver approximately 10 Ma. so most small types would probably be suitable.

The output transformer was removed from a defunct 522 transmitter.

The unit's power requirements are modest. At 12 volts the heaters draw only 0.45 amp. and the h.t. drain is 30 Ma. at 250v.

The use of a crystal microphone in preference to the more usual carbon type needs no apology! Modern types are quite rugged if handled sensibly and the increased intelligibility is an important factor in low power operation.



- C1—50 pF.
- C2—25 uF., 40 p.v.
- C3—0.1 uF.
- C4—0.01 uF.
- C5—0 uF., 525 p.v.
- C6, C7, C8, C9—30 uF., 40 p.v.
- R1—47,000 ohms, 1/2 watt
- R2—2 megohms, 1/2 watt

- R3, R7—2,000 ohms, 1 watt.
- R4—1 megohm, 1/2 watt.
- R5—300,000 ohms, 1/2 watt.
- R6—1 megohm potentiometer.
- R8—47,000 ohms, 1 watt.
- R9—1,000 ohms, 1 watt.
- R10—220 ohms, 1 watt.

CONSTRUCTION

Complete shielding of the wiring was provided by constructing the unit on a copper plate which was fitted to an I.F.F. switch box. A short length of cable terminated in an octal plug is brought out to the power supply.

ALTERNATIVE TYPE VALVE

Information has just been received that a new tube type, 12BH7, having higher plate dissipation than the 12AU7, but otherwise similar characteristics, is now available.

Operating voltages, etc., are unknown, but should adjustment of the bias voltage be required, this may be achieved by altering R10 and R9.

Intending constructors should investigate the possibilities of this tube.

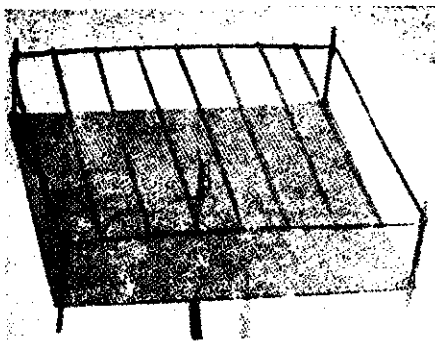
AERIAL REFLECTIONS*

BY F. J. CHARMAN, B.E.M. (G6CJ)

THE Reflex Aerial is a new type of array which should be very useful in the u.h.f. bands. It was originally described in German, and a scale model for 3000 Mc. has satisfied the writer that the claims made for gain and beamwidth are justified. Its construction is quite straight-forward, and it has that great advantage always sought after in aeriels—a single radiator and feed point. The immediate success of the model shows that there will be no difficulty to get it going well on the u.h.f. Amateur bands.

PERFORMANCE

The aerial, a model of which is shown in the photograph, is in effect a kind of Yagi array, but instead of a row of directors, use is made of multiple reflections between a main reflector sheet and a grating. The effect is rather similar to that produced by two parallel mirrors; the infinite series of images represents a long line of directors in front of the aerial.



This photograph shows the author's Reflex Aerial for 3000 Mc. which was used to check the performance. The construction is clearly shown.

The original published figures, which were obtained at 940 Mc. using reflector and grating about one wavelength square, are half-power beamwidth about 40° and gain 11 db. With the area increased to two wavelengths square, the performance was improved, the beamwidth being 35° (E-plane) and 40° (H-plane), the gain 13 db, and the back-to-front ratio over 20 db. The impedance of the radiator was 120 ohms.

The patterns obtained with the writer's models were rather sharper than those quoted for the original. This is probably because the grating was adjusted to a somewhat higher reflection coefficient, resulting in more partial reflections and a longer equivalent array.

Fig. 1 shows the E- and H-plane patterns of the two wavelength-square model, the half-power widths being 26° and 30° respectively. There were no appreciable minor lobes to the pattern, and the back-to-front ratio was 27 db. The gain calculated from this pattern is 18 db. A smaller model one wavelength square had a noticeably wider pattern, with small minor lobes (-10 db) about 120° off the main beam axis; the gain was, of course, lower.

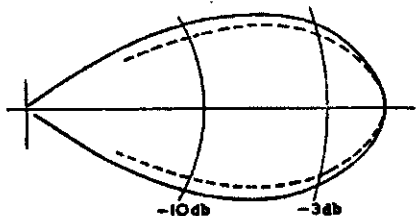


Fig. 1.—Measured radiation patterns of Scale Model Reflex Aerial.

CONSTRUCTION FOR 440 AND 1250 Mc.

The dimensions below are scaled from the 3000 Mc. models, and aeriels made to them can certainly equal the performance of the original, and could equal that of the models. None of the dimensions is critical, except possibly those of the grating, as discussed later.

For 440 Mc. a frame 30 in. square will give an aerial with a gain of 11 to 12 db, but a 4 ft. 6 in. square would give the higher performance, and is still quite a practicable size. In either case the grating could be made from 1/4 in. diameter tubes or 1 in. wide foil strips placed 7 1/2 in. apart, five bars being needed for the former and eight for the larger model.

In order to minimise windage (and cost) the reflector can be constructed from 1 in. mesh galvanised wire netting mounted on a wood or metal frame. Four corner posts can support two bars for holding the grating 12 in. ahead of the reflector. The whole of this frame and grating can be metallically joined, as was done in the models, without ill-effect. The dipole driving element, say, 1/2 in. tube 12 1/2 in. long, is mounted in the centre of the frame with its conductor parallel to the grating bars, about 7 1/2 in. from the reflector.

For 1250 Mc. everything would have to be scaled down in the wavelength ratio. The frame would be 18 in. square, the grating would be of 5/32 in. diameter rods or 5/16 in. wide foil, and set 4 in. from the reflector, whilst the dipole would be about 2 1/2 in. from the reflector. Half-inch mesh netting will be fine enough at this frequency to prevent any leakage to the back.

The performance of the 3000 Mc. model was not particularly affected by variation of dipole/reflector spacing, and therefore it may be possible to adjust the feedpoint impedance nicely by such an operation, though this has not been tested. The claimed impedance of 120 ohms could be matched by quarter-wave transformer to a lower value, using 80 ohm twin to reach about 50 ohms, or 95 ohm (Telcon B.A.3) screened twin to match to 70 ohms. In either case a balun would be needed if concentric main feeder were used. The velocity factor of both these cables is 2/3, so the quarter wavelength should be 1970/f inches, or 4 1/2 in. for 440 Mc., and 1 1/2 in. for 1250 Mc.; the shortest possible joints should be used.

PRINCIPLE OF OPERATION

In order to see how the aerial works, it is necessary to understand the behaviour of a grating. On long wavelengths a grating of conductors laid parallel to the electric field of a wave acts as an almost perfect reflector. As the wavelength is reduced there comes a time when the wave is small enough to pass between the bars; for wavelengths shorter than, say, the spacing of the bars, the grating is as transparent as a glass window. It thus behaves like a high-pass filter, and we can, in fact, study it in terms of filter theory—the duality is mathematically exact. When the conductors are parallel to the electric field, currents are induced to flow along them, just as they are in a dipole, and the inductance of the bars produces an inductive shunt impedance to the wave which is trying to pass through, and which is a short circuit at very low frequencies. The grating can thus be compared to a high-pass filter in mid-shunt connection (Fig. 2).

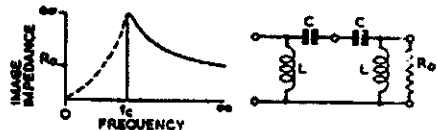


Fig. 2.—High-pass filter equivalent of the grating, and its image impedance. L represents the inductance of the bars, and C the capacitance between the bars.

It will be seen from the circuit of Fig 2 that at the lowest frequencies the filter offers a short circuit, because the inductive reactance of the coil is substantially zero, and therefore that any energy applied to the input terminals is reflected. At a frequency known as the cut-off frequency, where the inductance is balanced by the series capacity (which corresponds to the capacity between the bars) a transition takes place from reflection to transmission and above this point energy will pass through the network.

The nominal impedance R_0 of the filter is $\sqrt{L/C}$ but its image, or matching impedance, only has this value at infinite frequency; towards cut-off it rises to high values, and below cut-off is inductive. The grating behaves in the same way. The impedance of space (considered as a transmission line) to a radio wave is 377 ohms, and this is the R_0 value of the grating filter. Thus, near the grating cut-off, where its wave impedance is high, wave and grating are badly mismatched and reflection takes place; some energy passing through, but the greater part being thrown back. Because the impedance of the grating or network is inductive near cut-off, the phase angle of the reflected wave is not quite 180° as it would be for a perfect reflector or a short circuit. In the aeriels described above the reflection coefficient has been adjusted to 0.7 to 0.8 with corresponding phase angles of 135° to 145°. Rather more than half the incident energy is reflected. The phase must also be allow-

* Reprinted from R.S.G.B. "Bulletin," Aug., '38.

ed for in spacing the grating from the main reflector, in order to bring the multiple reflected components into phase in the forward direction.

In the aerial, if the reflection coefficient is 0.7, half the incident power passes through the grating, and half is returned to the back wall, whence it comes forward again to have another "go" at the grating, the process being continued indefinitely until effectively all the energy is radiated. If the spacing of reflector from grating is correct, then all these components will add up to make a strong signal in the forward direction. It will be seen, therefore, that the grating is used many times, and the aerial acts as though it were extended forward, with a series of progressively weaker images of the grating acting as a row of directors. For this reason it has been called the Reflex Aerial.

Fig. 3 illustrates this. All forward components A, A', A'', etc., are in phase, each one 70 per cent. of the amplitude of its predecessor. The vector sum of all these reflections (the sum of an infinite geometric progression) is a straight line of length $3.4 \times A$. This, plus 3 db for the main reflector, is roughly the gain of the aerial—13½ db.

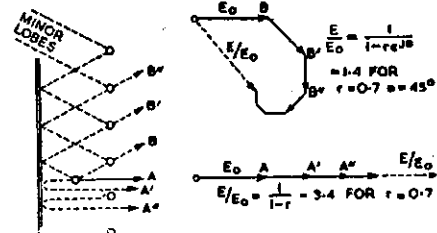


Fig. 3.—The principle of the Reflex Aerial.

In the oblique direction B the components lag behind each other because the path length between reflections is greater. The vector sum of the components (Fig. 3) for a phase lag of 45° is only 1.4, i.e. 8 db less than the A-total. This is not strictly true because the reflection of the grating increases at oblique angles and is always 100 per cent. at grazing incidence. Although this helps to sharpen the beam, it can also result in minor lobes of radiation if the grating is not adequately large.

There is room for some experiment with the effect of varying the grating. The reflection coefficient depends on the ratio of conductor diameter and spacing

to the wavelength. By making the grating more "dense" to bring the reflection coefficient up to, say, 0.9, it is theoretically possible to reduce the beam width below 20° and bring the gain near 20 db.

The correct spacing would then be nearly a half-wave. On the other hand, one would be working very near cut-off, so the performance would be much more sensitive to frequency change. There would also be an increased tendency for the signal to leak sideways.

REFERENCE

The theory of the Reflex Aerial, together with the practical results quoted above, are given in the following paper:
G. von Trentini, "Reflex- und Leitscheiben-Antennen für Dezimeterwellen," N.T.Z. November, 1935, p. 569.

IONOSPHERIC PREDICTION CHARTS

The Ionospheric Prediction Service, Canberra, has suggested a better means of presentation of the monthly Prediction Charts. Both the old and new style for February are printed below to show readers the difference. In future "Amateur Radio" will publish the new style.

The following extracts from the Ionospheric Prediction Service's letter include the method of reading the new chart:—

"It has been the policy of the Ionospheric Prediction Service to continually endeavour to improve both the accuracy and the form of presentation of the predictions. As an example of our efforts to improve the method of presentation, we now produce about one hundred charts per month similar to those given in the Amateur predictions. These provide predictions for several hundred point to point circuits and in fact for nearly all the important radio circuits operated in and around Australia. Pre-

viously users had to laborously derive their predictions from a set of contour charts.

"The case of the Amateur predictions has been considered to see if there is any way these can be improved. Because of the need to limit the space occupied by these Prediction Charts, they are very small and this makes it difficult to read them to any great accuracy. This is particularly so in the case of the time scale.

"A method of presentation has been devised in which the predictions for the important frequencies (7, 14, 21 and 28 Mc.) for the fourteen cases are shown in the same area but with the time scale double that given by the old method.

"In addition, using this form, it is possible to indicate the period during which communication should be possible on all days (full line) and that on at least half the days (dotted) for the month."

D.X.C.C. LISTING

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No. rics	C'tnt- No. rics	Call	Cer. No. rics	C'tnt- No. rics
VK4FJ	21	192	VK3JD	1	155
VK4HR	12	182	VK4KS	9	152
VK6RU	2	178	VK6KW	4	150
VK3ATN	26	177	VK4RW	23	147
VK3BZ	3	178	VK3LN	11	141
VK3EE	10	183	VK3AWW	14	140

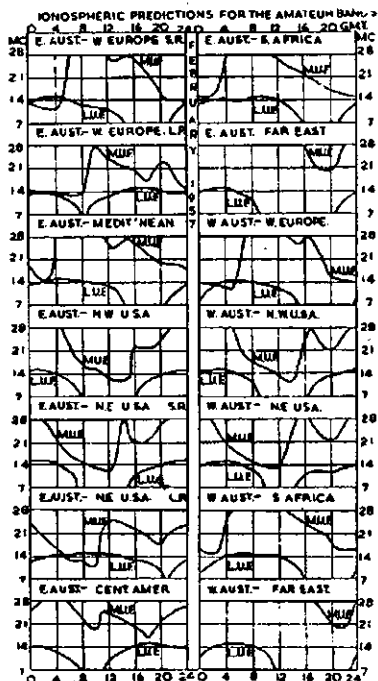
C.W.

Call	Cer. No. rics	C'tnt- No. rics	Call	Cer. No. rics	C'tnt- No. rics
VK4FJ	29	224	VK3BY	45	193
VK3BZ	6	222	VK3CX	28	192
VK3FH	15	215	VK3EO	2	183
VK4HR	8	212	VK4EL	9	175
VK3XU	48	201	VK5RX	23	169
VK3KB	10	200	VK3YL	39	168

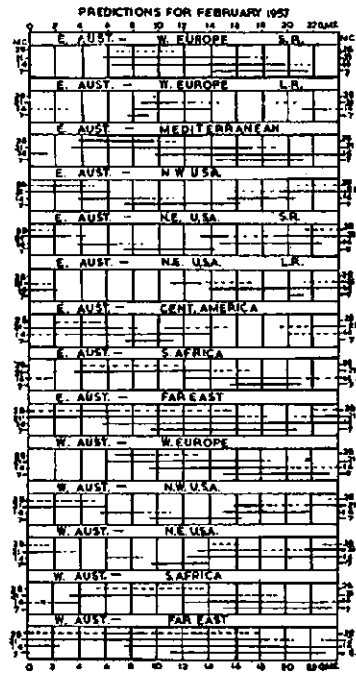
OPEN

Call	Cer. No. rics	C'tnt- No. rics	Call	Cer. No. rics	C'tnt- No. rics
VK2ACX	6	239	VK3JE	12	198
VK4FJ	32	232	VK3NS	16	195
VK3BZ	4	231	VK3HG	3	190
VK4HR	7	224	VK4EL	10	175
VK6RU	8	211	VK6KW	13	171
VK3XU	61	209	VK2DI	2	170

OLD STYLE FOR FEBRUARY



NEW STYLE FOR FEBRUARY





SPECIAL

BRIGHT STAR RADIO are pleased to announce an addition to their line of Crystals. We are now manufacturing—

VACUUM MOUNTED CRYSTALS

for general communication frequencies in the range 3 to 14 Mc.
Higher frequencies can be supplied.



ADVANTAGES OF THIS TYPE—

- (1) Approximately three times the activity of normal plated crystal due to the absence of air damping.
- (2) Better frequency stability due to the absence of air friction.
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- (4) Two or more crystals can be mounted in the one envelope and thus save space.

Price depends on the tolerance and frequency required, and will be quoted upon request.

BRIGHT STAR CRYSTALS may be obtained from the following Interstate firms: Messrs. A. E. Harrold, 123 Charlotte St., Brisbane; Gerard & Goodman Ltd., 192-196 Rundle St., Adelaide; A. G. Healing Ltd., 151 Pirie St., Adelaide; Atkins (W.A.) Ltd., 894 Hay St., Perth; Lawrence & Hanson Electrical Pty. Ltd., 56 Collins St., Hobart; Collins Radio, 409 Lonsdale St., Melbourne; Prices Radio, 5-6 Angel Place, Sydney.

BRIGHT STAR RADIO

46 EASTGATE ST., OAKLEIGH, S.E.12 UM 3387

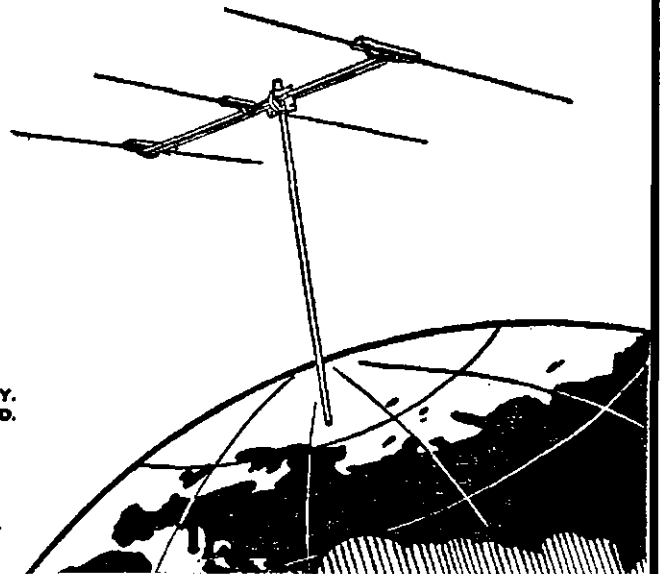
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- ★ One Beam
- ★ One Feed Line

Check these advantages: No tricky loading coils, twin boom for strength, fits any 2 in. pole, rugged alloy castings, pre-tuned and packed ready for immediate assembly. Specifications: Maximum element length 24 ft., boom width 12 ft., weighs less than 30 lb., all tubing to B.S. HT 10 WP (Alco 53S. T6.). Price: £45/0/0, plus 12½ per cent Sales Tax. Price is subject to change without notice.



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Adelaide, S.A.
Phone: LA 4469-9

BRISBANE

52 Bowen St.,
Brisbane, Qld.
Phone: B 7161

PERTH

68 Railway Pde.,
West Perth, W.A.
Phone: BA 9686

Multi-Band Single Untuned Feeder System

BY C. J. COOKE,* VK4CC

For the 1956 R.D. Contest the author was in need of an all-band antenna which, as far as possible, was to include the following features:

- (a) Good performance for the distances involved.
- (b) It must be capable of being used on all bands from 80 to 15 metres with the minimum of effort.
- (c) Be capable of suspension from a single 33 ft. pole centrally placed in the backyard of a suburban allotment 45 ft. wide.

(d) Use only one transmission line. After experimenting with various types of antennae, they were discarded because of the lack of one of the desired features, the main one of which seemed to be that antenna tuning units were required.

Suddenly the thought occurred that a method employed for t.v. multi-channel antenna systems could be borrowed. So, with the aid of two very capable assistants, an antenna (diagrammed in Fig. 1) was designed and erected within two hours.

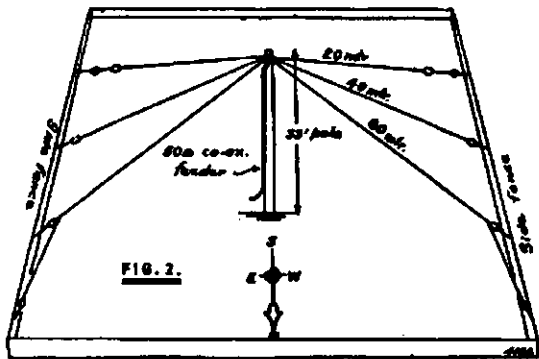
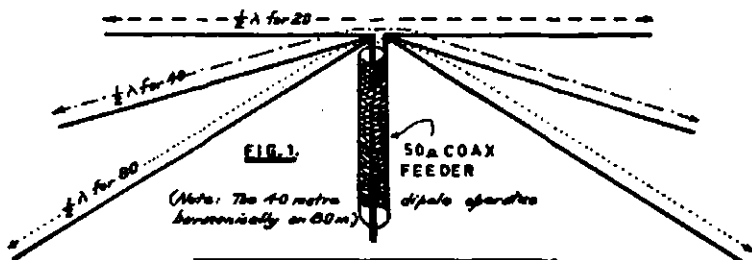
* 79 Kuran Street, Chermaside, Brisbane, Qld.

On-the-air tests proved it to be the best multi-band antenna so far erected in a small backyard.

The experimentally-minded may be able to make the unused elements act as parasitic reflectors or directors. The antenna corresponding to the frequency in use is the only one which presents a correct low resistance load to the feed line. All others present a very high impedance with very little reactance as far as can be determined.

Although co-ax is specified, because it is suitable for connection to the output of a pi coupler final, there is no reason why 72 ohm ribbon could not be used if link coupling is used or if otherwise required. Certainly it would be more electrically balanced.

The first night of operation with this antenna included HP3FL and VK1LJ on both 20 and 40 metre phone with both station's antennae end-on to Panama. 15 metre commercial signals are very strong. At the time of writing, a Swiss broadcast station is S9 plus. Where are the Amateurs though?



AMATEUR CALL SIGNS

FOR MONTH OF NOVEMBER, 1956

NEW CALL SIGNS

- VK— New South Wales
 2ZCR—R. M. Marsden, 127 Anzac Pde., Kensington.
- Victoria
 2ABP—W. M. Rice, 54 Maidstone St., Altona.
 3AJE—H. W. Ellis, C/o. 34 Toolangi Rd., Al-
 phington.
 3ZAF—P. E. Linden, 723 Toorak Rd., Kooyong,
 S.E.A.
 3ZDD—J. E. S. Day, Yole St., Boort.
 3ZDL—D. H. Goldsworthy, 5 Prince's Street, St.
 Kilda.
 3ZEE—J. Sapir, 1 Kyeamba Gr., Toorak.
 3ZEH—G. A. Hassell, 69 Ball St., Moonee Ponds.

- Queensland
 4KA—K. A. Smith, "Marawah," Rocbedale Bd.,
 Rocbedale.
- South Australia
 5LA—R. E. Langfield, R.A.A.F. Station, Edin-
 burgh Airfield, S.A.
 5OW—E. H. White, 45 Mitchell St., Darwin.
 5TI—J. C. Torr, R.A.A.F. Station, Edinburgh
 Airfield, S.A.
- Territories
 9AV—P. J. Phillips, Boroko, Pt. Moresby.
 9RL—R. S. Lawton (Rev.), Methodist Mission,
 Salamo.
- 3AB—A. C. Hawker, Mawson.
 3AC—C. S. Nilsson, Mawson.
 3AS—A. H. Sandilands, Mawson.
 3CJ—C. J. McNaughton, Macquarie Island.
 3PK—P. King, Mawson.
 3RR—R. G. Arnel, Mawson.
 3ZN—B. E. Shaw, Mawson.

CHANGES OF ADDRESS

- VK— New South Wales
 2EQ—W. J. Storer, Lot 11, Prince Charles St.,
 French's Forest.
 2KO—J. E. DeCure, 9 Hayes St., Neutral Bay.
 2UN—R. J. Scott, 45 Brae St., Inverell.
 2ZH—N. McNaughton, 50 Killeaton St., East St.
 Ives.
 2APB—K. H. Branford, 1 Centennial Ave.,
 Lane Cove.
 2ATS—T. R. Stockman, 13 Shirley St., Inverell.
 2ZBL—W. A. Thomas, "Cooba East," via Junee.
 2ZDB—A. J. Bowman, 180 Ernest St., North
 Sydney.
- Victoria
 3IB—A. C. Hawker, 75 Lloyd St., Dimboola.
 3SZ—S. I. Zeunert, 93 Paget St., Glenroy.
 3TZ—T. E. Monks, 66 Victoria St., Sandringham.
 3ACA—J. A. Adcock, Staff Mess, P.O. Box 8,
 Yallourn.
 3ALF—L. R. Fowler, 60 Herbert St., Northcote.
 3AWI—H. Oldham, 34 Northcliffe Ave., Edith-
 vale.
- Queensland
 4ZAE—A. M. Simpson, Cr. Baden Powell and
 White Sts., Everton Park, Brisbane.
- South Australia
 5ST—R. T. Southwell, 26 East Point Rd.,
 Darwin.
- Western Australia
 6BS—B. H. Smith, Manmanning.
 6LA—L. C. Allen, C/o. D.C.A. Aerodrome, Pt.
 Hedland.

CANCELLED CALL SIGNS

- VK— New South Wales
 2RF—W. R. Felton.
 2ADD—D. L. Dowling.
- Victoria
 3AEJ—O. L. Evans.
 3ALN—A. S. W. Taylor, Now VK5LZ.
 3ALV—L. G. Watson.
 3ZBO—R. F. V. Crewe, Transferred to N.S.W.
- Queensland
 4EW—E. H. White, Now VK5OW.
 4FA—A. Field, Transferred to N.S.W.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

- VK— New South Wales
 2ABH/T—H. P. Mulligan, 52 Horton St., Ya-
 goona.
 2ABO/T—E. A. Isaacs, 43 Tupper St., Marrick-
 ville.
 2APB/T—K. H. Branford, 1 Centennial Ave.,
 Lane Cove.
 2AVI/T—A. Isaacs, 43 Tupper St., Marrickville.

CORRESPONDENCE

"GROUPED" FREQUENCIES

Editor, "A.R.,"
 Dear Sir,

On behalf of Ballarat Amateur Stations operating regularly on 144 megacycles, I wish to make known to other stations that we have, through necessity, "grouped" our frequencies on that band.

Because of the close proximity of all stations in Ballarat, we have found difficulty in QSO with distant stations because of strong local stations. This has forced us to co-operate in a band-plan which not only should help us but will also enable stations outside Ballarat to find us easily.

Starting at 144.28 the frequencies will be spaced 20 Kc. apart, viz. VK3PO 144.28 Mc., VK3ZL 144.3 Mc., VK3ZBS 144.32 Mc., VK3ZDM 144.34 Mc., and VK3ZCF 144.36 Mc., with at least two other stations to be adapted to the plan.

We realise that someone else will unfortunately be within the frequencies we have and apologise if we are going to cause them undue trouble. However, we have given the step a good test and we feel that our action will be to the benefit of all in the long run.

—B. M. Stares, VK3ZBS.

ON ERECTING TOWERS*

BY R. E. MOREN, W4INL

I have been the proud owner of a self-supporting steel tower for several years. Since so many people have asked me how it was erected it appears that this may be the propitious moment to provide the details of the assembly operation. Thus, all those who wish to provide similar support for their rotary beams or a locale for large bird feeders may profit by my efforts.

The construction work began when a large truck backed into my driveway and deposited a modest amount of assorted angle, nuts, bolts, etc., on my early summer Johnson grass. This created much consternation, particularly with my top sergeant who arched her eyebrows and exclaimed, "That is \$250.00 worth?" Feeling somewhat miffed by her failure to appreciate the finer things I set to work looking for the assembly instructions, all the while dreaming of those S9 s.s.b. reports in Asia.

Having located the instructions, complete with pictures, I noted they casually mentioned digging holes about 4½ feet deep to anchor the base. This phase of the operation was begun at once. Three hours and two feet of the first hole later, it became apparent that North Carolina clay was not designed for digging. Nevertheless, I obviously owned a vast amount of raw material for the manu-

facture of brick and from this I managed to eke a tiny bit of melancholy satisfaction. The digging also provided a difficult way to while away my idle moments and develop a deeper appreciation of the power of the Almighty who had put the stuff there in the first place.

Some eight days passed. After convalescence from a slipped disc and the mild case of bursitis brought on by the exploration of my mineral rights, the time arrived to begin assembly of the tower. Since all my neighbors are teetotalers (while living at home), a gin pole was out of the question. Hence, it became mandatory to assemble the tower piece by piece.

The first twenty feet of the tower was assembled with base legs resting in the holes, but not anchored. I had planned to level the assembly at this point and then pour the concrete. This section of the tower was made plumb with peaches since no plums grow in this area. Sure enough, when a peach was suspended it hung straight down just as the instructions claimed. Unfortunately, the tower did not hang straight up. This led to a number of snide comments from the neighbors who, up to this point, had given freely of advice but nothing in the line of muscle power. After much tugging and pushing, things looked a bit better, but a slight list to the south-east persisted which I attributed to earth

rotation, the pull of the moon or some other nebulous natural phenomenon.

The assembly work continued. I would hoist the pieces up the tower, bolt them in position and as sections were assembled, climb to the next horizontal member dragging a 1 x 6 behind me. The 1 x 6 was used as a bench of sorts and a platform when it became necessary to stand. At the forty level a mishap occurred which frightened me slightly. On second thought, it might be more accurate to say I was terrified because for several days I shook like the rear seat on the crosstown subway. It had its compensations, however. For the first time in sixteen years I managed to get the right number of dots when I thumbed out a five on my old Vibroplex.

The accident occurred after I had bolted one end of a horizontal member in place and had pushed the opposite end on the bolt. While stopping to get the nut the member slipped off the bolt and pivoted on the anchored end. The free end described an arc as it dropped and plowed a furrow across the back of my head. I staggered to the corner of the tower and sat down, clinging tenaciously to the vertical upright. Blood was streaming down my back. I remember that I thought my wife would be mightily perturbed . . . blood all over that new 69c. tee shirt. I also recall thinking it was a rather ignominious way to get a "Silent Key" mention. Nothing respectable like a quiet self-electrocution. It was downright humiliating. So humiliating in fact that I climbed down the tower and went to the doctor.

He looked me over carefully. "Hmm," he hmed. "Don't normally repair these beer bottle cuts this early in the day. That'll be three dollars." I paid the three bucks which worked out to 50c. a stitch and went home.

Festivities continued the next day and in a few hours I was ready to cap the tower and start thinking about building the beam. To my chagrin I couldn't get the cap to line up with the holes. Much tugging and hammering produced no tangible results and I was finally forced to drill a new hole in the tower. This operation entailed the use of a long extension cord for the drill motor which, incidentally, was ungrounded. This latter situation resulted in a teeth-rattling check of my conductivity which I'm forced to report is in the neighborhood of one ohm. Needless to say this is a poor neighborhood.

After retrieving the drill motor from a tomato patch three yards and two fences down the street and correcting its deficiencies, the tower was completed without further complications. The beam constitutes another story, but it's up now and I estimate an approximate gain of 8 db. However, that crack on the head produced a 9 db. hearing loss which likely could be regained by about 30 more feet on the tower. Now let's see . . . thirty feet . . .

* Reprinted from "QST," September, 1956.

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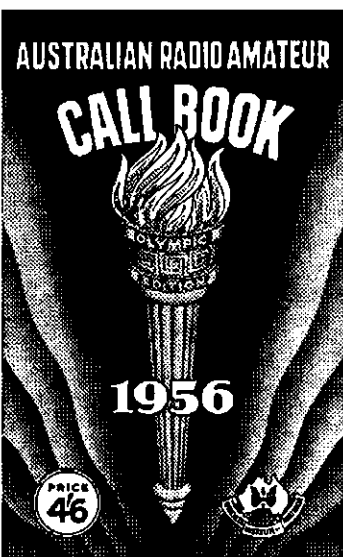
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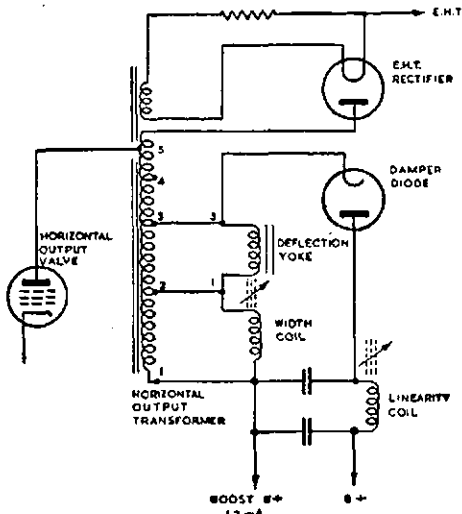


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- (1) A voltage of approximately saw-tooth wave-form is applied to the grid of the horizontal output valve with the "pulse" of the saw-tooth in a negative direction.
- (2) This negative pulse in the grid wave-form cuts off the plate current of the horizontal output valve so that a large positive pulse is developed across the inductance of the horizontal output transformer.
- (3) This positive pulse sets up, and becomes the first quarter-cycle of, a damped high-frequency oscillation in the plate circuit.
- (4) During the first half-cycle of the damped oscillation the cathode of the damper diode is positive with respect to the plate and the damper diode cannot conduct.
- (5) During the second half-cycle the cathode becomes negative with respect to the plate causing the damper diode to conduct.

- (6) The diode conduction current flowing in the horizontal output transformer (and thus in the yoke) is in fact the first part of the sweep deflection current in the yoke.
 - (7) As the damper-diode current decreases towards zero, the saw-tooth voltage on the grid of the horizontal output valve is passing from cut-off to less-negative and then positive grid voltages.
 - (8) The horizontal output valve consequently starts to conduct and draws a steadily increasing plate current through the output transformer and yoke thereby providing the second half of the sweep current.
 - (9) During the period of damper-diode conduction the horizontal output valve is cut off and current flows into the capacitor across the linearity coils, charging them to a voltage some hundreds of volts higher than the normal B+ supply voltage.
 - (10) The plate of the horizontal output valve is supplied from this boost supply, thereby making use of the power recovered by the damper diode from the magnetic field of the deflection yoke and output transformer.
- The damper diode thus provides the first half of each cycle of deflection current in the yoke by rectifying the damped oscillation in the output transformer and then allows the power recovered to be used in the plate circuit of the horizontal output valve.

CHARACTERISTICS:

HEATER VOLTAGE	6.3 volts
HEATER CURRENT	1.2 amps.
CAPACITANCE (Heater to cathode)	7.5 μ F

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PEAK INVERSE PLATE VOLTAGE* (absolute max.)	4400 volts
PEAK PLATE CURRENT	750 mA
AVERAGE PLATE CURRENT	125 mA
PLATE DISSIPATION	4.8 watts
PEAK HEATER-CATHODE VOLTAGE (absolute max.)	4400 volts
(heater negative with respect to cathode).	

*The duration of the voltage pulse must not exceed 15% of one horizontal scanning cycle.
 †For further information on the 6AX4GT and other Radiotron Television Valves, consult the TV1 booklet. Additional copies of this advertisement are available free and post free on request.

6AX4GT[†]

SOCKET CONNECTIONS

(bottom view)

Pin 2 — No Connection (Do not use.)
 Pin 3 — Cathode
 Pin 5 — Plate
 Pin 7 — Heater
 Pin 8 — Heater



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The A.R.R.L. I.G.Y. Propagation Research Project*

V.h.f. Contact Data to be Collected on a World-Wide Scale

BY MASON P. SOUTHWORTH, W1VLH

THE worth of Amateur observations is recognised in many scientific fields, and Amateur workers of many kinds will participate in the coming International Geophysical Year. Therefore it was only natural that a place be made for Hams in the course of planning the radio-propagation aspects of I.G.Y.

The I.G.Y. itself and the reasons for its being were discussed by Dr. Berkner in the July issue of "QST," and anyone who has not read this back-ground article by now should certainly do so. The possibilities for Amateur participation in connection with tracking the satellite of Project Vanguard, and setting up communications networks to furnish moral support to the Antarctic groups and help give notice of special events were mentioned in the same issue. Another Amateur project, whose purpose is to gather radio propagation data is, perhaps, to be the most important and worthwhile of all. This involves the reporting of v.h.f. DX contacts made by several means of propagation which, although fairly common to a good many Hams in practical communication, are still incompletely explained theoretically.

When there is a job to be done, one tries to pick the best means for doing it. Just so in this case. When it comes to gathering data about propagation phenomena, it's hard to beat a large number of reporting stations operating at all hours of the day and night. If a series of observing stations had to be set up especially for the I.G.Y., the cost of this phase of the programme would be enormous, and results would still not be as complete as could be furnished by existing Amateur stations with their wide distribution. Therefore, when information on propagation was desired for I.G.Y., Hams were a natural for the job.

A.R.R.L. and I.G.Y. officials got together as early as the fall of 1955 to see what could be done about setting up a programme of Amateur observations to supplement the more exact—but of necessity limited—information obtained from scatter soundings and the like. The programme which evolved from these talks has now taken on a definite form. The work will be done by A.R.R.L. under an Air Force contract. Dr. Wolfgang Pfister, of the Air Force Cambridge Research Centre, will be the consulting scientist on the programme. The writer will be in charge of collecting and analysing the data for A.R.R.L.

The programme will be concerned with v.h.f. propagation in three main categories; trans-equatorial scatter on 50 Mc., auroral communication on any Amateur frequency above 50 Mc., and sporadic-E skip. In order that no interesting phenomena may be missed, details of any Amateur v.h.f. work over unusual distances will be solicited. It will then be up to the special A.R.R.L. I.G.Y. Staff to sort them out, if the re-

porting Amateur is unable to do so himself.¹

The first work in the three fields mentioned above was done by Amateurs using the v.h.f. bands. Transequatorial scatter was turned up when Amateurs in Mexico began working South American stations on 50 Mc., at times when communication should not have been possible, according to any means of propagation then known. Later 50 Mc. operators in many parts of this country and Canada made similar contacts at "wrong" times, and the medium by which these came about is still far from completely understood. It was for the purpose of gathering more data on this phenomenon that scientists working out the scope of the I.G.Y. programme first conceived the idea of enlisting the aid of Radio Amateurs.

Long distance propagation of v.h.f. waves by means of reflection from the auroral curtain, and from sporadically-ionised patches of the E-region of the ionosphere was discovered by Amateurs two decades ago, and their observations have been used effectively in studying these phenomena on many occasions. Notable examples are the Cornell University Auroral Project organised with A.R.R.L. assistance, and the R.A.S.O. programme conducted by O. P. Ferrell under Air Force contract. Because use of Amateur v.h.f. bands is currently at an all-time high, and because the I.G.Y. is a world-wide and concentrated scientific effort on many fronts, timed to coincide with the expected peak of a solar activity cycle, the A.R.R.L.-I.G.Y. programme is an unparalleled opportunity for Amateurs to contribute to man's knowledge of radio wave propagation.

To make the most of this project, reports from Amateurs in all parts of the country will be needed. If you live in one of the less populous sections and make relatively few contacts, don't feel that you can't contribute much. Your reports will be, if anything, more valuable than those from fellows whose areas are well represented. In fact, it isn't necessary to have a v.h.f. transmitter or even an Amateur license to help out. Accurate heard reports will be useful supplements to lists of two-way contacts. It goes without saying that this programme is made-to-order for the Technician licensee. Many of these fellows have already found out what fun 50 Mc. operation can be, but for those who haven't here's a chance to really make that "ticket" count for something.

Not to be overlooked in this project are our brother Amateurs from south of the equator. Their co-operation will be essential, of course, in the equatorial-scatteer phase of this programme. Their help will be solicited through member societies of the International Amateur Radio Union.

¹Basic details of v.h.f. propagation may be found in any recent edition of the A.R.R.L. Handbook. 50 Mc. DX was described in May, 1955, "QST," page 22. V.h.f. DX phenomena were discussed in detail in "QST" for February, 1951, page 46.

The reporting involved in the programme will go something like this: All contacts and heard reports which are suspected to have resulted from one of the propagation types outlined above will be listed on the special forms to be available. These forms will be made up so that the desired information can be taken from the regular station log, insofar as possible. Regular operation will, of course, be encouraged. At bi-monthly intervals these report forms will be returned to the A.R.R.L. office handling the programme.

Then the project staff takes over. First the data will be sorted as to propagation type and time of occurrence. Contacts will be selected which are representative of conditions at any given time. From the information furnished about these contacts, calculations of such things as distances and mid-point locations will be made. The resulting data will then be arranged in a form suitable for analysis. At this point the really important job of study and correlation begins. This will go on during the I.G.Y. period, and probably afterwards when the data from other projects is available. If all this sounds rather involved, remember that all the reporting stations have to do is to operate faithfully and send in suitable data on their contacts.

The International Geophysical Year itself will run from July 1, 1957, until December 31, 1958. In almost any new project, certain "bugs" develop. To circumvent this, it has been decided to start collecting data on January 1, 1957, six months early. Thus, we should be in full swing by the actual beginning of the I.G.Y. Do not think that the data collected during this trial period will be wasted—far from it. We can use all the information that we can get. In fact, there has been some talk of the possibility of continuing an investigation of this sort even after the I.G.Y. is over. This will depend on the co-operation received from you, the Radio Amateur.

If you are equipped to operate or listen on any band from 50 Mc. up, and want to take part in what may become one of the major accomplishments of Amateur Radio, write in and let us know. Send your letter to the writer, in care of A.R.R.L. Headquarters. Bear in mind that the programme is in a formative state. Aims and procedures may be modified as the need arises or as new ideas come along. In fact, we hope that the programme will remain flexible all during its existence, since it can contribute the most only by being adaptable to new concepts. If you have any suggestions as how this work can be made more worthwhile, let us know that too.

★

VK Amateurs who are prepared to assist in this project are requested to notify their W.I.A. Divisional Secretaries. Further information will then be forwarded.

NATIONAL FIELD DAY, 1957

RULES

1. The National Field Day Contest of the Wireless Institute of Australia will be held on **Sunday, 10th February, 1957**, and will be of 12 hours' duration, commencing at 0900 hours E.A.S.T. and will continue until 2100 hours E.A.S.T.

2. The Contest is limited to Portable Stations operating within the Commonwealth and its Mandated Territories on a power not exceeding 25 watts input to the final stage with the aerial connected, with a special section for fixed stations working to portable stations.

3. A portable station for the purpose of the Contest is defined as one whose power is not derived from either private or public mains, shall not be located closer than five miles airline from the home of the operator(s) and shall not be situated in any occupied dwelling or building.

4. No apparatus is to be set up or erected on the site of the portable station earlier than 24 hours prior to the commencement of the Contest. A station may be moved from one site within a State to another within the same State during the Contest.

5. More than one operator may be used in the operation of the portable station, provided that all operators are licensed Amateurs.

6. Operation may be on any of the recognised Amateur bands and more than one transmitter may be used, providing that only one transmitter is used at any one time.

7. When calling, c.w. stations will use the call "CQ NFD" and phone stations will use the call "CQ National Field Day" to indicate that they are portable stations. Attention is directed to the requirements for portable operation as defined in the P.M.G. Handbook for the Guidance of Amateur Operators.

8. **Sections:** The Contest is divided into four sections, namely:

- (a) Open
- (b) C.w.
- (c) Phone
- (d) Fixed Stations.

The open section will consist of phone and c.w. Portable station participants may enter each of sections (a), (b), and (c) provided a separate log is entered in each case.

9. **Logs** must be forwarded to the Contest Committee, through the Divisional Council for membership checking in time to reach Box 1234K, G.P.O., Adelaide, not later than Saturday, 23rd February, 1957.

10. Logs must be filled in in the following order: Date, Time (E.A.S.T.), Band, Emission, Power Input to the final stage with the aerial connected, Call Sign of Station Contacted, RST number sent, RST number received, location of station contacted, points claimed. The log must be headed with the title of the Contest, section entered, call sign of the competitor, location of the station. At the conclusion of the log a summary of the contacts must be shown, together with a description of the equipment

used including h.t. voltage to the final stage, tube(s) in p.a. stage, antenna used, and call signs of all operators.

11. The completed log must be signed by each of the operators with a statement that the P.M.G. regulations and the rules of the Contest have been observed.

12. The decisions of the Federal Contest Committee will be final in all matters concerning the Contest.

13. Failure to completely observe the conditions of Rule 10 will lead to automatic disqualification of a competitor.

14. **Scoring:** For the purpose of the Field Day the following constitute VK districts: VK1 (A.C.T.) and VK2 combined, VK3, VK4, VK5 (South Australia), VK5 (Northern Territory), VK6, VK7, VK9.

15. Serial numbers must be exchanged during the Contest. Failure to record current serial numbers will mean loss of all points for that contact. Serial numbers will be as follows: The first three figures will be the RST report in the c.w. section, followed by the serial number of the contact. Serial numbers may commence with any number between 001 and 100 for the first contact, increasing by one for each successive contact. In the phone section, the first two figures will be the RS report as in the c.w. section, followed by the three serial numbers. In addition the QTH must be given in all cases.

16. Points will be awarded as follows:

Portable Stations—

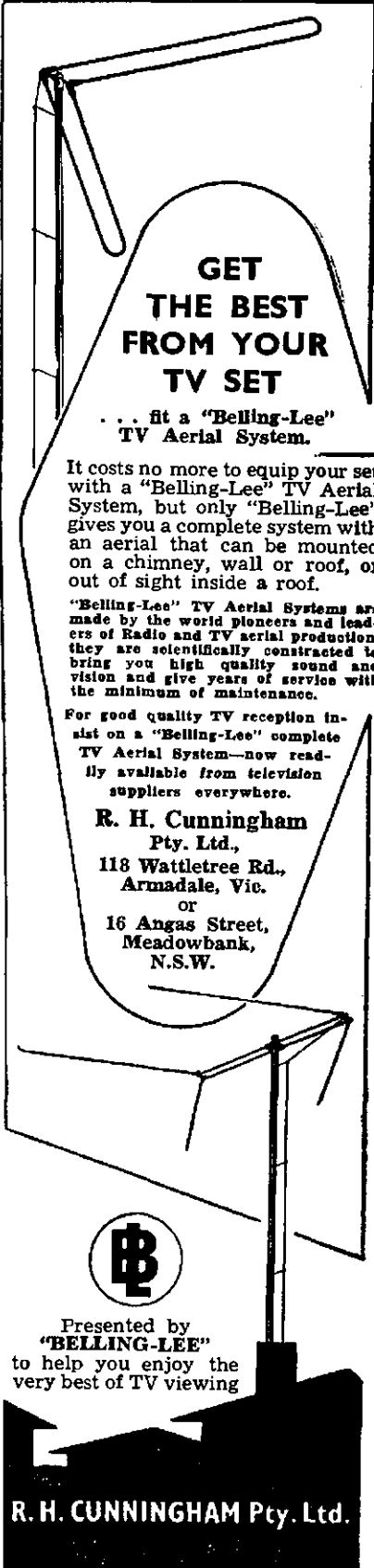
- (a) For contacts with a fixed station within the Commonwealth (Rule 14) including the competitor's own State **1 point.**
- (b) For contacts with other portable stations within the same State **2 points.**
- (c) For contacts with stations in Asia, Oceania, North America, **3 points.**
- (d) For contacts with stations in other countries other than (a), (b), and (c) **5 points.**
- (e) For contacts with other portable stations outside the competitor's own State **10 points.**

Fixed Stations—

- (f) For contacts with portable stations in the Contest within the same State **2 points.**
- (g) For contacts with portable stations in the Contest outside the State **5 points.**

17. **Awards:** An attractive certificate will be forwarded to the outright winners in each section, namely, Open, Phone, and C.w. Certificates will also be awarded to the winners of each section in each State and to the Fixed Station in each State with the greatest number of points gained in contacting portable stations in the Contest. Further certificates may be awarded at the discretion of the Federal Contest Committee. The outright winners are not eligible for State awards.

18. Certificates will be awarded to each operator of the winning stations provided each operator has contacted at least 25% of the stations contacted.



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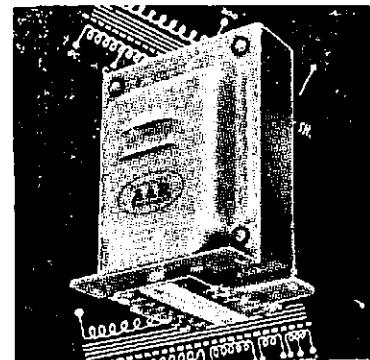
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" 1766	125	" "	285-C.T.-285
" 1767	" " "	" "	300-C.T.-300
" 1768	" " "	" "	325-C.T.-325
" 1769	" " "	" "	350-C.T.-350
" 1770	" " "	" "	385-C.T.-385
" 1771	150	" "	285-C.T.-285
" 1772	" " "	" "	325-C.T.-325
" 1773	" " "	" "	350-C.T.-350
" 1774*	" " "	" "	350-C.T.-350
" 1775	" " "	" "	385-C.T.-385

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" 1776	" " "	" "	325-C.T.-325
" 1777	" " "	" "	350-C.T.-350
" 1778	" " "	" "	385-C.T.-385
" 1779	" " "	" "	350-C.T.-350
" 1780	200	" "	400-C.T.-400
" 1781	" " "	" "	450-C.T.-450
" 1782	" " "	" "	

Type	250 Ma. D.C.	Sec. Volts:	565, 500, 425
Type 1400			each side C.T.

Type	300 Ma. D.C.	Sec. Volts:	1000, 850, 750
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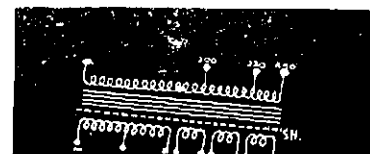
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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

8.5 Mc.: One report mentions a good opening to Europe on 28/12/56, around 1900-2000z.

7 Mc.: European openings have been reported on both long and short routes (around 0800z and 1800-2100z, respectively). Asiatic stations have also been reported (1200-1700z). North America was represented from 0800z to 1400z.

14 Mc.: Conditions deteriorated during the month of December. However, openings to all continents have been observed. With openings overlapping, optimum conditions seemed to prevail at the following times: For Europe 0700-0930z, 1100-1300z, and 1900-2300z; for Africa 1400-1800z, and 1900-2300z; for South America 0800-0700z, 1000-1200z, and 2000-2300z.

21 Mc.: This band opened to Europe between 0800 and 1800z, and to Africa around 0800-0900, while conditions to the American continents covered the entire twenty-four hours with signals of varying strengths.

28 Mc.: Here openings to America were confined to the period 2300-0300z, with Africa around 0800-0900z and Europe 1000-1200z.

NEWS AND NOTES

The International Geophysical Year will see the establishment of another Australian station on the Antarctic mainland and the expansion of the present base at Mawson. Consequently, the number of Antarctic Amateur licensees (now VK0s) has reached an all-time high, see last month). The W.I.A. was well represented at the departure of the Kista Dan, on 17th December, 1956, with VKs IDA, ex-1EM, 1IJ (3IJ, 7IJ), 3BG and 3AHH.

Talking of the icy south, ZLs 5AA, 5AB and 5AC will be New Zealand stations in Antarctica (from W6YY).

Welcome home to David Laing, ex-YJ1DL, who anticipates staying in Brisbane for a while (news via NCDXC).

After 1st April, 1957, VO call signs will be re-allocated. VO1 for New Foundland and VO2 for Labrador (both count as Canada) (from W6YY).

ST2NG expects trouble with the renewal of ST2 licences (from 2AIR).

SV0WT may be operating from Crete around March/April (from W6YY).

FB8BR will leave Madagascar in March (from W6YY).

The European (W.A.E.) DX Contest, sponsored by the D.A.R.C., appears to incorporate a number of new ideas. Apart from the usual contest operation, participants are invited to increase their score by including, in a contest-QSO, reports on previous contest-QSOs with other European stations. Also, the two sections (each covering one week-end) are spread over several months, with the final c.w. section to take place on 6th April, 1957. Contest operators will welcome these changes from the common-garden type of DX Contest but future will tell how popular and practicable they are. Good luck!

QTHs OF INTEREST

(from W6YY, NCDXC, VK2AIR, BERS195, and Rod de Balfour)
 VS2CV—E. W. Hunt, Police HQ Sigs BCH, Kuala Lumpur, Malaya.
 ZC5JM—Cpl. Pat. McGill, R.A.F. Detachment Labuan, Brit. Nth. Borneo.
 ZS6AQ—Saville Shapiro, 10 Rambler Road, Kensington, Johannesburg, South Africa.
 XW3AC—Box 87, Valentia, Laos.
 KM6AX—Terry Foley, 4600 Richelleu Terrace, Los Angeles 32, Calif., U.S.A.

† Hans J. Albrecht, 10 Belgravia Ave., Box Hill North, E.12, Vic.

* Call signs and prefixes worked.

z—zero time—G.M.T.

ACTIVITIES

3.5 Mc.: Frank 2QL heard YU2HT, DL6NB, DJ2ZB, OK2KLI, G3LKB, and SP3AC/MM. Dave WIA-L3039 heard VK0AA (Macquarie Island).

7 Mc.: 9QL reports G* and ZS, DL, YU, VE, Alan 2AIR contributes F8VJ*, VR2DA*, W6EY*, KL7*, 3W8AA*, V2EL*, W1A*, KA4Q/KC6*. Eric BERS195 heard YU2CE, OK1KTW, UA1AL, UA1DH. WIA-L3039 reports JASAI.

14 Mc. C.w.: 2QL: ZS2MI*, EA8BF*, FJ2ME*, and 3W8AA, ZS3DP. 2AIR: Europeans*, PJ2ME*, 3W8AA*, YV5DE*, CX2CO*, ET2RH*, KP4URO*, FA8NL*, ST2NG*, YV5HL*, KC6-KG*, ZK2AD*, HIPOLO*, HK3KC*, HC1LE*, EI4A*, LU3HL*, KP4JE*, VP6GT*, KA0IJ*, VR3B*, VP3YG*. Neville 2APL: SM*, VE*, VS*, Jack 3JJ: I5REX*, FB8AE*, ZS9P*, ZS*, ZS3JL*, VQ6LQ*, CR10AA*, Europeans*, OD5-AI*, VQ5QJ*, LUTAS*, LU2ZV*, LU7GP*, LU0AC*. Ivor 8XB: 4X4*, YV5HL*, PJ2ME*, ZC4*, HK5CR*, PA*, EI*, YU*, SM*, EA*, DJ*, G*, OH*, Lance 3ZA: CT3AB*, CT*, G*, GC*, and CEOAA, ZD2, PY. John 3ZC: OY7S (on 14100). Doug 8BY: PJ2ME*, VP2LU*. John 5HI: KZ5LB*, ZS8XL*, ZS6AHV*. Bill 5HR: ZE1JV*, FJ2ME*, KP4YE*, DJ*, F*, ZC4CH*, EA*, YU*, GW*, HK5CR*, ZS6AD*. Harry 5MY: FJ2ME*. Ray 8EK: KE1RM*. Austin 5WO: VQ6LQ, VQ2GW*, SM*. BERS195: ET3-AF, FB8AE, QG5BT, TF5TP, XE1RM, ZC4CZ, 5A5TH, HB10G/MM, WIA-L3039: OE, YU2DR, KP4JIN, HB10G/MM, AP2RH, 4STLJ, VU2KM, 4ST-MR, DJ, VU2KL, G, U, HIPOLO, VU2JK, VS, 3AHH, G*, OH*, DL/DJ*, F*, FA8RJ*, OE*, SM*, VE*, CE3ZO*, VU2KM*.

14 Mc. A.m.: 5HI: SV0WL*, CT2AC*, F9YP/FC*, EA*, TG9TU*, CE2CO*, VQ4KRL*, TI2HP*, TI2RO*, TI2VJ*, TI2OP*, HR1LW*, 4ST-LM*, VS*, 5WO: ZD6DT*, LA*, VP9DC*, OE*, VQ2DC*, VQ4KRL*, FF8BR*, ZS6ANE*, 4X4-DK*, HR1EZ*. BERS195: ZD6DT, WIA-L3039: BVIUS, Rod de Balfour: G, GI, GM, CT, EI, EA, DL, I, HB9, F, ET2US, SUIME, 5A5TH, 5AITA, CN8MM, ZS6BW, ZEGJJ, VQ8AH, ZD8-DT, 4X4DR, 4X4JC, HZ1AB, HZITA, MP4KDS, AF2Z, AP2U, VU2GD, VU2CQ, VU2ES, VU2CW, VU2BK, KZ2KN, 4STYL, 4STWP, VS, XW8AC, JA, BVIUS, KR6, DULAP, JZ0PA, FUSAD, VE, YNIRA, HR3SH, HR1ER, HR1LW, TG7CB, TGSAL, TI2HP, TI2RC, HP3FL, HP3DA, KZ5-DX, KEIKW, CO2BK, OA6LB, HK3FT.

14 Mc. S.s.b.: Here is a combined report of s.s.b. doings by 2VA, 2ZF, 8SK, SAEE, as forwarded by Bob 8SK: BVIUS*, TI2HT*, ZEGZB*, SV0WA*, CN8GD*, G*, VE*, KP4AB*, TF2-WBI*, ZS6TE*, GM*, I*, F*, HR2WC*, SM*, HB9*, TG9AD*, HR2WT*, XE1A*, KC4USV*, HR1EZ*, ZB1CZ*, KP4ES*, XE2JK*, and a large number of Ws*.

21 Mc.: 2QL: ZBIHKO*, KP4KD*, ZS1IC*, ZS1KD*, KZ5KG*, FA8RJ*, KG4AN*, 3W8AA*, UA*, VU2JA*, OZ*, G*, GM*, SM*, OH*, DL*, ON*, FA*, CT*, and ODSAV, CN8FJ, FUSAC, HIPOLO, 2AIR: JA*, UA*, KP4GR*, KZ5KE*, XE1PJ*, DL*, G*, ON*, CT*, KP4KD*, OK*, OE*, 3W8AA*, OH*, SM*, FJ2AK/P*, 2APL: G*, 5WO: HC1ES, KZ5CP*, DL*, G*, GM*, ON*, VS4NW, FA*, WIA-L3039: G, JA, Rod de Balfour: G, GM, GD, DL, ON, OH, LA, F, I, SM, LX1DC, MP4BF, DUTSV, VS, KR6, VS4-NW, HR1LW, VP6WR, HK1DZ.

28 Mc.: 2QL reports KRQW*, SM*, OH*, G*, and DL, ON, JA. 5WO also 5AITA, G*, Rod de Balfour heard G, VS, VE4RO, JA.

Rare QSLs were received by: 2QL: CR10AA, CR7CI, VS4BA, ISRAM, LU9ZB, HA5BW, YJ1-RF, CN8DJ, ZB1AY, 2AIR: HK3PC, ISRAM, ST2NG, FA8DA, 5WO: VS4BA, ZEGJJ, VRAAA, BERS195: VQ8AD, ZCSJM, Rod de Balfour: PA0NU, KZ5DC, AP2U, X57C.

Thanks to W6YY and the Northern California DX Club, and VKs 2QL, 2AIR, 2APL, 3JJ, 3SK (QSP 2VA, 2ZF, 3AEE), 3XB, 3ZA, 3ZC, 6EK (QSP 5BY, 5HI, 5HR, 5MY), 5WO, and BERS195, WIA-L3039, Rod de Balfour.

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 or the Class Manager on either of the above evenings.

S.W.L. SECTION*

No doubt everyone is busy building gear during the holiday season or listening intently for that elusive DX as only two letters have been received this month. Still, I guess there will be a full roll up next month to compensate. How about it all you s.w.l.'s? Let's know all about your holiday activities.

And so to the correspondence for this month. Dave Jenkin, W1A-13039, writes from Orbst to tell us the happy news. Yes! His new rx is going. It covers the broadcast band, 3.5, 7, 14, and 21 Mc. bands, using five tubes, a germanium diode and four transistors. Dave has yet to iron out a couple of faults, namely getting the xtal filter working and the S meter functioning properly. He did have some trouble with the first i.f. stage to begin with, but soon had that righted. Now we will wait to find out just how good the rx really is. Thank you very much for your letter, Dave.

John Campbell, W1A-15011, gives us the latest dope on the VK5 Group doings. The VK5 S.W.L. Group Christmas Social, held on December 18, was an unqualified success, about 20 persons attending. Among the visitors were John 5KX, Gordon 5XU, Brian 5CA, and Les 5LC, all of whom have aided the Group in some way during the past year. Thanks are due to these Amateurs for the job they are doing in helping s.w.l.'s. (Thanks for the QSL card too, Les—I.H.) Normal business of the Group was suspended for the evening and a good time had by all.

Alteration to VK5 Group Meetings.—Now that the A.O.C.P. classes have moved to other accommodation from their previous meeting place at the Methodist Mission, the VK5 S.W.L. Group meeting night will fall on the third Monday of each month at 8 p.m.

D. Colebatch, W1A-15024 has heard the following recently: 14 Mc.—FK8, G5, JA1, TI2, ZM6, 21 Mc.—DUI, JZ0, KA2, TI2, VE6, YV5, 28 Mc.—GW3, G3, VU2, Len Cragen, W1A-15004, has managed to log F9, FK8, II, JA, KA, KG6, KH8, VK1, W, ZM6, G, CR9, BVI, DL, DU, FUS, JZ0, LA5, LU9, VK9, VR2, VS2-8, YV5, ZL, ZS5, 4S7, KR6, VU2.

That then is the sum total of correspondence received for this issue. As there was no December meeting of the Victorian Group, not much has been heard of members. However, Michael Ide is understood to have had a late night recently. Up listening for DX Michael, or getting that v.h.f. gear going again? Yours truly has been doing very little listening lately, but the shack is now neatly arranged, QSL cards on the wall, and the beam can even be rotated without going outside.

Whilst making a few purchases at a city electrical store during the week, I quite accidentally discovered that I have another reader of this page. His name is Martin Koffel, recently from Wagga in VK2 land. Martin has been using an AR7 rx and is a really enthusiastic s.w.l. We hope to see you at our meetings, Martin.

While browsing through a copy of an American Ham magazine some time back I came across a letter on the subject of "What people talk about on the air." As an ardent s.w.l., I decided I'd find out just what VK Hams talk about, and so I have made short notes each time I hear something humorous or unusual. Following is a list which I have made up from my notes.

The use of fruit trees, flowers and shrubs as ornamentation. Forming a mental picture of the other operator (ugh!). Air conditioning. Availability of steel. Eating fish and drinking at the same time. Yorkshiremen as cricketers. Parasitic arrays versus driven elements. The "art" of buying shows (any comments, 30M). Number of spoons of sugar to a cup of tea. Hang-over remedies. Father Christmas. Erection of towers and masts. Bald heads.

C.w. versus phone, s.s.b., f.m., etc. Fishing bait. Indexing systems. Pyjamas. Dust storms. Pig farming. Newspapers. Mixing paint. Nylon shirts. Dancing. Floor coverings. Motor cars and associated troubles. Building ideal rigs. Which direction to point your beam. Ice cream. Ladders. Babies, dogs, cows, sheep, cats, XYLS, DX and, of course, the weather.

Perhaps someone could supply a supplement to this list, but I promise you that if you decide to do some really solid mail reading you'll become very well informed on a great variety of subjects and have some really good laughs into the bargain.

Well, as one cartoon character once said, "That's all for now folks," so here's hoping to receive lots of letters and news between now and next month, and till then good listening, DX, and may much fun be yours.

YL CORNER

BY PHYL MONCUR

"I met a YL called Peta,
When my notes had gone astray,
And as I talked with Peta,
My cares just sped away."

For in Peta Gilchrist, ZL2ABJ, I found a most delightful subject for this column.

Peta, with her husband, Geoff ZL2SK, came over to Melbourne for the Olympic Games. While here they stayed with a relative of Ian Hunt (the secretary of our S.W.L. Group) and Ian brought them along to our 80 mx tx hut which was where I first met her. Then quite by accident just a few days later, my OM and I met them again at the Olympic Games where we had seats in the row behind them. They also visited us at our QTH and from these meetings I managed to find out all about her.

She is a most energetic person with ever so many different interests. For instance, she is president of her golf club and has been for the last six years and enjoys her golf immensely. Geoff also is a very keen golfer. Another very absorbing interest of hers is playing chess, here again Geoff has this interest with her also. She belongs to a chess club of which she is the only lady member. In her younger days (but I must pause to say that she's not very old even now) she used to enjoy "tramping" as she calls it. She has climbed Ruapehu four times. Ruapehu is the highest peak in the North Island of New Zealand and is permanently snow capped. She does all her own personal sewing and she and Geoff between them have redecorated their home and are at present building a shack at the seaside.

Now as to her radio activities. They developed at a time when she felt she needed a new hobby somewhere round about eight years ago. But it wasn't radio she took up, it was typing and she got on with it very well. Then a friend suggested that she should have a go at c.w., because if you can take it on the "mill" there's just nothing to it. So having mastered the "mill" (the typewriter that is, just in case some of our XYLS are not quite with me) she then turned to c.w. and found this immensely fascinating and went ahead with leaps and bounds. The next thing was, why don't you have a go at the theory and get your ticket, this friend suggested. Here Geoff was a wonderful help to her she said. Geoff, at this time, didn't have his own ticket, but as he is in the P.M.G.'s Department in the

radio section, he knew radio backwards and was able to help her no end. She admits that getting the theory was one of the hardest things she has ever done in her life and it took a tremendous lot of study and really hard work to get it. She actually got her licence before Geoff got his.

She works on 80, 40, 20 and 10 mx, but mainly she works on 20 mx, she says there is just something about 20 she likes better than the other bands. She has worked 60 different countries, but amazingly enough she has only worked three other YLs in all the contacts she has made and none of the three have been either VKs or ZLs. She works occasionally on phone, but prefers c.w., 95% of her contacts would be c.w., she said. She can copy 30 words a minute "on the mill" with comfort, but admits to being pretty flat out to send it at 25 words per minute.

She always enjoys a field day and she and Geoff go to Ruapehu each year for the ZL annual event.

She attends the radio meetings in her area and is the vice-president of her division. She was invited to accept nomination for president but declined.

She is a member of the A.R.E.C. (Amateur Radio Emergency Corps) which keeps her very busy. Emergency calls can come at any time of the night or day and necessitate constant vigilance on the band, but she finds this very interesting and absorbing and very worth while.

Well from all of the above you can gather what a very interesting person Peta was to talk with but just in case some of our XYLS with young families give up the ghost altogether after reading this, I'd like to mention that Peta hasn't got any family and, as she puts it, it does leave her more time to have other interests.

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* Compiled by Ian J. Hunt, W1A-L3007, 211 St. George's Road, Northcote, N.16, Vic.

FIFTY-SIX MEGACYCLES AND ABOVE

ZKIBS in the Cook Islands is preparing for 5 metre operation. DX conditions on 56 Mc. were in evidence early in December. VK2ATS heard VK3OF at R5 S8 and also worked VK7AB for an hour with S9 signals both ways. VK7AB runs 50w. to 35T final, 3 el. wide-spaced beam, and a cascode xtal converter; he did not hear any other station. VK3 stations should look out for Interstate stations as it is known that there are several now operating on 56 Mc.

The change over of crews on Macquarie Island took place early in December and the old crew has arrived back. Those just returned include Doug VK1IJ and Alec VK1DA, both sporting very handsome beards and looking very fit. The new crew includes VK0AA and VK0CJ who intend being active on 56 Mc. at their earliest opportunity. John VK0AA has taken with him gear for the 144 Mc. band and has ideas of putting up a 72 element beam. It will be interesting to hear how 72 elements will stand up to an Antarctic blizzard.

It will be remembered that VK1IJ, in the early part of 1956, heard two VK4 stations on 6 metres at very good strength. It is hoped that the new team will be able to carry on attempts to get through on v.h.f.

There are nine Amateurs with the new crew that left recently for the Antarctic Mainland to go to the Mawson Base at MacRobertsonland and the Vestfold Hills Base at Princess Elizabeth Land. They are VKs OAB, OAC, OAS, ODC, ODJ, OJP, OPK, OPR and OZM. They expect to be active early in the New Year and will be looking for contacts on 56 Mc.

On the evening of Thursday, 3rd January, excellent tropospheric conditions prevailed for 144 Mc. across to Tasmania when VK7PF and VK7BQ, of Launceston, worked many VK3 stations in the Gippsland and metropolitan areas.

The Ross Hull Memorial V.h.f. Contest concluded on 31st January last and logs should be forwarded to the Federal Contest Committee, Box 1234K, G.P.O., Adelaide, South Australia, to reach there not later than 1st March, 1957.

VICTORIA

The first V.h.f. Field Day for the summer season held recently was immensely successful, there was a large number of portables out on the various mountain tops, the weather was excellent, one of those really perfect sunny days and some very good contacts were made. Results will be published in next month's magazine. It has been decided to hold further V.h.f. Field Days on the third Sunday in the months of February, March and April, but with the reservation that when the date of the National Field Day is announced, the V.h.f. Field Day date will be arranged to coincide with that date in whichever month the National Field Day is to be held.

There was a good turn-up at the final fox hunt for 1956. We were pleased to see a couple of our old ones, Graeme 3ZAA and Norm 3ZEU, also a new starter Jacques 3ZEE who is one of our recent new members of the Institute. Most of the usual ones were there and Bob 3OJ again acted as control station. The first hiding spot the fox (3LN) chose was in some high grass just off the Boulevard in Hawthorn. Here the fox was endeavouring, with the aid of some 200 yards of co-ax and his three harmonics, to remove the antenna to a point somewhat distant from the tx, but 3VZ with that wizard of a second op. he has, Jim Shaw, came along and caught him before he was properly organised. The second hiding place was among the stacks of timber down at the wharf. Here 3KD and Ray Price were the

only ones to catch the fox, but he himself had a lot of fun chasing some of the other hounds round in circles in and out of the timber stacks. The third hiding place was a really tough one in the region of the Military Camp at Royal Park. Only one hound managed to scale the cliff on foot and when he reached the peak he was barely able to gasp out his call sign in order to claim his points for the catch. The call sign that came hesitantly over the warm night air was 3-A-O-G huh-huh-huh. The last hiding spot was in a serve at Marlbyrnong. The first to ferret him out was again 3AOG, who was the winner for the evening, second was 3ADU and third was 3VZ. The final location was held at the home of Len 3LN at Ascot Vale.

At the December V.h.f. meeting the Group was entertained with two interesting talks on v.h.f. equipment. The first one was by Peter 3ZAF who demonstrated his 1 mx tx and rx. He was assisted by Jacques 3ZEE who made a mobile tour of the city with the tx operating both from stationary and mobile positions while the Group back at the rooms listened with great interest to the transmissions coming over the rx. The results were very good with excellent copy all the way. Peter then described in detail his equipment and answered many questions put to him by the members. David 3ZAQ then followed Peter with another short lecture on his mobile equipment for 1 mx also. David is getting very excellent results from his equipment also and has had a contact of 67 miles with it on the occasion of a V.h.f. Field Day last season. There were three visitors welcomed to the meeting, they were Les ex-2ZEB who will be at Ballarat for the next seven months, and Bob Lowe and Norm 3ANT.

Some good 2 mx contacts have been made recently. 3NN at Yannac was worked by 3ALZ and 3RK with signals over S9. 3ATN has been coming into Melbourne with S9 plus signals and Ballarat and Gippsland stations are also putting good signals into Melbourne. 3ZAM was heard by 3RK and 3ALZ. Don't forget that Thursday night is hook-up night with the Western District.

Of interest to v.h.f. listeners will be the news that there is now a relay of the 3WI Sunday morning broadcast of news for Amateurs in the 1 mx band on 22.5 Mc. This relay is being operated by David 3ZAQ in East Malvern. David is using a horizontally polarised antenna beam in a north westerly direction.

Trevor 3ATR at Warracknabeal has got his new rig working nicely on 2 mx and is looking for Melbourne contacts. He is using 100w. input. Stan 3ZEB, a past student of the W.I.A.'s A.O.C.P. course and who got his ticket last year, has now built up some gear for 2 mx and has it working nicely. His frequency is 144.144 Mc.—Phyl Moncur.

SOUTH AUSTRALIA

Advice from Mount Gambier indicates some increased activity from there, where Col 5CJ is working on his tx and by now should be using the frequency. Leo 5ZAG, whilst not over-active, plugs away and at the morse too, so won't be long. Tom 5TW not active at the

moment, but hopes to resume on 2 any time now. Dan—a newcomer to the ranks—is giving the limited a go soon, so yet another 2 mx type coming up.

Report from Ceduna from the "Hexpedition" character said that on 30th Dec. 122 Mc. was open from there to Tallen Bend—super refraction it is claimed—so it has fired George 5EC and 5AV to interest in v.h.f. and they reckon to get a signal on 2 using a.s.b.—xtal filter type of exciter. More of this when more known of it, but feel sure a lot will be interested in this for if reports of conditions from Ceduna are consistent, and with a.s.b., a new interest will be aroused.

George 5GB is doing an extra broadcast of W.I.A. session on 1 mx Sunday nights these days from earlier recording, it is hoped soon to add a 2 mx extra from here soon on the same basis. The idea is to help those who cannot otherwise hear the news in the 10 a.m. session.

Mobile 2 mx interest is being revived by a newcomer to that activity in Bill 5ZAX who has carried out preliminary tests with Reg 5QR, mobile to Freeling and pretty good at that. Bill therefore adds to those with mobile gear others being 5GL, 5HG, 5MT and 5KC.

Had the pleasure of a visit to Bill recently to see both his mobile gear and the general set up, met Keith 5MT and Col 5RO there and they will agree with me that Bill's show has to be seen to be believed. The mobile gear set-up in a utility uses an SCR522 for tx with an AR8 and xtal converter for rx. The power supply for both are from generators with one on 5v. and the other on 24v. Yes 24v. The latter being looked after by a huge 24v. battery with appropriate generator fixed to the engine, all of this is through a central control panel which still leaves room for the driver and passenger. The antenna is a halo fed with co-ax through a balun. A mighty set-up and will be the subject of many further experiments of interest.

The main fixed gear there consists of an amazing assembly of apparatus mostly "home brew," but with once again that fine engineer's finish we all seek. Two steel racks flank an operating table the centre of which has the rx's and auxiliary gear and a sloping panel in the foreground contains the control switches, pilot lights and push buttons. In this assembly is to be found a Bendix MN28C, a sig. gen. 100 Kc. to 80 Mc., another 120-300 Mc., a 6 inch c.r.o. audio osc., wavemeters, beam indicators, BC-348 rx, Eddystone 840 rx, a 50 Mc. rx in course of conversion to 56, a standby 522 rx, and finally a 522 tx mounted in a beautiful rack complete with power supply and modulator.

The antenna tower, 70 feet high, is topped with (or soon will be) a 2 mx ground plane, a 3 el. on 2 mx (to be replaced by a 12 el. co-linear on 2 soon), and a G4ZU. An adjournment to the workshop to see the mobile rig made eyes further pop out, when it was learned push button controls were affixed to the garage doors, soon to be completed by radio control! Then a highlight, junior op. turned up with a radio controlled model bus that "guess who" gave "who" for Christmas. He put it on the floor and made it do its tricks—that settled it, for we all lived on to it and started to dissect it to find out what made it tick. Congrats on your whole set-up, Bill.—5EF.

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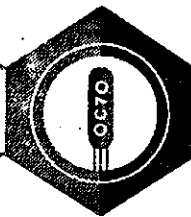
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Although in principle a large number of circuits can be obtained by combining grounded emitter, grounded base or grounded collector configurations with transformer or R-C coupling, in practice transistor audio amplifiers tend to follow a simple pattern. A typical circuit can be considered to have grounded emitter stages in cascade, with R-C coupling, and with d.c. stabilisation provided by the potential divider and emitter resistor method.

The maximum power gain available with perfect matching (and transformer coupling) when the effective load resistance

in the collector circuit $R_L = \sqrt{r'_{22} \cdot r'_{out}}$ and the effective

source resistance $R_s = \sqrt{r'_{11} \cdot r'_{in}}$ is

$$\left(\frac{\alpha'}{\sqrt{r'_{11} + \sqrt{r'_{in}}}} \right)^2 \cdot r'_{22}$$

R-C coupling is preferred generally to transformer coupling for low cost and phase shift and good response, but the power gain of each stage then arises solely from the inherently high current gain of the grounded emitter stage, and the higher gain which would be available by impedance matching with the transformer is not achieved.

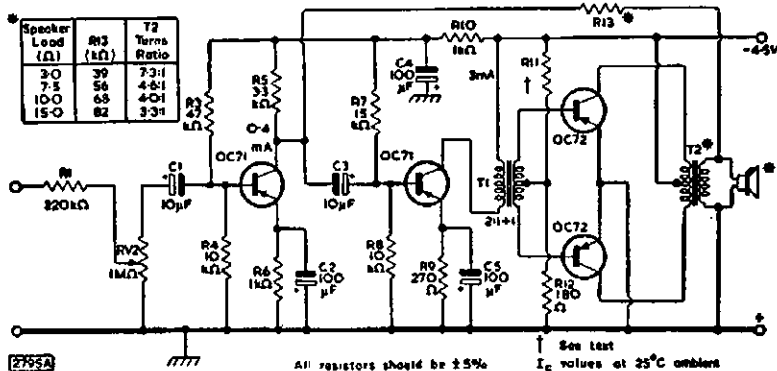
The factors entering into the design of an R-C coupled transistor cascade are not difficult to appreciate; many of them are similar to those encountered when working with valves. The collector voltage and current are limited by d.c. ratings V_{cmax} and I_{cmax} , and by a.c. ratings $V_{c(pk)max}$ and $i_{c(pk)max}$. For high gain and output power the battery voltage should be high, but a lower voltage and hence smaller current drain is more economical. The high value of collector load resistance required for maximum gain cannot be obtained with R-C coupling, as there is no advantage in making the collector load very much greater than the effective parallel input impedance of the next stage. In addition, the load resistance and collector current determine the voltage available across the transistor, which is also reduced by the emitter resistance included for stabilising. The collector current should therefore be small so that a large collector load resistance can be used; on the other hand a large collector current swamps the variation in collector leakage current $I_{c(0)}$ with temperature.

After allowing for these various conflicting claims, the number of stages is chosen to give the required overall gain when feedback is applied. Since the signal swing in the early stages is small, the d.c. working point can be chosen for low

current drain (and noise), provided they have potential divider and emitter resistor d.c. stabilisation. The power gain in the grounded emitter R-C coupled stage can be calculated from $(\alpha')^2 R_L / r'_{in}$, the a.c. current gain being α' and the voltage gain $\alpha' R_L / r'_{in}$. This expression assumes that R_L is very much smaller than r'_{22} and r'_{out} .

Here, α' , r'_{in} , etc. are Small-Signal parameters given in published data and computed for the working point employed. As the load on an R-C coupled stage is formed by its collector resistance in parallel with the input resistance of the following stage, the power and voltage gain for each stage can be calculated by working backwards through the cascade.

Class AB push-pull operation in which the bias corresponds very nearly to that for true Class B operation is a natural choice for the output stage when a transistor amplifier is to be designed as a power amplifier, that is, to give the highest output power permitted by the collector dissipation P_{cmax} , without objectionable distortion. The quiescent power consumption is very small and the efficiency is high. The Mullard OC72 is intended for this mode of operation. An actual circuit is shown in the diagram, the output power being 200mW for 10% total harmonic distortion for an input of about 6mV at CI or 500mV at R1. Negative feedback is applied over the driver and output stages by R13, which is matched to the loudspeaker. A small amount of bias is provided to the OC72's by the potential divider R11-R12, which is effective in reducing the



high crossover distortion inherent in a true Class B transistor output stage.

The value of R11 must be chosen from the range 6.8, 6.2, 5.6, 5.1, 4.7, and 4.3kΩ so as to adjust the total quiescent current in the output stage to 1.3mA ± 10% at 20°C or 1.6mA ± 10% at 25°C. The operating ranges with speech and music are 15°C to 45°C ambient temperature and 4.5V to 2.7V (or even 2.0V, depending on the distortion tolerated by the listener).

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Interstage Transformer

"C" core, 0.004 in. strip, English Electric HWR/4/5/5.
 Window length and breadth = 11/16 in. x 5/16 in.
 Strip width = 5/16 in.; Build-up = 5/16 in.
 Length of flux path = 2.93 in.; Net area = 0.09 in.²
 Primary: 2000 turns of 38 s.w.g. enamelled copper wire. D.C. resistance = 144 ohms.
 Secondary: 2 x 1000 turns of 38 s.w.g. enamelled copper wire.
 D.C. resistance = 60 ohms + 75 ohms.
 Shunt inductance = 10H with primary current of 3mA d.c.

Output Transformer

"C" core, 0.004 in. strip, English Electric HWR/30/8/5.
 Window length & breadth = 2 in. x 1 1/2 in.
 Strip width = 1/4 in.; Build-up = 1/4 in.
 Length of flux path = 6.34 in.; Net Area = 0.178 in.²
 Primary: 2 x 360 turns of 23 s.w.g. enamelled copper wire.
 D.C. resistance = 1.45 ohms + 2.45 ohms.
 Secondary (for 10 ohms load): 180 turns of 20 s.w.g. enamelled copper wire.
 D.C. resistance = 0.57 ohms. Shunt inductance > 0.5H.

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FEDERAL, QSL, and DIVISIONAL NOTES

FEDERAL

CHANGE OF FEDERAL TRAFFIC OFFICER

After some years of exemplary effort as Federal Traffic Officer, Doug Paine (VK3FH) has found it necessary to resign from the position.

The splendid manner in which the traffic net maintained its schedules and the high standard of message handling can be attributed to the enthusiasm of VK3FH.

For the present Gordon Weynton (VK3XU) will be controlling the net, but it is expected that Reg Jepson (VK3JI) will be taking over at the end of the month. With these experienced "brass pounders" at the Federal end the net will run as smoothly as ever.

FEDERAL QSL BUREAU

The R.A.F. Amateur Radio Club on Labuan Island, Br. North Borneo, desire to make known the fact that they are in operational existence on 14 Mc. c.w. and seek VK contacts. Several R.A.A.F. men serving on the island are club members; their C.O. has the call ZC5VN and is active. Two R.A.F. members, ZC5GL and ZC5JM, are also active on 14 Mc. c.w. and their QSLs have been sighted. The members appear to use individual call signs when operating the club's 80w. tx. Rx is a HRO. Operating times are during the evening local time.

Many cards dating back to 1948 have been returned from Pakistan. The only endorsement thereon is "returned." The bulk of the cards are for AP4A and AP5TH.

The Richmond Amateur Radio Club (Virginia, U.S.A.) announces the availability of an attractive certificate to be known as VA-JF. It is being offered in connection with the 1957 Jamestown festival. The year long festival is expected to attract many tourists and the many splendid new buildings with their exhibitions will be open for years to come. The festival is scheduled to open during April, 1957, at Jamestown, Virginia, to commemorate the 350th anniversary of the first permanent English settlement in America in 1607. The requirements for this award are the submission of cards proving 25 (twenty-five) two-way contacts with different stations in Virginia during the period Jan. 1, 1957, to December 31, 1957. C.w., phone, or a combination of both are acceptable and stickers for additional 25 contacts at a time, up to 125, will be issued. Claims for the award, accompanied by the QSLs, are to be sent to Richmond Amateur Radio Club, Box 1935, Richmond 16, Virginia, U.S.A. QSLs and certificate will be returned to the claimants. No mention is made of any I.R.C. being necessary.

—Ray Jones, VK3RJ, Federal QSL Manager.

NEW SOUTH WALES

By the time you read these notes, history will have been made in the New South Wales Division. Thanks to the generous donations of over 200 of our members and the "hard labour" and unstinted efforts of helpers too numerous to mention, the building of the home for VK2WI will be complete. This modern brick structure, situated in an ideal, elevated location, overlooking most of the city and commanding views to the famous Blue Mountains to the west, is a fitting memorial to the efforts of all past workers for this Division, and something of which we can all feel proud. One of our earliest objectives has been achieved. Let us not lose sight of the fact that we have another project—club rooms and a central meeting place for members. Many ideas and a lot of effort have gone into this too. May we see this dream also come true in the not-to-far distant future.

Another Divisional Hamfest has come and gone and a full report will appear in the next issue of "A.R."

At the December meeting there was a good roll-up to hear talks by Robbie 2US, Dave 2IJ and Greg 2ANP. This trio, equipped with slides and samples of gear from other parts of the world, kept the meeting well entertained. Much interest was shown in a G86 mobile receiver which Dave brought back from the States—hope you managed to take it home again, Dave. The meeting concluded with coffee and biscuits to a general background of Christmas greetings.

HUNTER BRANCH

Thirteen members and two visitors attended the December meeting of the Branch at the

University of Technology, Tighes Hill. The visitors were Ken 2PY and Dick Retallick, son of that old stager, Crieff 2XO.

Due to the fact that the University was in recess and equipment was having its annual overhaul, no projector could be obtained to show the films which had been procured for the meeting. An auction of surplus gear brought along by members was held, Ken 2PY being conscripted as auctioneer. The lack of bids and small sales made were no reflection, however, on Ken's ability as an auctioneer. The meeting concluded with a rag chew and enabled John 2XQ to show members a transistorised rx of pocket size, but ample audio, which he had brought along.

Ron 2ASJ hasn't been on much of late but did follow the Sydney-Hobart Yacht Race on the yacht frequency; Ron also reports receiving cards from the trip to Anna Bay in 1953. Peter Alexander, formerly VK2PA, well known to Hunter Branch members, is now in VR land with the call sign VR2DA. Joe 2ANL has been bitten with the bug again but will be mostly active on 10 mx. Frank 2AUI and Varley 2SF heard QSOing across town at 3 a.m. in the morning; they probably suffer from insomnia. Bob 2AQR, from "Westy," active on 40 mx.

There was no January meeting, the next meeting of the Hunter Branch will be held on Friday, 6th February, at the usual location.

UPPER HUNTER GROUP

Well chaps here we are in the New Year 1957 and regret to say that this is the first time I have really been stumped for news of your activity. For a New Year Resolution suggest that you all help make the monthly news interesting, for your scribe cannot write about nothing. Can only guess that the festive season has taken its toll, hi! A note of interest is that ZL3CU reports that t.v. channel 2 is being regularly received in ZL and t.v. receivers are being constructed. The two metre band really became unstuck for the V.h.f. Group's Xmas Scramble—five stations being worked by 2ANU, 10 stations being heard in all. No news from Geoff 2VU for nearly two months now, what is it Geoff, t.v.? Nev 2OS busy helping the local broadcast station move to new premises. Nothing heard of Tas 2GV or Les 2ZCB. Well chaps these notes depend on you, so please help out with some news.—2ANU.

COALFIELDS AND LAKES

Geoff 2VU of Singleton and Ken 2ANU, of Muswellbrook are two of the Hunter Valley's regulars, mostly using v.h.f. bands. From Geoff I understand they are receiving Sydney t.v. at Singleton under some conditions. Nev 2OS, while busy at Muswellbrook b.c. station, would not take much talking to become active again. I don't hear the Woy Woy boys much here, but Major 2RU of Gosford is fairly regular on most bands. From Woyong way Doug 2ASA is only one heard. Bob 2KF of Kurri Kurri is only one active from that area; how's the W8JK beam going? Was talking to Jack 2KQ in person at Toronto; he is active, but time limited. 2AHT, also at Toronto, is DXing and has a good location with a really good antenna set up, those masts 70 odd feet high are quite imposing. 2YL only active station at present from Cessnock and working most bands.

VICTORIA

Congratulations to the following: Firstly to David 3ADW, Federal Councillor and Victorian Divisional Councillor, and his XYL Judy on the birth of their first harmonic, a son. Secondly to Alan Elliott (ex-3ZBE) on having passed the required Morse code test for the full licence; Alan's new call sign is 3AEL. And thirdly to George Robertson on having passed the theory examinations. George got his c.w. about 12 months ago, c.w. was never any trouble to him, 30 words a minute is just a nice comfortable speed to George. His call sign is 3WJ and he hopes to be on the air shortly. George was a previous student of the Institute's A.O.C.P. classes and also, during his time as an Associate member of the Institute has been a very active working member. He has been fulfilling the job of membership secretary for some time past.

Of interest to Amateurs in VK and transmitter hunters in particular will be the following extracts from a letter received from Ian 3ZAM, who is at present spending two years in England doing an electronics course. I quote:

"I had a lot of fun when I joined a tx hunt party, the hunt was on 160 mx (a band not available in VK). We hid the tx gear in a dip in a bank of a small creek, over which grew a hedge. We set up the antenna along the hedge and retired to our hollow pulling some grass over the gear. Although located 10 miles from the starting point, it was only an hour after our first transmission that two figures dashed across the sky-line on the other side of the hedge and creek; however, we kept quiet and they went past. Two or three minutes later a couple of other cars came racing along our side and just about stood on us. Shortly after, the first two came back looking more closely and eventually spotted us and so the others came along too, five parties in all, within one and a half hours of our going on the air. When transmitting as G3ATZ, I found I tended to give VK instead of G unless I concentrated on what I was saying."

The next round of the Bi-Monthly All Band Scramble will be held on Monday, 4th February, between the hours of 2000 to 2200 E.A.S.T. An attractive certificate will be awarded to the winner of each section. For full details re rules, etc., refer to copy of "A.R." for Sept., 1955, page 12.

The next general meeting of the VK3 Division will be held on Wednesday, February 6, at 8 p.m. at the Radio School of the Royal Melbourne Technical College. The programme will include a short picture programme to be followed by a general discussion on W.I.A. policy, etc. The March 6 general meeting will take the form of a tour of inspection of the radio and television section of the Royal Melbourne Technical College with the possibility of a t.v. lecture also.

SOUTH WESTERN ZONE

Well now that we are over the festive period let's hope the zone wakes up and becomes a little more active because it certainly hasn't been too good lately. Neil 3HG comes on at 10 a.m. each Sunday morning for the hook-up but finishes up talking to himself, so what about it chaps, there must be plenty who can come on and make it worth while. Fred 3ALG, John 3ARJ and Bill 3BU have been on the last couple of Sundays but no one else. How about letting us know what date the Convention is, as it is in Geelong about March or April? 3AEH was heard on through Xmas working portable from Gippsland, a good signal in Warrnambool, Ted. 3AGD not heard much these days but I happened to see XJ530, a station wagon, parked near the foreshore of Warrnambool, have you forgotten where we live, John? Bert 7BI, who used to be in our zone as 3BI in Ballarat, wishes all his old zone mates every best wish for 1957. Better get the filament transformer replaced Bert, very nice signal here in Warrnambool, 5-9 plus.

3BU has been receiving the t.v. very well, so I hear. Harry 3XT is still busy finishing off the caravan, hence the silence from this end. We now have another new chap in Warrnambool, Gordon 3AGE (from Colac), well we wish you every happiness to be back in your old home town and what about a little r.f. on Sunday mornings on the hook-ups at 10 a.m. on 7050 Kc.

QUEENSLAND

We haven't much to report this month except that the Brisbane boys are settling down again after the festive season and are eagerly awaiting the peak of conditions, expected in February or March. The bands have been going crazy lately and we have been hearing stuff we haven't heard for years. Now and again there are blackouts and nothing is heard of good DX for days and then it's back, better than before.

There is no doubt about these "true blue" DX men; recently a report appeared in the press that the R.A.F. was going to re-build an airfield in the Maldives Islands, 500 miles from Ceylon, as an alternative to airfields the R.A.F. was going to lose in Ceylon. A few of the keen DX men in Brisbane developed palpitations of the heart and severe cases of drooling at the thought of a potential ham in that rare country.

A point of interest to the boys still requiring zone 23 for the W.A.Z. certificate. There is a station active in Tannu Tuva on 15 metres who is in zone 23 and does QSL.

Council would like to say "congrats." to the successful candidates in the last published results of A.O.C.P. and L.A.O.C.P., especially

the four chaps who were associates when they sat for it. Welcome to the ranks of full members and congratulations, Cress Everdell, Ron Grandison, Graham Pooley and Cliff Jenkins. The next examination should coincide with the closing stages of Stan Armstrong's No. 1 course and we hope that the boys who sit will all "make the grade."

After the recent visit to VK of W6AL we are now expecting a visit from W7QFY, Bill Bentson, of Portland, Oregon, whose XYL is out here in Brisbane visiting her folks. Bill is still in the U.S. Army and is coming here by a round about route. He has 90 days' leave and will fly on Military aircraft by way of Hawaii, Wake Island, Guam, the Philippines, Singapore, Darwin and finally Brisbane. He will be on a U.S. Air Force "kite" to Manilla, on an R.A.F. one to Singapore, and R.A.A.F. from there to Brisbane. Pity he can't operate "airborne mobile." He will possibly be in Brisbane for a general meeting so the boys will be able to meet him.

Talking about going overseas, a small note in the sidebar section of a recent "QST" said: "Ramsay, VK4AB, will be visiting the U.S. early in 1957." Half your luck, Ramsay, wish we were going with you.

We have been informed by the Junior Chamber of Commerce that the special QSLs for the Hobbies Show in the City Hall basement in November and December last year are almost ready. So all the stations which contacted VK4WI and listeners who sent in reports will soon be getting one of these special cards. They will be something special and will be a good advertisement for the Brisbane J.C.'s especially in the overseas countries we contacted. Peter Evans, the President of the Brisbane branch of the J.C., said that if the Ham exhibit didn't touch a spark off inside some potential delinquents, it did interest quite a few of the members of the Junior Chamber in Ham Radio especially when they heard that there are a few J.C. nets in the States. They are interested in getting a club station and you won't have much trouble in guessing what call sign they would like—the only trouble is whether or not it's available. They want us to put on an exhibit at the next Hobby Show which will be in the main auditorium of the City Hall.

Council has tried to line up some good lectures for general meetings for 1957 and we may have some surprises for you. So don't slip up on meetings through the year.

SOUTH AUSTRALIA

The December get-together of the Division took the usual Christmas form and was a fine example of fellowship. There were between 80 to 90 present, including a lot of "old timers" who turned up to meet the younger members, all of which helped to make it a jolly evening where seriousness was laid aside and a good time had by all. The old timers were busy telling about those that "got away," whilst the newer members and particularly the associates who are attending the classes this year were thinking about those they will work.

The President wasn't allowed to conduct the formal side with any degree of continuity for some die-hards anticipated his every announcement and in quick succession—minutes taken as read—business be suspended—and the like, had the agenda quickly disposed to the past tense. The confirmation of new members (1 full and 9 associates), agenda items for forthcoming conference, emergency fire service proposals being the only items to run the full course.

QSL cards were distributed after some films were shown and then the tables were set up and the food put on show and to use—the quantity there made it necessary to get down to serious eating quickly and even then there was a lot to spare. The dispensing of "cocky" was done by Jim 5FO in such a persuasive method that after a while everyone was afraid to even look in his direction for fear another would be thrust upon one. Hot drinks were handed out by Doc 5MD, Warwick 5PS and Jim Parish who with towels over arms made very attentive and attractive waitresses.

The usual rowdy element were seen (and heard), namely Athol 5LQ, Joe 5JO, Les 5AX, Lionel 5LB, Jack 5LN, whilst in another corner the quieter more sedate types like Luke 5LL were in evidence. All in all another jolly fine event that concluded by 11.45 p.m. with the more domestic council members and helpers "washing up."

One face not present was Jim 5JK, who unfortunately was in hospital; hope you are out and about now Jim and that your spell there had the desired effect.

For you more advanced types who may be contemplating the erection of beams and towers

please take the advice of a contributor to "QST" who advises consulting the Bible, Luke 14:28. Carl 5SS is continuing his slow morse on Wednesdays 2000-2100 hours and Sundays 1830-2030 hours on 288 Mc. This is a great benefit to the many studying at present—thanks Carl, the boys appreciate your work. Austin 5WO heard recently bashing W land on 10 and getting f.b. reports; heard a queue form up one morning to answer his CQ. Jack 5LR heard testing a new unit with 6146 final and on temporary modulator (10 watts) and was doing a good job, nice to hear you on the d.c. bands Jack, keep up the good work.

The Blackwood gang, Jack 5LR, Reg 5RR and Chas 5ON, must have a good location for they each speak of juicy DX as well as being able to put out splendid signals into city and near country areas. Chas' long wire out was followed by the term b.c.l.—for shame.

NORTH WESTERN

Wal 5DF advises the re-building of his tx has reached the drawing-board stage (flash, don't you think?) and is to be par. 807s 100w. c.w. 70w. phone, until the modulator is re-built. Alf Mack (associate) is helping Wal (full member) to brush up his morse! Pat 5LT chasing rare DX on 20 and was so hot on trail of some that the 807s p.p. final got red hot and fused all the elements, and is now digging into boxes (his) to locate another pair. Geo. 5GA should soon be back on the air. Brian 5CA paid Lincoln a visit and contacted Wal at the "salt mine," but didn't get to the shack, due to hurried departure—what chased you, Brian?

Gordon 5KU has been getting about (yes, he is in N.W. section this time), being portable up amongst our dark ancestors hunting grounds beyond Ceduna on the famous "Hexpedition." He has had a good number of contacts using the portable gear on 7 Mc., which created much local interest. Conditions being that from 9 to 11 a.m., 7 Mc. was wide open to Adelaide at good strength and then again after 6 p.m. Ceduna is apparently a very fine place for reception where Gordon heard people who he had never worked from home QTH.

SOUTH EAST

Sorry about last month chaps, but your notes arrived late. John 5JA has made a name for himself by taking an interest in t.v. and picking up programmes from Melbourne at Mt. Gambier, then to add fuel to the fire there are other t.v. rx's operating down there so that Rob 5RG's visit to the meeting and talk on t.v. was most opportune. Both these one-eyed monsters are near Col 5CJ, and they are not owned by either Claude 5CH or Leo 5ZAG who have been "accused" of owning same as disclosed by their 144 Mc. beams. Such fame, Stewart has not been over active for quite a while, business reasons, but is back on the air again—if less frequently—and heard working DX. Erg 5KU similarly not over active, but will make up lee-way after the holiday fever leaves him.

WESTERN AUSTRALIA

At the Divisional meeting held on Dec. 18 there was a good attendance of city and country members and visitors included Messrs. Grey and Trigwell, from the Radio Branch. Mr. Bert Grey held the original 630 call, now held by Rolo Everingham, who was present. Other infrequent visitors noticed were GCP and GTX. Apologies were received from Mr. Gregg, 6RC and 6FT. We hope Fred will soon be fit again.

A message was read from 4DD (ex-6DD), of D.C.A. expressing Xmas and New Year Greetings. The President presented the trophy to Tom 6TH, of Brunswick Junction, and complimented him on being the first country member to win the 40 Mx Scramble. A new member, Ralph Hallimore, was elected. The meeting concluded with the playing back of a tape which was sent over from South Africa by three ex-VK6 members now resident there, viz., Neville Dawson Z5BND (ex-VK6ND), Len Reding Z5BLR (ex-VK6LR), and Jack Selres Z5SAD (ex-VK6JS). The tape held greeting messages from the three, and also from the Radio Superintendent at Johannesburg to Amateurs in VK6, and recordings of the following stations heard in ZS over the air—VKs 6FL, 6MK, 6LL, 6LU and 6BS.

Congratulations to Dave 6WT on coming top in t.v. classes for the second successive year. Also to Tom Long, of Bumbury, 6ZAL, who has passed the A.O.C.P. for a full call. We understand 6FD and 6JG helped him with morse practice in true ham tradition.

W2AFF, who recently did a round of VK6 ham shacks, has been worked on 20 mx lately and was putting in a good signal. Recent

visitors to VK6 were Z22KQ, VK5HN and XYL, and VK4PN. We trust they had a happy time over here. Also W6MTQ. 6VK is putting out an f.b. s.s.b. signal now. 6AG and 6EJ have re-built their modulators with good results. 6LA, Port Hedland, and 6DG, of Trough-ton Island, can be heard on 20 mx from the northern parts of W.A.—the latter also works 15 mx and is the most northerly Amateur active in VK6, and is very isolated, only getting one or two mails per year.

TASMANIA

NORTH WESTERN ZONE

The New Year will be well under way by the time these notes are printed, and thoughts of Christmas and New Year festivities will be a memory, although we hope that any resolutions made for 1957 will still be brand new, and that much projects as re-building the old rig, helping the XYL in the house, erecting that new beam tower, assisting the XYL in the garden, etc., are being pushed forward with a great surge of will-power. Stick to it, chaps! Onward and upward!

Although we on the N.W. are not exactly in the centre of t.v. primary service area, or even on the fringe, remarkable results are being reported in the zone, although, of course, pictures and sound are intermittent. Sid 75F has been receiving sound on the 186 Mc. band, an improvement was noted in signal strength when a new 6 element yagi was erected, in place of a 4 element of lighter construction.

Our President, Jim 7JO, has also been having success on the 186 Mc. band. Jim was greatly intrigued by the "Horse Opera" showing one night. You'll have to pay licence soon Jim, if the signals are too consistent.

Associate Max Ives is into battle with his A.O.C.P. course and also has a band switched rx on the way. Roy 7RN conspicuous still by his absent signal. I'm not sure if Roy is chasing fish or gazing intently at his new modulation checker as he assembles his new rig piece by piece. Let's hear something, Roy.

Have very little news of the associates this month, but as the year gets under way, hope to get around again and contact them personally. Don't forget the Field Day, on the first Sunday in February, chaps. Jim tells me he has a good spot picked out for us.

HAMADS

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Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

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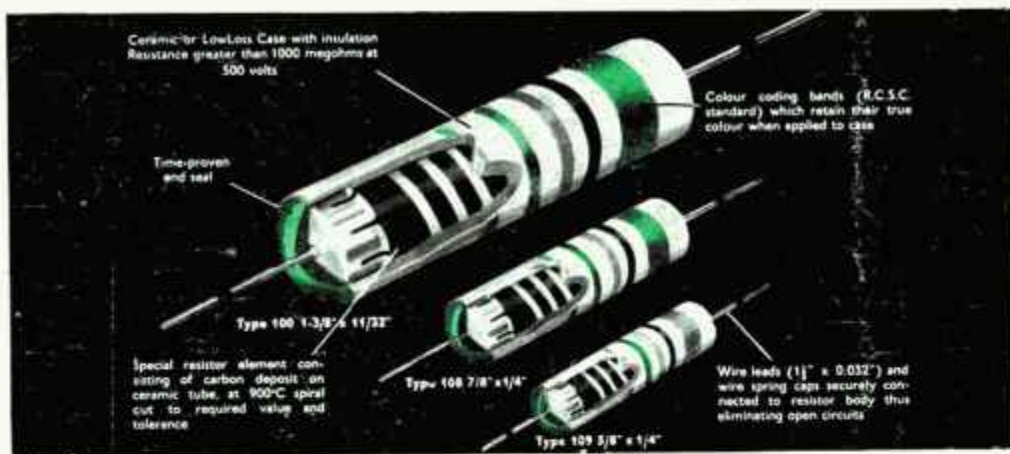
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In the standardised system of colour coding the colours are read from the end of the resistor adjacent to the colour bands. The third colour always indicates the number of "noughts" following the first two numerals. The colour code is as follows:—

Black	0	Green	5
Brown	1	Blue	6
Red	2	Violet	7
Orange	3	Grey	8
Yellow	4	White	9

If a fourth band is added on resistors, it indicates the tolerance according to the following code:—

- Gold, ± 5% tolerance;
- Silver, ± 10% tolerance.

If the fourth metallic indication is absent, the tolerance is assumed to be 20%.

Examples:

1. Red, Violet, Orange, Silver—27,000 ohms ± 10%.
2. Yellow, Violet, Black, Gold—47 ohms ± 5%.
3. Blue, Grey, Brown—680 ohms ± 20%.

INTERNATIONAL PREFERRED VALUES (10% Tolerance)

The following table lists the standard resistor values in ohms, comprising the 10% Tolerance Range. Each resistor covers values within ± 10% of its nominal value.

Pre. V.	Res. Range	Pref. Val.	Res. Range	Pref. Value	Res. Range	Pref. Value	Res. Range
10	10-11	330	297-363	10,000	9,000-11,000	330,000	297,000-363,000
11	11-13	200	351-429	12,000	10,800-13,200	390,000	351,000-429,000
12	14-16	470	423-517	15,000	13,500-16,500	470,000	423,000-517,000
15	17-19	560	504-616	18,000	16,200-19,800	560,000	504,000-616,000
22	20-24	680	612-748	22,000	19,800-24,200	680,000	612,000-748,000
25	25-30	820	738-902	27,000	24,300-29,700	820,000	738,000-902,000
33	30-36	1,000	900-1,100	33,000	29,700-36,300	1,000,000	900,000-1,100,000
39	36-42	1,200	1,080-1,320	39,000	35,100-42,900	1,200,000	1,080,000-1,320,000
43	43-51	1,500	1,350-1,650	43,000	38,700-47,700	1,500,000	1,350,000-1,650,000
50	52-61	1,800	1,620-1,980	48,000	43,200-52,800	1,800,000	1,620,000-1,980,000
62	62-74	2,200	1,980-2,420	62,000	55,800-70,200	2,200,000	1,980,000-2,420,000
82	74-90	2,700	2,430-2,970	82,000	73,800-90,200	2,700,000	2,430,000-2,970,000
100	90-110	3,300	2,970-3,630	100,000	90,000-110,000	3,300,000	2,970,000-3,630,000
150	108-132	3,900	3,510-4,290	150,000	135,000-165,000	3,900,000	3,510,000-4,290,000
200	135-165	4,700	4,230-5,170	200,000	180,000-220,000	4,700,000	4,230,000-5,170,000
250	162-198	5,600	5,040-6,160	250,000	225,000-275,000	5,600,000	5,040,000-6,160,000
330	198-242	6,800	6,120-7,480	330,000	297,000-363,000	6,800,000	6,120,000-7,480,000
470	243-297	8,200	7,380-9,020	470,000	423,000-517,000	8,200,000	7,380,000-9,020,000

INTERNATIONAL PREFERRED VALUES (20% Tolerance)

Pre. V.	Res. Range	Pref. Val.	Res. Range	Pref. Value	Res. Range	Pref. Value	Res. Range
10	10-12	330	264-396	10,000	8,000-12,000	100,000	376,000-564,000
15	12-18	470	376-564	15,000	12,000-18,000	480,000	544,000-816,000
22	18-26	680	544-820	22,000	17,600-26,400	680,000	680,000-1,200,000
33	27-39	1,000	800-1,200	33,000	26,400-39,600	1,000,000	1,000,000-1,800,000
47	38-56	1,500	1,200-1,800	47,000	37,600-56,400	1,500,000	1,500,000-2,700,000
68	55-81	2,200	1,760-2,640	68,000	54,400-81,600	2,200,000	2,200,000-4,000,000
100	80-120	3,300	2,640-3,960	100,000	80,000-120,000	3,300,000	3,300,000-6,000,000
150	120-180	4,700	3,760-5,640	150,000	120,000-180,000	4,700,000	4,700,000-8,700,000
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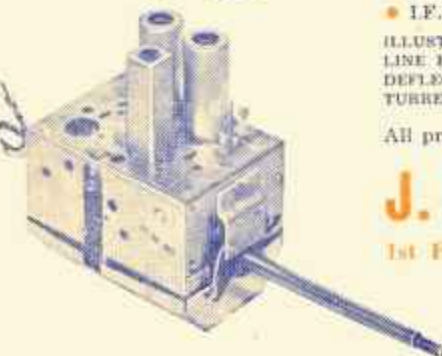
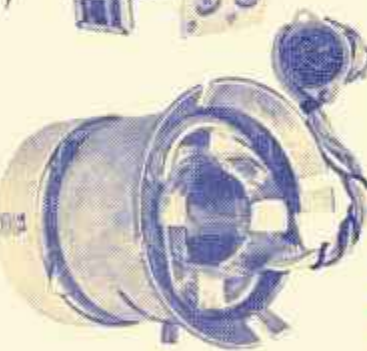
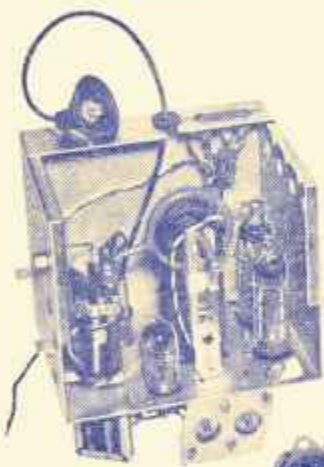
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EDITORIAL

FEDERAL CONVENTION

The federal administration of the Wireless Institute of Australia is one of the most important and the least understood parts of Institute affairs. It is important because upon it relies the administration of the Divisions of the Institute in matters which affect Amateur Radio, nationally and internationally, as distinct from purely domestic problems; it is least understood because the implementation of Federal Policy remains with a few in one State and these individuals' real ability to get things done is hampered by a Constitution which limits too greatly the powers of the federal administration organisation—the Federal Executive.

The Federal Constitution until 1953 provided for an Annual meeting of the Federal Council, the said Federal Council to consist of a representative (the Federal Councillor) from each Division of the Institute, who would sit in Convention—presided over, usually, but not necessarily, by the President of the Federal Executive—and fight, rightly or wrongly, for the majority decision of the members of his Division on any item on the Agenda placed before the Federal Council for its deliberation and resolution.

Due to various economic reasons the Federal Council holding office in 1953, in its wisdom, voted for the introduction of an amendment to the Federal Constitution wherein the meeting of the Federal Council, to discuss and resolve the problems of W.I.A. politics, would take place every two years instead of annually and that the expenditure thus saved from Divisional finance would be allocated to a fund to finance a dele-

gate to the next Telecommunications Conference.

By a later agreement of the Federal Council two further years have been added to the two-year lapse and it is now four years since the Council last met. There is no substitute for the Convention table to keep alive the most important part of Institute affairs—the federal administration. It was only by virtue of the personal meeting of delegates in the past that some of the toughest problems besetting the Federal Council were satisfactorily resolved. All the writing in the world can never replace the personal contact between Divisions of this Institute. There are those who, for personal reasons, will say that Federal Conventions are a waste of time and money, but these same persons either do little to further the Amateur movement within or without the Institute, or they just plain "don't understand and don't want to understand" how the federal administration of the W.I.A. is meant to function.

There is a Federal Convention in Melbourne this Easter from 19th April to 22nd April. If there is not a large or important agenda to discuss it can only be surmised that Amateurs everywhere are perfectly satisfied with their lot in Australia, perfectly satisfied with what the Institute is doing for them and have no complaints about anything to do with their hobby. But is this so? If it isn't, you can do something about it today through your Division. You have the power to see that your Division raises and resolves your problems for you in the right places in the right way.

FEDERAL EXECUTIVE.

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Notes on the Frequency Stabilisation of Transistor Oscillators

BY HANS J. ALBRECHT,* VK3AHH

THESE is now no doubt that transistors can be used in all types of electronic equipment. It must, however, be realised that transistor electronics are somewhat different to vacuum-tube technique. Transistor-minded engineers as well as Amateurs interested in this new electronic art have to become familiar with unusual operating conditions, both theoretically and practically. The theory of oscillation and oscillators in general have always justified a separate chapter in any electronic text book. Even more so, the transistor oscillator warrants a detailed discussion. Just as vacuum-tube oscillators, transistor oscillators have to be designed properly, in order to be of value for communication work. In fact, for the theory of oscillation it does not matter whether a tube or a transistor forms the maintaining circuit which maintains the oscillations of the oscillating circuit. Absolute frequency stability is one of the major requirements with oscillators designed for communication and research work.

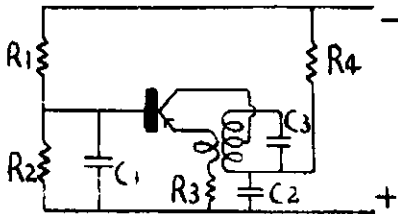


Fig. 1.

In general, the oscillating frequency is determined by the components of the oscillating circuit. The maintaining circuit, however, may cause a frequency shift if it contains some reactive components. No maintaining circuit is entirely free from reactance, but the effect may be more pronounced if a transistor is used. As is well known, a change of the operating point on the characteristics of the tube or the transistor may cause a change in the actual resonant frequency of the oscillator. Also, a change in ambient temperature is known to have an effect upon parameters which are temperature-sensitive, thereby initiating a frequency instability.

Whereas transistor oscillators have the advantages of economy, small size, negligible weight, and general indestructibility, their operating frequencies are liable to change considerably with changes in temperature or operating conditions. Nevertheless, the disadvantage can be remedied by correct design with optimum compensation.

It must be mentioned that, similar to vacuum-tube practice, frequency stabilisation is no problem if a crystal oscillator is used. For communication work, this oscillator is disadvantageous

because of the frequency limitation. In addition, a crystal oscillator cannot be regarded as indestructible for the crystal may be damaged if the oscillator, or, for instance, the pocket transmitter, is accidentally dropped.

The frequency stabilisation of transistorised v.f.o.'s is a far more difficult problem. Some general stabilisation can be achieved by a resistance network. If one wishes to apply a stability factor to it, similar to the amplifier-design procedure discussed by the author in a recent article in this journal⁽¹⁾, values of one to two should be desirable. Fig. 1 depicts such an oscillator circuit which seems to be very popular in commercial broadcast sets.

According to (2), a low L/C ratio improves the frequency stability, due to a lower harmonic content. With another reference to vacuum-tube practice⁽³⁾, an additional reactance of a certain value may be connected in series with one electrode, in audio and low-r.f. oscillators, and some stabilisation can be achieved.

The amount of stabilisation obtainable with the means described thus far is not sufficient for most h.f. applications. As a result of numerous experiments and careful analysis, the author concludes that the temperature sensitivity may be attacked from a different angle. A system has been developed to eliminate temperature effects upon the frequency of transistor oscillators and other tuned-circuit transistor equipment by using temperature-sensitive components in the oscillating circuit. This investigation was largely based on the author's research papers on the scientific usage of circuit components of high temperature coefficients. To an extent, his article in this journal on the temperature compensation of v.f.o.'s⁽⁴⁾ can also be described as a basis. This temperature compensation of transistor equipment is effected by designing and selecting the inductive and capacitive circuit components such that an overall temperature-sensitivity is eliminated. It can be established that the overall temperature coefficient of the transistor-oscillator frequency, per degree Centigrade, here represented by "N", is a function of the L/C ratio, and of transistor parameters, here represented by "A":

$$N = g(L/C, A) = \Delta f/f \dots (1)$$

where $\Delta f/f$ denotes the relative change in frequency per degree Centigrade.

In this relation, "A" is supposed to be representative of all effects caused by the transistor itself, including the operating frequency with respect to the cut-off frequency of the transistor concerned. Assuming that a mathematical analysis of the above function would be beyond the scope of these notes, the author wishes to restrict himself to a description of the design of a compensated transistor oscillator.

To determine the temperature coefficient to be used in the inductance or capacitance of the tuned circuit, the following formula is useful for approximate values:

$$TK = \frac{1}{(1 - N)^2} - 1 \dots (2)$$

where TK = temperature coefficient of circuit component.

A proper way of determining N experimentally would be to build a small transistor oscillator and inserting it in a temperature-insulated container. The temperature inside the container, as close as possible to the transistor, can be measured by normal means (mercury or electrical thermometer) and may be varied by means of a small electrical heating. Care should be taken to ensure that the maximum temperature for the transistor concerned is not exceeded. Thus it may be necessary to place the oscillator inside a refrigerator in order to obtain a sufficiently large variation of temperature. A difference of ten degrees Centigrade (about eighteen degrees Fahrenheit) should be adequate for most purposes. "N" can then be found with respect to temperature. If only approximate information is required, which is sufficient for many applications, the ambient temperature of the transistor oscillator may simply be altered by exposing it to hot air produced by a hair-drying machine.

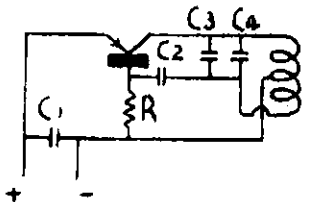


Fig. 2.

Knowing N, TK can be found by substituting in eq. (2). Inductance and capacitance can be used for temperature compensation, as both may have an adequate temperature coefficient. However, if a certain amount of fixed capacitance is not objectionable in the circuit design, and for v.f.o.'s with bandspreading it is even desirable, compensation by a temperature-sensitive capacitance is perhaps more popular. In any case, there is no fundamental difference between the two methods and compensation by a temperature-sensitive inductance can be done on very similar lines.

With capacitance compensation we have this well known formula:

$$TK_c C_t = TK_m C_m + TK_n C_n \text{ etc.} \dots (3)$$

where C_t = total capacitance = $(C_m + C_n)$.

TK_c = overall temperature coefficient of capacitance combination.

(Continued on Page 3)

* 10 Belgravia Ave., Box Hill North, E.12, Vic.

A Low-Power Transmitter or Exciter for "2"

BY K. B. MITCHELHILL,* VK2ANU

INTRIGUED with the difficulties that some have had in operating the 2E26 as a straight amplifier on 144 Mc., the author decided to try the tube out for himself. The main difficulties were drive and neutralisation, and the little rig here described is the result, constructed on a 7" x 5" x 2" chassis. It may be just the thing for those interested in something for two-metre mobile or to drive something bigger.

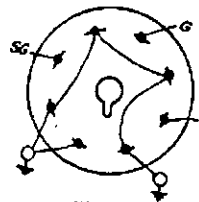


Fig. 1. 2E26 socket wiring. A micanoal socket from I.F.F. unit is ideal.

A parallel 12AU7 and 12AT7 were tried in their turn with conventional circuits to drive the 2E26, but in each case the mills were lacking. The only other tube on hand was a 6BW6, so it was decided to give it a go. This tube has been used by mobile services up to 80 Mc. and on looking up the data found that it could be used as high as 150 Mc. as a frequency multiplier, but have yet to see a circuit using it so high in practice.

Using the 6BW6 as shown, with the so-called series tuned circuit, and coupling it to the 2E26 the drive across the 15,000 ohms grid resistor was 3 to 3.5 Ma. with the supply voltage as shown. The series tuned circuit closely resembles the pi-coupler except for the fact that the high voltage is fed to its centre through an r.f.c. It was found to be superior to other methods of coupling.

The main difficulty encountered with the 2E26 is neutralisation, and after a little experimenting, this was traced to the method of wiring the 2E26 socket. If it is wired as shown it can be oper-

ated without the series screen r.f. choke or the 3-30 pF. trimmer sometimes required. A shield was also provided between the 6BW6 and 2E26.

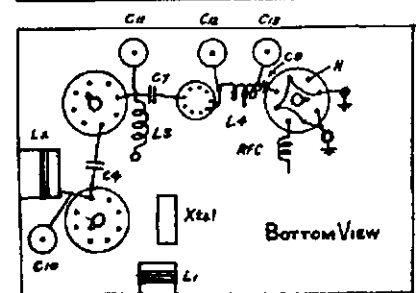
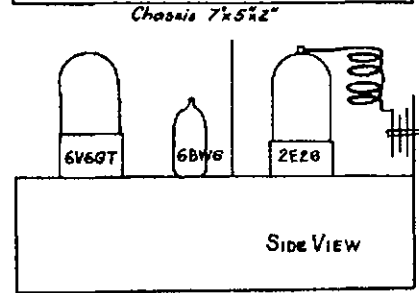
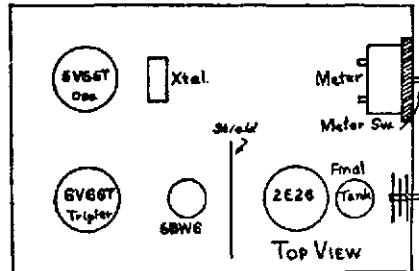


Fig. 3.—General Layout. The bottom view shows the layout of coils and coupling condensers, also orientation of sockets.

* "Inglewood," Muscle Creek, Muswellbrook, N.S.W.

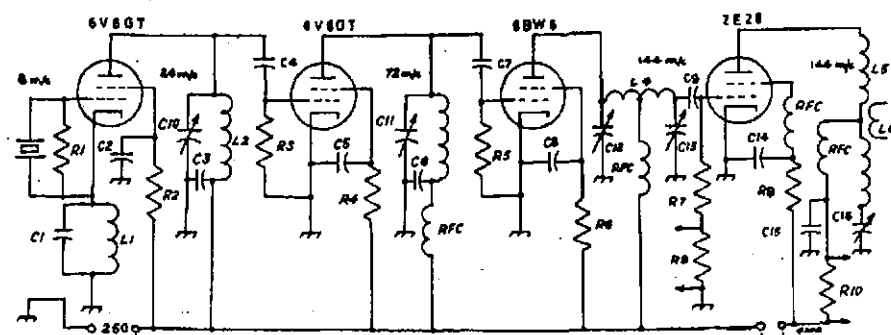


Fig. 2.—Schematic of Low-Power 2 Metre Rig.

C1—100 pF.
 C2, C3—0.01 uF.
 C4, C7, C8—50 pF.
 C5—0.005 uF.
 C6, C8—0.001 uF.
 C10, C11, C12, C13—3-30 pF. Philips' trimmers.
 C14, C15—500 pF.
 C16—15 pF. variable.
 L1—8 turns No. 22 enamel, close wound on 1 1/2 inch former.
 L2—6 turns No. 18 enamel, close wound on 1 1/2 inch former.
 L3—4 turns No. 18 tinned copper, 3/4 inch diam., spaced one turn.
 L4—5 turns No. 14 enamel, 3/4 inch diam., spaced one turn, centre tapped.
 L5—4 turns No. 12 enamel, 3/4 inch diam., spaced one turn, 1/2 inch gap at centre.
 L6—1 or 2 turn coupling link.
 R1—50,000 ohms.
 R2, R4—25,000 ohms.
 R3—100,000 ohms.
 R5—30,000 ohms.
 R6—10,000 ohms.
 R7—15,000 ohms.
 R8—25,000 ohms.
 R9, R10—Meter shunts.
 R.F.C.'s.—As from I.F.F. Unit.

Series tuning is used in the 2E26 tank circuit and it enabled a coil of reasonable dimensions to be used, output being taken from a one or two turn link at the centre of the coil.

The line-up of the earlier stages of the rig is conventional, consisting of a 6V6GT tri-tet on 8 Mc., tripling to 24 Mc., followed by another 6V6GT tripler to 72 Mc., which delivers approx. 1 1/2 Ma. to the 6BW6 through a 20,000 ohms resistor.

With an all round supply voltage of 250v. the final was loaded to 12.5w. with approx. 2 1/2 Ma. grid drive. So how about it, 2 metre fans?

Constructional Note.—Drill out the head of a small bolt and sweat the Philips' trimmers to same. The condensers can then be bolted direct to the chassis in the positions shown.

FREQUENCY STABILITY OF TRANSISTOR OSCILLATORS

(Continued from Page 2)

For vacuum-tube oscillators (see the 1952 article in this journal) TK, is supposed to have a value between

$$-50 \text{ and } -200 \times 10^{-6} \text{ per degree C.}$$

This allows for the coefficient of coil and stray capacitance. For the compensation of a transistor oscillator, TK, as found by eq. (2), replaces TK, in eq. (3) with a minor adjustment to allow for the temperature coefficient of coil and stray capacitance, as above. C_m and C_s , which represent the main capacitance [in eq. (3)] of the oscillating circuit, permit the complete temperature compensation of resonant frequency variations in a transistor oscillator. Fig. 2 shows a transistor oscillator frequency-stabilised, as described above, by C_s and C_c which replace C_m and C_s in the calculation above. If the L/C ratio is high the necessary temperature coefficient becomes so high that the ordinary type of ceramic condenser, approximately -750×10^{-6} , is inadequate. In such cases, so-called Hi-K and perhaps medium-K condensers may have to be utilised. These capacitors, however, must be selected individually, because of the relatively large factory tolerances in both, capacitance and temperature coefficient. For this purpose, the capacitors should be carefully measured, as mentioned earlier in these notes. Any capacitor with a sudden change in its temperature characteristics has to be rejected.

Summarising, it may be mentioned that the author has successfully used this method of frequency stabilisation for many applications in transistor electronics. Results and performance have been satisfactory from all points of view.

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- (1) H. J. Albrecht, "Design Notes on Transistorised Audio Amplifiers," "A.R.," Jan., 1957.
- (2) H. A. Thomas, "Theory and Design of Valve Oscillators," Chapman & Hall, London, 1951.
- (3) F. B. Llewellyn, "Constant Frequency Oscillators," Proc. I.R.E., 1931.
- (4) H. J. Albrecht, "Simple V.F.O. With Temperature Compensation," "A.R.," Dec., 1953.



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M226

A Transistorised Miniature Transmitter

BY HANS J. ALBRECHT,* VK3AHH

THE introduction of transistors into electronics has already revolutionised equipment of every description. Reduced to real midget size, transistorised apparatus offer unique economy, and power requirements are a mere fraction of what we were used to with ordinary vacuum tubes.

In this article, the author wishes to describe a midget single-stage transmitter he actually designed for scientific applications. It is, however, equally suitable for C.D.E.N. communication work, in which an astonishing interest seems to have been created recently.

Words cannot adequately emphasise the importance of efficient point-to-point communication in cases of C.D. emergencies. Only small, light and reliable equipment will enable C.D. operators to do their duty.

For these reasons, the transmitter, with built-in "power supply", is housed in an ordinary match box. Its weight amounts to 1.75 ounces. Its reliability has been tested thoroughly and was found to be satisfactory in every respect. The operating frequency being in the 3.5 Mc. band, the selection of a

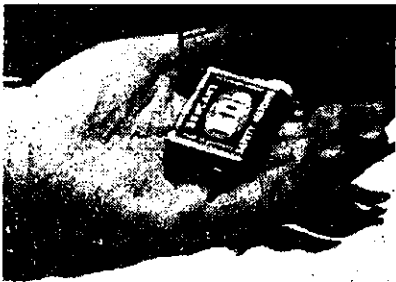


Fig. 1.—Transistor Transmitter in a Match Box.

suitable transistor is one of the more important points in the design. Whereas point-contact transistors have been produced for u.h. frequencies, the more reliable type of transistor, the junction-type, has a lower frequency limit. However, junction-triode transistors with cut-off frequencies in the range of 4 to 7 Mc. have, for some time, been available overseas, and commercial production is indicated for junction transistors with cut-off frequencies above 50 Mc.

For the purpose of the transmitter under discussion, a junction triode OC45 was chosen and has been found to be satisfactory and stable in its operation. It is understood that this type of transistor will become generally available in Australia at the time of publication of this issue. Experiments have also been made with junction triode OC71. Although its cut-off frequency is supposed to be around 300 Kc., selected transistors of this type were capable of oscillation up to frequencies of the order of 1000 Kc. If larger quantities of OC71 were to be

tested, some may show such a property on even higher frequencies.

Of necessity, the number of components employed should be kept at a minimum. On the other hand, absolute stability is a major requirement. A possible choice would be a crystal oscillator, but present-day communication standard and C.D. requirements do not make it desirable to use such an oscillator. Further, crystals may be damaged in active C.D. work, when operators and equipment may be exposed to somewhat unusual conditions. Thus this pocket-size transmitter was designed as specially stabilised LC-oscillator. The author described the relevant methods of stabilisation in his "Notes on Frequency Stabilisation . . ." published elsewhere in this issue.

The photograph in Fig. 1 depicts the complete transmitter in the hand of the operator, while the second photograph shows the inside of the match box. The arrangement is such that the "power supply", consisting of a single pen-light cell (1.5 volts) occupies the left-hand side of the box, while the coil is in the lower part of the right-hand side. Transistor and compensating capacitors fill the rest of the "cabinet." A 50 pF. trimmer is attached to the top (right-hand side). This serves as tuning condenser. The antenna is connected to the hot end of the trimmer.

To determine the overall temperature coefficient N , the first step is to construct a test oscillator with the inductance to be used and a circuit capacitor with zero or low temperature coefficient, assuming that capacitance compensation is desired. Variable air condensers, two in parallel if necessary, are ideal test condensers for this purpose, because their temperature coefficient is negligible. The circuit diagram is the same as that for the actual transmitter, shown in Fig. 3.

As mentioned before, all components must be small. This, in addition to the requirement of a low L/C ratio to simplify the stabilisation, necessitates a relatively small inductance. And, of course, this coil has to be physically

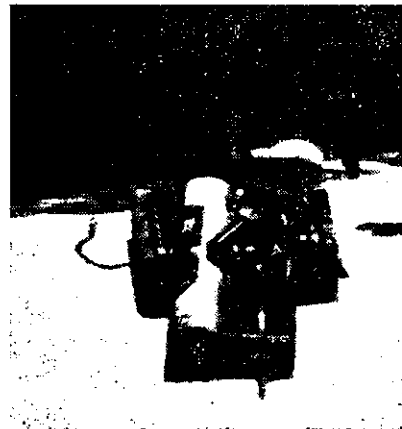


Fig. 2.—The inside of the Match Box.

small as well, to fit it into about a quarter of the space inside the match box (see Fig. 2).

An inductance of about 3.1 microhenrys was found to be a good compromise. It consists of 16 turns (centre-tapped) with a diameter of about 0.65 inches and length of about 0.47 inches, and is wound on a slug-tuned former.

Other values in the circuit are $R = 47,000$ ohms, $C_1 = 0.01$ μ F., and $C_2 = 100$ pF. These components have to be of small size, in order to leave as much room as possible for the compensating capacitors. This requirement is taken care of by a small $\frac{1}{4}$ watt resistor for R and Hi-K disc type for C_1 . The transistor and its socket do not take much space. It may be advisable to construct the oscillator such that the transistor is close to the compensating capacitors to ensure optimum compensation. However, the match box in its entirety can be expected to be subject to the same temperature fluctuations.

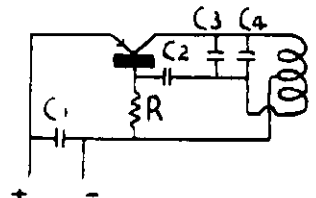


Fig. 3.—Circuit Diagram.

The next step is to make the temperature measurements described in the author's article elsewhere in this issue. With an OC45 transistor in the test oscillator, the frequency variation around 3550 Kc. was found to be 0.6 Kc. per degree Centigrade towards lower frequencies. Thus N is negative and its value is -0.000169 .

Substituting this in the relation

$$TK = \frac{1}{(1 - N)^2} - 1$$

TK is found to be about -338 TK units, indicating that the compensating capacitance has to decrease with increasing temperature. Assuming that the temperature coefficient in the capacitance of the test oscillator was zero, the actual capacitance in the oscillating circuit must have the above temperature coefficient, in order to stabilise the oscillator frequency.

The total capacitance being about 650 pF., and allowing for stray capacitance and trimmer capacitance (at a TK of -500 TK units), the compensating combination is formed by C_3 , at 300 pF. and -750 TK units, and C_4 , a mica condenser combination at 300 pF. and about $+80$ TK units.

The 1.5 volt dry cell being incorporated in the transmitter, provision must be made for two leads to which an external key can be connected. Alternatively, these leads may be utilised as key. Referring to the circuit diagram, the key is simply in series with the positive connection. With the built-in dry cell a power input of 1.65 milli-

(Continued on Page 11)

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ZEPHYR MICROPHONES

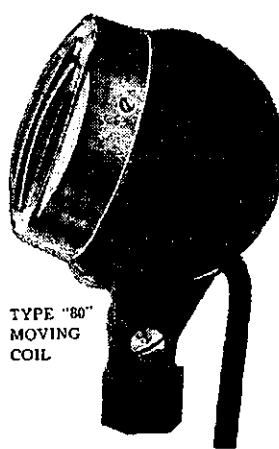


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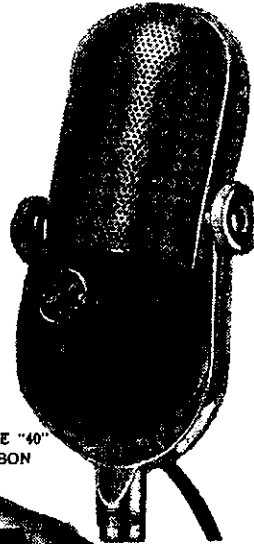


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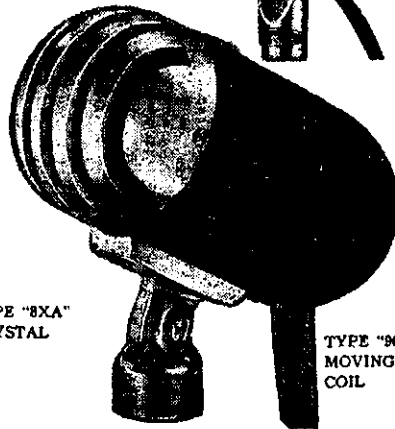


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Civil Defence Emergency Network

The relentless southern advance of the red tide is slowly awakening officialdom and the public alike to the necessity for preparing for all eventualities. The C.D.E.N. is designed to play its part when that time comes, however in the meantime there are many other forms of national emergency in which members of the C.D.E.N. can render valuable service.

Floods, bush fires and other natural disasters each year take toll of human life, disrupt communications and often endanger whole communities. The Australian Amateur has always bridged the gap in communications and performed nobly in such emergencies in the past.

serve the public to the best advantage. Furthermore, the Amateur is able to fill breaches in communication services until authority concerned has been able to re-establish regular service or call in one of the regular defence services to take over.

The first task your Divisional or Zone Co-ordinator has to undertake is the breaking down of such prejudices, both inside and outside our ranks.

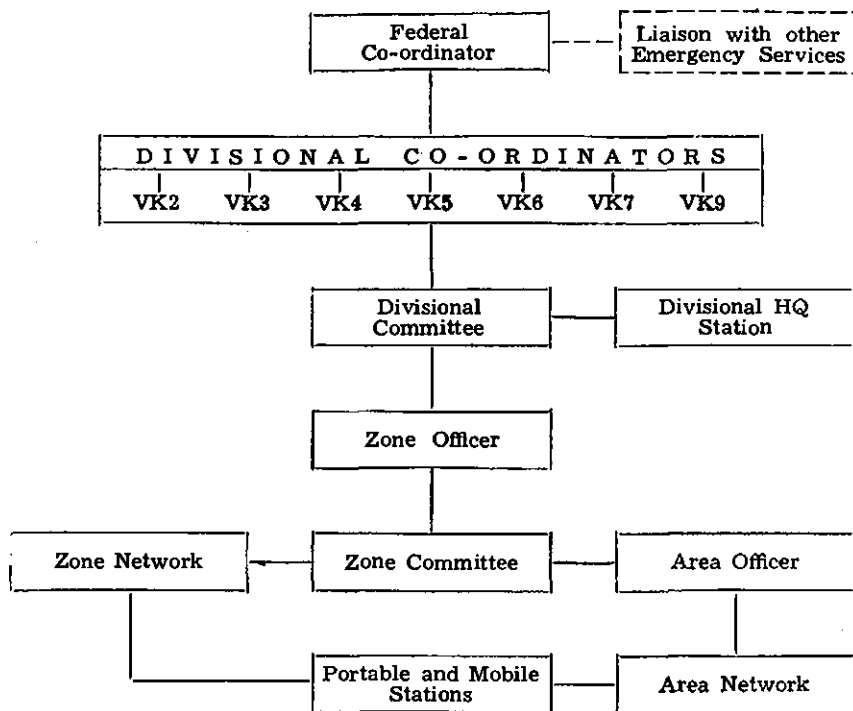
The second task is to establish contact with all parties interested in emergency communications such as Postmasters, Police, Ambulance, Red Cross, State Relief, Forestry, Electrical Authority, Small Ships. (Contact with the three Fighting Services and Central

operating procedure and conducting regular exercises.

The committee as a whole must work with the following plan in mind:

- (1) Training of operators to meet all forms of emergency.
- (2) Training members to operate as W.I.A. network in normal emergencies.
- (3) Instilling in members the necessity of operating in the master scheme envisaged in time of national emergency.
- (4) Teaching proper operating procedure which must be based upon the J.A.N. procedure and not upon local ideas.
- (5) Recognition of the Service as a whole with the individual subjugating him or herself to the common good.

An organisation chart covering C.D.E.N. is published herewith for your guidance. In future issues of "Amateur Radio" will appear reports of C.D.E.N. activities together with answers to queries raised by members. New developments and outstanding performances will likewise receive mention in this column. — . . . —



The objects of C.D.E.N. are:—

- (a) To organise the Amateur communication network to a high degree of reliability.
- (b) To establish standard procedures and equipment in order to ensure complete understanding, mobility and interchangeability in the event of any serious emergency.
- (c) To integrate Amateur communication network with the Commonwealth Civil Emergency Scheme.

Unfortunately in some States, both inside and outside Amateur ranks, there is a deeply rooted conviction that emergency communications will be adequately handled by existing services operated by government instrumentalities. Past experience has proved that this opinion is based upon false premise. In the event of a real national emergency the regular communication services will have their hands full restoring service. The Amateur, on the other hand, is able to go anywhere and

Postal Administration being the responsibility of your Federal Executive.)

His third task is to form a small committee of selected Amateurs imbued with the desire, and fully aware of the necessity of selling C.D.E.N. to all local authorities and their fellow members.

This committee should include one officer whose main task is to interpret technical requirements of equipment to be used and to select suitable sites for fixed stations. To familiarise members with types of service equipment they may be called upon to operate in an emergency.

Another officer undertaking the task of surveying existing communications in each area and preparing plans to cover each eventuality.

A third member should accept responsibility of surveying and maintaining a status record showing which Amateurs are able to operate in which bands and should correlate local transmission data.

A fourth member being delegated the task of instructing members in unified

TV OPERATOR'S CERTIFICATE

The Australian Broadcasting Control Board has notified the following candidates that they were successful at the examination held on 11th December, 1956, for the Television Operator's Certificate of Proficiency:

Melbourne: Albert Edward King, James Edward Davern, Robin James Huntley Clarke, William Robert Moffatt, Ewan Leslie Downing, John Duffy, Alfred Hobden Bowley, Maxwell Norman Manning, Alexander William Algie, Roger Noel Torpington, Noel Serpell, Ronald William Hunt, Ronald Frederick Schmidt, Roland Kim Wing Lau, George Albert Tidy, Edward Alan Wagner, John William Watson, Thomas Matthew Orgill, Brian Carroll Rodgers, Maurice Francis Pritchard, Ian Leslie Hill, George Samuel Blake Horrocks.

Sydney: Leonard James King, Stanley Victor Keith Ellis, Harrie Newton Adams, Leslie Bernard Weldon, John Langdale Garton, John William Hicks, Grahame Morton Jeffery, Leopold Kloszczyk, James Kingsley Bagot Stack, Raymond Walter Patterson, Alan Hugh Llewellyn, George Mathew Everingham, Frederick Arthur Haynes.

The examination was conducted by a Board of Examiners comprising officers of the Australian Broadcasting Control Board, Mr. R. H. Mondell (of the Department of Technical Education, Sydney), and Mr. F. A. Kempson (of Royal Melbourne Technical College).

Examinations are conducted twice yearly, on the second Tuesday of June and December. Applicants who have passed any sections of the examinations on a previous occasion will be exempted from those sections for a period of 12 months, that is two half-yearly examinations succeeding the passing of the sections.

The next examination will be held in Sydney and Melbourne on 11th June, 1957. Applications for the June examination must be lodged with the Secretary of the Board, 497 Collins St, Melbourne, by 15th May, 1957.

Combining 6v. and 12v. Filament Operation

BY W. J. HOWSE,* VK6ZAA

HOW many Amateurs have found the need to operate some equipment such as Command transmitters and receivers from a 12 volt source, as well as their usual 6 volt equipment? Also the new mobile and portable regulations may mean that Amateurs will want to operate some of their home station equipment in the car which may have a 6 or 12 volt system.

nect a second 6 volt battery with its negative terminal earthed to give me this arrangement which corresponds to Fig. 1 (b).

With a 12 volt electrical system the arrangement shown in Fig. 1 (c) has to be used with no provision for the operation of 6 volt equipment.

If portable trips are made using 12 volt batteries independent of a car earth, tapping of this battery can be

POWER SUPPLIES (bottom views of sockets)

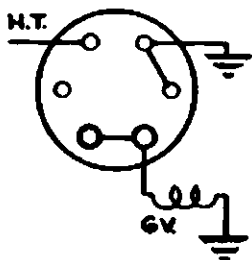


Fig. 1 (a).
One 6v. source only.

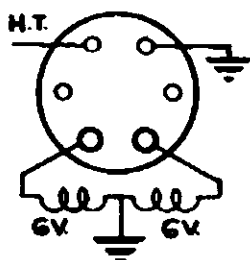


Fig. 1 (b).
Two 6v. sources.

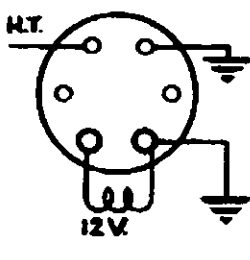


Fig. 1 (c).
12v. only available.

EQUIPMENT (bottom view of plugs)

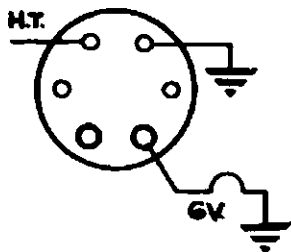


Fig. 2 (a).—6v. only.

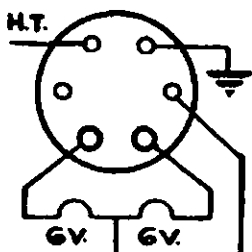


Fig. 2 (b).

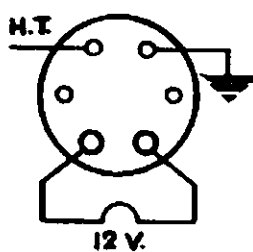


Fig. 2 (c).

The following system was the result of making many portable and mobile excursions and has proved itself during the last twelve months. Basically the system allows the wiring up of 6 volt and 12 volt gear to the one type of power plug. This plug can then be placed into any power supply with no possible damage to any equipment. Only in two cases will the equipment fail to operate, these being naturally the operation of 12 volt equipment from a 6 volt source, and 6 volt equipment from an untapped 12 volt source.

The writer uses a 6-pin socket and plug which allows the use of a heavier gauge wire than does the conventional octal plug. The value of a heavy gauge wire for filament leads cannot be over-emphasised. A check of the voltage drop across a length of 7/010 will confirm this. An octal plug can, of course, be used with slight modification of the ideas shown in the diagrams.

As will be realised the most benefit is to be gained by the arrangements shown in Figs. 1 (b) and 2 (b). For mobile operation from a car with a 6 volt battery system (as I do), I have found the best arrangement is to con-

nect a second 6 volt battery with its negative terminal earthed to give me this arrangement which corresponds to Fig. 1 (b).

One drawback of the above system of wiring is that there is a little extra work in wiring up the filaments in equipment using connections Figs. 2 (b) and 2 (c), but it is claimed that the versatility of the final product more than justifies this. The versatility is such that the above system has been proposed for adoption by the W.A. V.h.f. Group for use in their emergency gear!

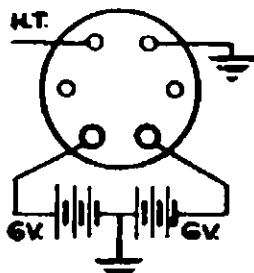


Fig. 2.

"Q-MAX" GRID DIP OSCILLATOR

MODEL GDO-1A

Frequency Ranges:

Range "A":	1.5 — 2.9	Mc.
"B":	2.9 — 5.6	"
"C":	5.6 — 10.5	"
"D":	10.5 — 20	"
"E":	20 — 39	"
"F":	39 — 75	"
"G":	75 — 150	"
"H":	150 — 300	"

The "Q-Max" model GDO-1A is a high frequency grid dip oscillator with a built-in mains power pack. The unit is extremely compact and may be held in one hand, whilst tuning of the instrument or circuit under test may be accomplished with the other.

The frequency range of 1.5 to 300 Megacycles is covered by a series of eight plug-in inductances which may be used as probes to couple the circuits under test.

The GDO-1A is housed in an attractive black crackle mild steel case with overall dimensions of 8½ x 3½ x 2½ inches.

PRICE (Amateur Nett)
£25

Pins 12½% Sales Tax

(Write for Free Descriptive Sheet)

★

Eddystone 678 Modulation Level Indicator

The circuit employs two germanium crystal rectifiers and no external connections are necessary. The small pick-up aerial provided screws into a socket on top and a socket takes a coil for the particular frequency band in use. In use the r.f. pick-up is adjusted until the meter reading coincides with a mark on the scale when, on switching over, modulation percentages can be read off instantly against the directly calibrated scale.

In addition the instrument may be used as a phone monitor, a telephone jack being provided at the rear for this purpose. The meter itself is very sensitive (200 microamp. full scale deflection) which permits the instrument to be used as a field strength meter. It will assist materially in such experiments as lining up a beam aerial, determining radiation patterns, effect of variation of coupling and matching systems, etc.

The calibration holds good over the whole range of Amateur bands, up to 28 Mc.

In neat diecast housing, finished ripple black. Complete with six coils (21 Mc. is included).

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SPECIAL

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Higher frequencies can be supplied.



ADVANTAGES OF THIS TYPE—

- (1) Approximately three times the activity of normal plated crystal due to the absence of air damping.
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- (3) Plating cannot deteriorate with time and cause frequency shift.
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Price depends on the tolerance and frequency required, and will be quoted upon request.

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BRIGHT STAR RADIO

46 EASTGATE ST., OAKLEIGH, S.E.12 UM 3387

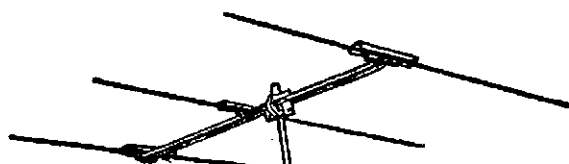
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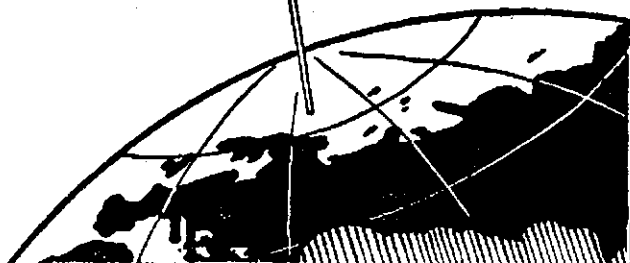
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A Suggested New Reception Report System

BY ING. LIVIU MACOVEANU, YO3RD

THE present system of reception report is well known to all Radio Amateurs and consists of three figures, meaning Readability, Strength and Tone (for c.w.) or Speech Quality (for phone). In short, it's the RST and RSM system, unanimously employed by Hams all over the world.

However, from my 21 years' Amateur experience I have drawn the conclusion that this means of reporting is not at all conclusive and satisfying.

The present article puts forward a novel report-system, which—in my opinion—will be more efficient and more useful than the one presently in use.

The element I want to deal with above all is the signal strength, expressed in S-points.

Let us assume that c.w. signals from some place on the globe—Rumania, for instance—are received at a great distance—Argentina, for instance. Suppose that the signal strength at the receiving end were S3 at the particular moment and the whole report was RST 339. That would mean, at first sight, that r.f. voltage in $\mu\text{V}/\text{meter}$ at the receiving end was very low, owing to several factors such as poor propagation at that end, low radiated power of the transmitter, unmatched antenna directivity at both ends, poor receiver sensitivity, etc.

The mere report in S-points cannot, however, make clear to the Ham the reasons why he has received such a poor report and therefore he cannot realise what steps he must take in order to improve his transmission.

With the goal of avoiding "cut and try" in mind, I have conceived the novel reporting system, described hereunder.

Let us assume that the receiving end in Argentina has picked up—in approximately the same period of time—c.w. signals either from Rumania, her neighboring countries or the rest of Europe. If the mean signal strength of the other c.w. signals from Rumania is about S3, that means that either the propagation is poor for Rumania, or the receiver has low sensitivity. From the very beginning it can be seen that the other possibilities of deficiency (radiated power and antenna directivity) can be left out. Perhaps, only the receiving antenna directivity could be taken into account. If, during the same period of time, other c.w. signals from the same country (Rumania) were below a mean S3, it would mean that the first transmission considered was the best. On the contrary, if the other signals had a higher mean signal strength, it would mean that the transmission in question was not too good. Therefore it would be right to work on such factors as radiated power and antenna directivity in order to improve the transmission.

These simple remarks, make clear to the Ham several valuable facts.

One could ask what to do in case there were not—at that particular

● This article by YO3RD appears as a proposal to Hams all over the world. It will be thus subjected to criticism, suggestions, and/or consideration by as many Radio Amateurs as possible. The author will be very glad to receive letters concerning the proposed system.

moment—other signals from the same country so as to figure the mean signal strength. In such a case, one could take for comparison signals from the neighboring countries situated on the same time-strip. The error will not be too great, due to the fact that, generally speaking, the propagation is practically the same, at a given time, for such countries.

In case there are even no signals from the neighboring countries of the station hooked-up with, it would be very useful to report the approximate mean signal strength of at least 10 stations scattered all over the continent in question.

It occurred to me many times that out of Oceania, for instance, I could only hear two or three stations at a certain moment. Although the signals were only S4 or S5, they could be considered the best ones from that part of the world and therefore, for the receiving end, they fulfilled the best requirements from all points of view. This is why an overall report in S-points, per continent, should prove itself most useful, though it may seem inoperative.

SUGGESTED SYSTEM

In the light of the above, the practical way to solve the reporting problem would be to modify the present RST report as follows: **RSSST** for c.w. and **RSSSM** for phone.

The first S is merely the usual signal strength of the station received.

The second S is for the approximate mean signal strength of other stations from the same country heard within not more than 10 minutes before contact has been established.

The third S is for stations from neighboring countries—within the same time strip—received not more than 10 minutes before contact has been made and, finally,

The fourth S applies to stations from the remainder of the continent in the same time limit of 10 minutes.

In case there were heard no stations for comparison, the corresponding S would be replaced by the letter N (on c.w.) or Nil (on phone).

The above proposed system can be equally used for stations within the same continent, in which instance the meaning of the fourth S being much smaller.

This new system shall not only give the individual Ham a better view of the quality of his transmissions, but makes "listening before calling" com-

pulsory, in order to realise the mean signal strength per country, neighboring countries and continent.

Although the reports are somewhat subjective, they will by no means be less useful than the usual and mere RST or RSM report.

At the beginning, the new method will seem difficult until one becomes fully familiar with it. I am completely sure, however, that in the future very many Hams will use it exclusively.

—Ing. LIVIU MACOVEANU, YO3RD,
C/o. P.O. Box 95,
Bucharest,
Rumania.

TRANSISTORISED MINIATURE TRANSMITTER

(Continued from Page 5)

watts can be obtained. Increasing the supply voltage causes the input to rise. For this purpose, an external "power supply", consisting of three pen-light cells in series in another match box, can be connected in series with the key leads. The operating conditions produced by this total of six volts are still within the ratings of the OC45, the power input being approximately 30 milliwatts. Whereas c.w. seems to be the only efficient type of operation with the lower input, a reasonable modulation level can be achieved by a carbon microphone in series with the external "power supply".

It may here be mentioned that the use of solar cells cannot be recommended for C.D. work. Although these solar cells have recently been publicised overseas as ideal transistor supplies, they are nothing else but the semiconductor photo-electric cells known for three decades. Their use as power supply would restrict C.D. communications to the hours of sunshine only, as no other light, short perhaps of capital cities in flames, makes them produce sufficient power. Thus dry cells or midget accumulators are the best sources of supply for C.D. equipment.

As to the ground-wave range of this transmitter, with the lower input (1.65 milliwatts, self-contained), distances of up to three miles can be covered without difficulty, proved by reports from 3.5 Mc. stations. The signal is stable and clean. No chirp is noticeable with the lower input; but a slight chirp cannot be avoided with an input of 30 milliwatts. Considering the very unfavourable conditions prevailing whenever tests were made with this transmitter, it can be assumed that much greater distances can be covered in winter time.

The ground-wave range, however, is indicative of the usefulness in Civil Defence. After it has at last been recognised officially that band-portable equipment is a must for serious C.D. work, the prospects of this transmitter are very promising. With an equally miniaturised transistor receiver (to be described in a future article) the pocket-size communication station is complete.

Handy Coil and Co-ax Data

So you have decided to build up that handy piece of equipment described in "QST" or "CQ." The article says to use two inches of "X" brand coil. What do we do here? It also said to use a "Z" brand coil former, but what about its diameter and winding length? That RG-79/U co-ax they specify is also an unknown quantity. Well here are a few tables that might help out.

B. & W. MINIATURE INDUCTORS

Type	Diam.	T.P.I.	Length
3001	1/2"	4	2"
3002	1/2"	8	2"
3003	3/8"	16	2"
3004	1/2"	32	2"
3005	5/8"	4	2"
3006	5/8"	8	2"
3007	5/8"	16	2"
3008	5/8"	32	2"
3009	3/4"	4	2"
3010	3/4"	8	2"
3011	3/4"	16	2"
3012	3/4"	32	2"
3013	1"	4	3"
3014	1"	8	3"
3015	1"	16	3"
3016	1"	32	3"

B. & W. STANDARD AIR INDUCTORS

Note.—All 10" lengths.

Type	Diam.	T.P.I.	Wire Gauge
3900	2"	8	14
3905-1	2 1/2"	6	12
3906-1	2 1/2"	8	14
3907-1	2"	10	16

NATIONAL PERMEABILITY TUNED COIL FORMERS

Type	Core	Height	Diam.
XR-80	brass	1 1/4"	17/64"
XR-81	iron	1 1/4"	17/64"
XR-82	brass	1 1/2"	17/64"
XR-83	iron	1 1/2"	17/64"
XR-90	brass	1 1/4"	3/8"
XR-91	iron	1 1/4"	3/8"
XR-92	brass	1 1/2"	3/8"
XR-93	iron	1 1/2"	3/8"

NATIONAL JAN-SPEC COIL FORMERS

Type	Height	Diam.	Groove	Core
XR-60	1-13/16" x 1"		yes	iron
XR-61	1-13/16" x 1"		yes	brass
XR-62	1-13/16" x 1"		no	iron
XR-63	1-13/16" x 1"		no	brass
XR-70	1-9/16" x 3/4"		yes	iron
XR-71	1-9/16" x 3/4"		yes	brass
XR-72	1-9/16" x 3/4"		no	iron
XR-73	1-9/16" x 3/4"		no	brass

Mica-Filled Bakelite Formers

XR-50	1-51/64" x 7/8"		no	iron
XR-51	1-51/64" x 7/8"		no	brass

AMPHENOL CO-AX R.F. TRANSMISSION LINE

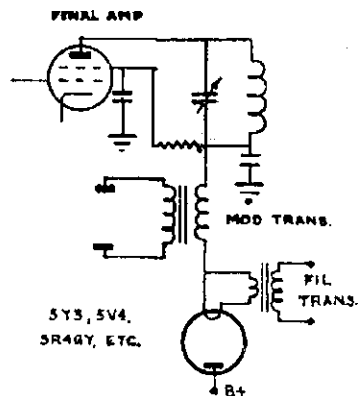
No.	Impedance	Diameter
RG-5/U	52.5 ohms	0.332 inch
RG-5A/U	50	0.328 "
RG-6/U	76	0.332 "
RG-7/U	90-105	0.370 "
RG-8/U	52	0.405 "
RG-9/U	51	0.420 "
RG-9A/U	51	0.420 "
RG-10/U	52	0.405 "
RG-11/U	75	0.405 "
RG-12/U	75	0.405 "
RG-13/U	74	0.420 "
RG-14/U	52	0.545 "
RG-15/U	76	0.545 "
RG-17/U	52	0.870 "
RG-18/U	52	0.870 "
RG-19/U	52	1.120 "
RG-20/U	52	1.120 "
RG-21/U	53	0.332 "
RG-22/U	95	0.405 "
RG-22A/U	95	0.420 "
RG-29/U	53.5	0.184 "
RG-34/U	71	0.625 "
RG-35/U	71	0.870 "
RG-54A/U	58	0.250 "
RG-55/U	53.5	0.206 "
RG-57/U	95	0.625 "
RG-58/U	53.5	0.195 "
RG-58A/U	50	0.195 "
RG-59/U	73	0.242 "
RG-62/U	93	0.242 "
RG-63/U	125	0.405 "
RG-71/U	93	0.250 "
RG-74/U	52	0.545 "
RG-79/U	125	0.405 "
RG-83/U	35	0.405 "
RG-89/U	125	0.632 "
RG-108/U	76	0.230 "
RG-111/U	95	0.420 "

SUBDUE THAT OVER-MODULATION AND INCREASE YOUR READABILITY

BY BUD POUNSETT,* VK2AQJ

Here is a simple, effective method of preventing those negative peaks from annoying the guy on the adjacent channel and also preventing those queer noises your next door neighbor sometimes hears on his b.c. receiver.

The components required are one vacuum rectifier and a spare filament winding having adequate insulation. The rectifier, which can be any tube that will pass the current, is inserted in the h.t. line to the final amplifier between the power supply and the cold side of the modulation secondary winding. It is as simple as that and is fully automatic in operation. You just can't go wrong.



The theory is this: On 100 per cent. modulation peaks, the audio voltage increases the final plate voltage to twice the d.c. voltage and decreases it to zero alternatively, if the final is linear. If peaks in excess of 100 per cent. modulation occur, the positive swing just goes up, but the negative swing takes the plate voltage into the negative region and that is where the trouble starts, when the plate voltage is going from positive to negative. The rectifier in series with the h.t. line prevents the plate voltage from actually becoming negative. Now you are going to ask, "What about the harmonics that are generated?" The inductance of the secondary of the modulation transformer plus the stray capacitance in the circuit form a low-pass filter that reduces the harmonics to a minimum.

In addition, by now being able to turn up that modulation gain control, you can raise your average modulation percentage quite considerably and increase your readability. For those who would like to hear a practical demonstration, contact VK2AQJ any time on 40, 20, 15 or 10 metres.

* 04439, Fig. Off. K. B. Pounsett, R.A.A.F., Canberra, A.C.T.

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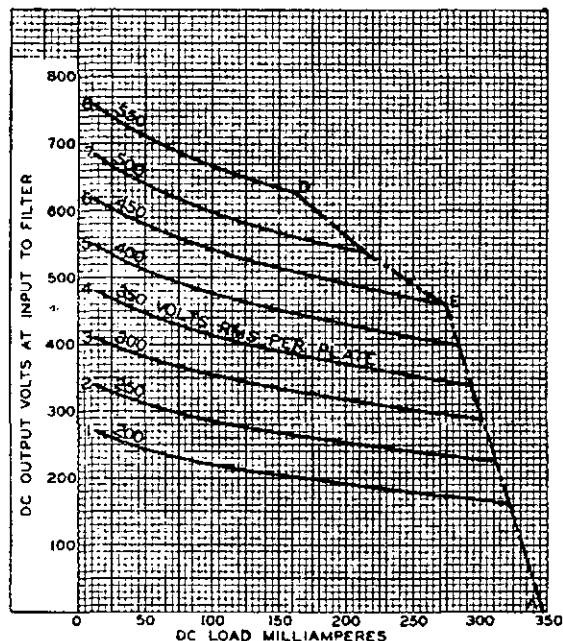
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The Radiotron 5AS4 is a full-wave vacuum rectifier of the filamentary cathode type intended for use in the power supplies of television receivers and in electronic equipment having high direct current requirements.

The maximum ratings of the 5AS4 allow it to supply, using a capacitor input filter, a direct current load of 300 mA at an output of 290 volts d.c. (input to filter).



Operation Characteristics—Full-wave circuit, capacitor input to filter = 40 μ F.

= 275 mA. The curves show that using a full-wave arrangement for a direct load current of 275 mA, and a direct output voltage of 300 volts, an alternating voltage of about 310 volts r.m.s. per plate will be required. A check should be made to make sure that the two peak current maxima are not exceeded, using the Rating Charts published in Radiotronics.

GENERAL DATA

ELECTRICAL:

FILAMENT VOLTAGE 5 volts a.c. or d.c.
 FILAMENT CURRENT 3 amps.

MAXIMUM RATINGS:

PEAK INVERSE PLATE VOLTAGE 1550 max. volts
 STEADY STATE PEAK CURRENT PER PLATE 1.0 max. amp
 A.C. PLATE VOLTAGE (R.M.S.) PER PLATE 550 max. volts
 TRANSIENT PEAK PLATE CURRENT PER PLATE 4.6 max. amp.

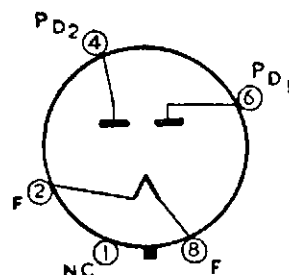
† For further information on the 5AS4 and other Radiotron Television Valves consult the Radiotron TVI Booklet.

When a capacitor input filter is used, care should be taken to see that the maximum values of both the peak plate current per plate and the hot switching transient plate current per plate are not exceeded. Reference to the rating charts published in the May and September, 1956, issues of Radiotronics will allow the operating conditions for any particular application to be determined. For example, suppose a 5AS4 is to be used in a T.V. receiver with the following low voltage power supply requirements: Filter input capacitance = 40 μ F, voltage at input to filter = 300 volts, current drain



5AS4†

PIN CONNECTIONS



(bottom view)

- Pin 1—No connection.
- Pin 2—Filament.
- Pin 4—Plate No. 2.
- Pin 6—Plate No. 1.
- Pin 8—Filament.



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B.B.C. (LONDON) TV SIGNALS RECEIVED IN SYDNEY AND MELBOURNE

Norm Burton, of Revesby, an outer suburb of Sydney, is receiving world-wide congratulations on his verification of reception of the London TV sound and vision signals in Sydney. This is believed to be the first time this has been accomplished in Australia.

Norm uses a Hallicrafters SX28 receiver with a vertically polarised antenna similar to those used in England. The tuning range of the SX28 has been modified slightly to allow tuning of the frequencies 41.5 Mc. for sound (amplitude modulation) and 45 Mc. for the vision carrier.

Reception has been over a period and a definite confirmation has been received from the B.B.C. for his recep-

tion on 22/12/56. Norm again received the signals on 6/2/57 and rang George Palmer who is a well known s.w.l. in Melbourne. Norm is so impressed with the signals he has heard that he is planning to import a TV receiver from England. He would naturally be very pleased to hear of any other reports of reception and has complete data on programme material and times of operation, etc. There is, of course, every possibility of more, during the present and approaching sunspot conditions.

George Palmer, of Williamstown, a suburb of Melbourne, also heard a test transmission from the B.B.C. Crystal Palace TV station on the channel 1 sound frequency of 41.5 Mc. The

signal was first received just after 8 p.m. on 7th February and lasted about an hour. The transmission consisted of a test programme of orchestral music and though conditions were poor, with high noise level, the signals at times peaked sufficiently, enabling the station to be easily identified.

A converter feeding into a communications receiver was used for the test and the signal was received also on an English TV receiver. It was not possible on this occasion to receive the video signal due to the poor conditions and probably the fact that the m.u.f. may not have extended to the video channel on the higher frequency.

George is to be congratulated on his results as this is the first time he has received a signal after efforts on his part which have extended over a year or more.

NINTH ANNUAL URUNGA CONVENTION

This Convention will be held over Easter week-end, April 19-22, and it is the organiser's hope that you will do your bit towards making the Convention a success. Naturally it would be best if you could come, but in case you are unable to, your co-operation in the various competitions will be appreciated.

Competitions will be held as usual for 40 metre battery operated equipment, along with an all-band scramble for any gear. V.h.f. enthusiasts can be assured of a good time on 144 Mc. as Crieff VK2XO is right on the job picking out spots for hidden transmitters.

It is hoped that a demonstration of v.h.f. receivers of various types will be given and this should be of great interest, particularly to country operators.

The area is served by train, and the road from Sydney is perfect except for 28 miles of reasonable gravel. A plane

service is available to Coff's Harbour and arrangements can be made to pick you up.

Accommodation is available at the Ocean View Hotel, Pilot Guest House, and several of the boarding houses, whilst we can provide stretchers for those who wish to fend for themselves. Tariff figures are approx. 40/- per day at the hotel and 30/- at the Pilot Guest House. A letter to either at the earliest opportunity, enclosing £1 per person deposit, will reserve your accommodation.

Evening entertainment will be available for the ladies and children in the form of films and variety acts.

This is a week-end where you can meet your Ham friends and meet the bloke you're often chewed the rag with. Everyone has a good time at Urunga, so—

**DON'T FORGET URUNGA
APRIL 19 TO 22.**

—Noel A. Hanson, VK2AHH, Organiser.

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"MEET DONALD DUCK"

BY STAN BOURKE,* VK2EL

LET us have a look at this "duck talk" stuff which seems to be gaining in popularity and invading our bands these days. Perhaps one of the best ways to see what lies behind all these unseemly noises would be to see just how and why this "stuff" differs from what some of its users rather rudely call "ancient modulation"—a.m. to us.

Now we all know that, when we plate modulate our good old c.w. rig, we use a more or less powerful audio amplifier to swing our plate voltage between zero and twice the plate supply voltage at an audio rate. So far, so good, but two rather puzzling things happen. First the plate meter remains rock ready (at least in theory) despite the fact that we are pumping a good fifty watts of audio power into our final. The average carrier of an a.m. transmitter remains constant in amplitude, frequency and phase. This 50w. of audio must go somewhere. You've guessed it—sidebands.

These things are just a bit puzzling to the newcomer, so let's regard our final stage as a mixer, just like the ones we use in our receivers. We apply two frequencies to this device and out come not only the original frequencies, but their sum and difference too. In our final tank, the r.f. carrier comes out and also the sum and difference frequencies either side of the carrier. The audio we fed in will not be directly radiated, of course. Here are those missing watts—in the two sidebands, the sum and difference frequencies either side of the carrier.

In the words of a famous American Amateur "these sidebands are both saying the same thing". If we could by some means wipe out one of them, we would have a signal which would still sound exactly the same on any receiver. There would be just one important difference—the signal would be only half as wide, say 3 Kc., instead of the 6 Kc. necessary for normal speech modulation. This would immediately accommodate twice as many stations in our crowded phone bands, if we could bring our receiver passbands down to 3 Kc. We would lose a little this way, because there is now only one sideband being detected by our receiver, but this would be made up by the chap at the other end, who would put all his eggs into one basket, or all his modulation into one sideband.

Now, let's have a look at this carrier. It's a very good carrier and we went to a lot of trouble to get it clean and stable. On c.w. it may do a lot for us—more than any fancy system of modulation, probably. But just why is it called a "carrier"? In the transmitter we looked at earlier (remember it had a mixer in this final stage) it was used to beat against our dulcet tones to produce sidebands. At the receiver our second detector does the same thing in reverse—"hears" the beats between sidebands and this "carrier". Here is the point of all this:

The carrier didn't pick up our sidebands and carry them to that DX station's receiver—the sidebands got there under their own steam and the carrier just went along for the ride and to beat against our sidebands in his receiver, when it got there.

If the "carrier" doesn't carry anything and doesn't change in any way under modulation, would there be any advantage in forgetting to transmit it? For an answer to this one, listen between 14.3 and 14.2 Mc. some time when that band is wide open to the 'States or listen on 40 metres, say, during the week-end nearest to August 15. These collections of squeals and howls are mainly beats between the carriers or various stations. If we could eliminate all these carrier heterodynes it would certainly be a great help.

At the transmitter it is fairly easy to get rid of this carrier, after we have used it to generate our sidebands, but what will the resulting signal sound like in the receiver? You're right again—it sounds absolutely horrible. If you are used to working phone DX you will possibly copy some of it. But, here is the catch! There is no carrier to beat with those sidebands to produce sensible modulation. What we hear is beats between audio frequencies in the voice of the operator, and here is where many of us give up and say that we would need a special receiver to copy that "Donald Duck" stuff.

Well, what use is it? Can we do anything with it? Obviously we must put back this carrier the other chap forgot to transmit. If we receive both sidebands minus carrier, we surely do need a very special receiver, for we must introduce a carrier of exactly the right amplitude, frequency and phase—a very tall order indeed! If only one sideband arrives at our detector the problem is much simpler, all we need is a stable receiver with a fairly healthy b.f.o. to provide the missing carrier. The amplitude and phase of this carrier then becomes relatively unimportant and the frequency may be within 100 cycles for readability or about 10 cycles for good quality. Almost any good c.w. receiver worthy of the name can manage this. The second (or "unwanted") sideband could be removed in the receiver, or the transmitting station might also forget to send it along, too. If he does this we have what used to be known as s.s.s.c.—now more commonly called s.s.b.

As this article is meant as an introduction to this queer stuff, we won't delve too deeply into just how s.s.b. is obtained at the transmitter. There are two general systems in use. The first involves removing one sideband by familiar filtering methods, using selective tuned circuits, crystal or mechanical filters. The other method makes use of a rather fascinating system of phasing and balancing to knock out the unwanted sideband. Two rather striking differences you will notice in the schematic of an s.s.b. rig

are the absence of frequency multiplication, once the "stuff" is generated, and the use of linear power amplifiers. There have been a number of excellent articles in this magazine describing practical s.s.b. transmitters.

To round this off, let's see what we should do to make sense of this stuff with the old receiver and have a look at the advantages which are claimed for the system.

You will hear most s.s.b. activity in the region around 14.3 Mc. with some activity on other bands and quite a few ZLs around 3.8 Mc. When you hear the signal, first carefully centre the queer noises in the receiver's i.f. passband and back down the r.f. gain control as far as possible, advancing the audio gain as necessary. Do this because the s.s.b. station has put "all his eggs in one basket" and there's a good deal of power in that sideband signal. If you overload anything in the receiver it will sound even worse! Now, turn the b.f.o. on and a.v.c. off. Tune the b.f.o. till the signal sounds as natural as possible, adjusting r.f. gain as necessary. If the signal sounds lacking in highs or lows you may not have it centred in your receiver passband and a little fiddling with the b.f.o. and receiver tuning should fix this.

When you have it right the b.f.o. should be about 1.5 Kc. from the centre frequency of your i.f. passband to allow the 3 Kc. wide sideband to sit in the middle. You can mark this spot on your b.f.o. vernier, leave the b.f.o. set and look for other stations with the main dial. It has become the custom for stations above 10 Mc. to use the upper sideband, whilst below this frequency the lower is used. After an evening's listening you should come up with a mark either side of centre on your b.f.o. control and you are in business.

Some of the things you can do to improve the receiver, if you do get interested are to experiment with the time constant of your a.v.c. system, get the bandwidth down to 3 Kc., and use a product detector. This last gadget uses a mixer instead of the usual diode rectifier and responds only to beats between i.f. signals and your own b.f.o., thus eliminating heterodyne beats between signals. If you get really bitten, you can add a "slicer" which picks out either sideband of any signal. This one may use a sharp filter or phasing system, just as in an s.s.b. transmitter.

These are some of the advantages claimed for the system:

Reduction of bandwidth and heterodyne QRM, with improvement in signal to noise ratio at the receiver.

Effective power gain. To understand this, consider a receiver having 3 Kc. bandwidth, tuned to a 100 watt a.m. signal. There are 150 watts of power in this signal (carrier 100 plus 50 in two sidebands) and our 3 Kc. wide receiver gets one sideband or 25 watts of it. On an s.s.b. signal we can receive a full 100 watts of sideband

(Continued on Page 16)

FIFTY-SIX MEGACYCLES AND ABOVE

VICTORIA

Members of the V.h.f. Group spent a very delightful evening on the occasion of their January meeting when they availed themselves of the kind hospitality of Mr. George Palmer at his home in Williamstown. Mr. Palmer is well known for his superb private theatre, where, because of his generosity and his very ardent desire to give pleasure to his many friends and acquaintances, he entertains them with programmes of the latest films and television. Members enjoyed very much the excellent programme he had chosen specially for our Group which included a film on the Antarctic, a trip to Coney Island (a really amazing film this one, and which at times seemed almost too realistic for the nervous system), and then a couple of comedies, one a skit on television, and I'm sure the members will laugh over it for many a day. After an interval he showed a brilliant full length feature in colour.

Members were invited to inspect his projection and television equipment, he has several television rx's including a miniature portable set, he is also interested in tape recording and has receiving equipment for h.f. and v.h.f. Of particular interest was a demonstration of his large screen projection television. Here the station programme is projected from the receiver per medium of a special small size picture tube operating at about 25 kilovolts and the picture is thrown on to a theatre screen via a small reflecting picture system. This produces a picture of approx. 4 ft. x 3 ft. 6 in., a picture closely resembling a film but which is a much softer picture without any glare. Members then inspected his mast and gazed lengthily and we must admit, with quite a deal of envy at his flood-lit 100 ft. steel tower which supports an array of beams for television and v.h.f. reception. President of the Group, Herb 3JO, passed a vote of thanks at the conclusion of the evening and this was heartily seconded by all present.

At the V.h.f. meeting on March 20 the lecturer will be Les Jenkins, ex-2ZBJ, who will give a lecture entitled f.m. equipment for 144 Mc. He will have his own f.m. equipment on display and an attempt will be made to give a working demonstration. Don't forget the City-Country "Get-together" of the V.h.f. Group to be held on April 17, when it is hoped to have a demonstration of home-built t.v. equipment.

The results of the first V.h.f. Field Day for this season are as follows: First, Reg 3ZAD (portable on Mt. Donna Buang), with 1790 pts., including bonus points for the three longest contacts on 2 mx, all three of which were with Ballarat stations, a distance of 100 miles. Second was John 3ZAI (portable on Pretty Sally Hill) with 966 pts., including bonus points for the three longest contacts on the 1 mx band which were with 3ZAF on Mt. Dandenong (38 miles), 3ZEE on Mt. Dandenong (38 miles), and 3ZAQ at East Malvern (32 miles). Third was Jacques (portable on Mt. Dandenong) with 930 points including bonus points for his contact with the second place winner, 3ZAI, with whom he shares equal honours for one of the long distance contacts on the 1 mx band. Further V.b.f. Field Days on 17th March and 21st April.—Phyl Moncur.

SOUTH AUSTRALIA

This month sees a little more activity than usual. Contest maybe, but generally improved results with some newer calls on the bands; welcome to you new ones, let's hear more from you.

Col 5CJ has completed his 144 Mc. converter which works well; is now active on that band, his sigs being heard by 3NN at Yannac. David 5ZAM was busy with the Contest. Claude 5CH also active on 144 Mc.; his sigs likewise get through to Yannac. Ray 5ZBM now a full member of the Division; welcome Ray and nice to hear you on the band. Bill 5ZAX mobile on 2 mx at Port Arthur during the holiday week-end and had contacts with 5GB, 5QR, and 5EF. Bill advises good receiving conditions over there with a temporary 3 el. beam 20 ft. up. He was 5 x 8 at Gawler and heard the 2 mx relay of 5WI on the Sunday f.b. 2AFM was mobile/portable in S.A. during the Xmas holidays and called his head off many times, finally worked Neil 5ZAW on the last day of his stay!

Some talk of a few bods trying n.b.f.m. and/or p.m. on v.h.f. soon. Know of three who are nearby there, one of them George 5GB has tried n.b.f.m. plus p.m. (or it sounded like that) but is naturally clearing it up. Ern 5EN was heard 5 x 8 on 1 mx to 5GB and later 5 x what you like on 2 mx. Ern

uses a 522 into /20 into /40 (leaving out the QEs) to something else to get 100 watts on 1 mx. All very good, but why not separate the gear a bit Ern and make duplex possible.

Which brings it to a point, now talking about duplex (cross band 2 and 1 mx). Those urgers 5QR, 5GB, 5AX finally talked me into giving 1 mx a go and what it lead to was just nobody's business.—5EF.

(Editor's Note.—Suggest you enquire from Comps. 5EF the trials and tribulations that eventuated during an entire day and night trying to get on 1 mx. Then to completely wind it up, that sweetness in his wife who provides most of the inspiration, sweetly asked, "Wouldn't it be easier to raise Reg on the phone?" Well, I ask you?)

TASMANIA

The 2 mx season for VK3 DX opened up well on Jan. 3 when TBQ and 7PF worked into Melbourne; 7LZ being absent on holidays and 7GM and 7ZAW now having been lost to VK3 land. The absence of the latter two stations being made up by 7RL who has worked his first VK3. Reg has built a new converter and hopes to work more DX now that his eye over five is tuned up. For the rest of January, 7PF, 7LZ, TBQ and 7RL were active on most nights and worked VK3s on seven nights and heard signals on 13 nights for the month.

The most constant signal was that of 3ALZ with his long yagi. His signal was R5 S7 before any other carriers could be heard. Last year Ian was just another station, so long yagi seems to be the goods.

7LZ has gained two S points by increasing the height of his aerial. 7PF has been trying to remove the last db. of noise from his converter and has eliminated the standing waves from the feeders. TBQ one night was comparing beams and wondered why one was not so good until he found it was back to front.—7PF.

"MEET DONALD DUCK"

(Continued from Page 16)

power and beat it against a few milliwatts from our b.f.o.

More readable signal under difficult conditions. There is a marked reduction of flutter and selective fading effects as the local carrier has not had a "rough trip" from the transmitter to your receiver.

Power economy in the transmitter. This one might surprise you, when you count the number of "bottles" in a typical s.s.b. rig and compare them with your a.m. rig. Don't forget to count those in your v.f.o., speech amplifier and modulator too! The saving in power is due to the fact that no carrier has to be transmitted and the final stage has only to handle bursts of r.f. power at an audio rate. It's something like throwing away the r.f. (or carrier generating) part of your rig and just using the modulator!

The use of the linear class AB or class B stages results in much reduced harmonic radiation problems.

Well, that's the story. You will probably find that this "Donald Duck" bloke isn't such a bad fellow, if you go to the trouble to meet him with your receiver. While you are doing it you may be surprised. There are at present well over 60 countries represented on s.s.b. and more are coming on hourly. If the growing list of 40-odd sidewinders in VK find the QRM getting tough after this, they will probably find the author down on the c.w. end! One last thought—if we feed a sine wave audio tone into our s.s.b. rig, guess what comes out—pure c.w. Seems the c.w. gang have been on s.s.b. for years!

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S.W.L. SECTION*

States represented this month are VK2, 3, and 4 with, as you will see, a very good roll-up from VK2. This is naturally very encouraging, but we would still like to see a regular roll up from all States each month including, yes, I'll say it again, VK9. So keep those notes coming chaps and let's make this page really worth while. So now to business.

NEW SOUTH WALES

Stan Abbey from Coolamon sends a very newsy letter. He tells of two more contributors this month. The first is F. H. Comfort, of Wahroonga, N.S.W., from whom I have also received a letter. This listener has written previously, but evidently his letter went astray. He is using a 6 valve rx with no r.f. stage, whilst the antenna is a single length of wire. Judging by the list of stations included he is doing quite well as those logged include TI-2LA, W, IICID, TI2HP, FKBAO, TG9TU, JA, KA, GM3HFD, VK9, DL3, KR8, VS2FD, JZ0PC. Thanks very much for your letter and we are looking forward to hearing more from you. Another new name to appear in the notes is that of Maurice Logan, from Wagga Wagga. Maurice, however, does not spend much time there as he has been attending the University and just recently gained his B.Sc. As Maurice is only 20 years of age, this is a really fine effort and congrats are due. His present projects include conversion of an AR301 to receive the sound components of TV signals, building a sweep generator and c.r.o. However, his s.w.l'ing future is in doubt for some time as he will be staying in Sydney and has yet to sound out the landlord as far as such matters are concerned. Let's know how you go Maurice.

It appears that we may soon be providing another addition to the ranks of licensed Amateurs. Bill Davey, of Paddington, has passed his exams. In regulations and c.w., but only received marks of 63 per cent. in theory. However, still not daunted by any means, he's having another try and has perhaps even by now gained that ticket. He now has an AR7 making a total of four rx's, which together with a 2 el. 20 mx beam, must make a very impressive receiving set-up. Don't forget to tell us more about your activities, too, Bill.

Belated congrats. must go to Jack Ashley, who became the proud father of a bouncing baby boy on Christmas day last. Stan himself tells us he hasn't gone "mobile" s.w.l'ing in his car yet, but we'll give him time. Stan also asks if there are any s.w.l.'s in Griffith as there is a fairly large club there.

VICTORIA

Orbost is kept in the news again this month by Dave Jenkins. He has now disconnected the a.v.c. and S meter circuits of his new rx and is working on the xtal filter. The S meter circuit drags a fair bit of current and drops the h.t. to one of the i.f. amplifiers by about 5v. As Dave has to use dry batteries, he is somewhat limited in his construction work. A converter covering 21 and 14 Mc. will probably be his next job, after the rx is working properly.

January Group Meeting.—The first meeting of the VK3 Group for 1957 was very successful. 14 members were present including three new members. They were Maurice Corc, of Ferntree Gully, George Fox, of Glen Iris, and David Matthews, of Camberwell. Pleased to see you along chaps and hope you continue coming to the meetings.

Our President, Ian Poynter, began the meeting with a very interesting talk introducing short wave listening for the benefit of newer and younger members. The meeting finished with a question and answer session. This proved enjoyable to all and the variety of questions asked was astonishing. Congrats. are due to George Robertson (3WJ) who has just recently passed the A.O.C.P. exam. George is the first member of the Group to receive the full licence, but there are at least four others with their A.O.L.C.P.

S.W.L. PROMOTES V.H.F. DX CONTACT

A young member of the VK3 Group, Raymond Bedson, WIA-L3008, was recently instrumental in bringing about a VK2-VK3 contact on the 56 Mc. band. Raymond, who by the way is a blind lad, was using a turnstile antenna, co-ax fed and a converter before his AR7 rx. He heard 2ATS calling CQ on the band with very good signals and immediately rang one of the Melbourne v.h.f. gang. However by the time the VK3 station came on the air, VK2 was QRT. Later Raymond heard

2ATS again and the procedure was repeated, this time with a contact resulting. Other QSOs then followed. A fine effort on your part Raymond, and congrats to you also. This is one of the many ways in which s.w.l.'s can aid licenced Hams. If you think we can help you contact the Secretary of the S.w.l. Group, Ian Hunt, at the address shown below or ring him at FB 0261, Ext. 305, during working hours. We can monitor transmissions, aid in checking b.c.i., give reports, listen for any station you wish and assist in erecting antennae. Also, if you can help us by giving a lecture at one of our meetings or allowing a small party to visit your shack, let us know.

S.W.L. 100 CERTIFICATE

Warren Moulton, WIA-L3020, was presented with the second S.W.L. 100 Award at the Feb. general meeting of the Vic. Division. Congrats. on your effort, Warren. Any more tryers for this award? It's worth having. Requirements for this Certificate are detailed in the October issue of "Amateur Radio," page 16, and in the W.I.A. Call Book.

QUEENSLAND

Don Bryant, of Taranga, Qld., again writes to this page telling of his latest doings. He was unluckily in a bad car smash, but is getting back on his feet now. Hope everything is quite OK again soon Don. He has a folded dipole up in the air now and it's working out well. A few QSL cards have begun rolling in and Don hopes they continue to arrive. Among the stations heard by him lately are: IIEFS, KW6CM, KJBBR, KHG, VS-6NS, W K DL4SK, VP2DA, G3, KP4FI, XE, ZSS, ON4, ZSI, VE, F7B and Y34IG. Let's hear from you next month, too, Don.

YL CORNER

BY PHYL MONCUR

This month we have another article from Lesley Fullagar, you'll all remember her very amusing one some months back. This time she gives us her impressions of what a QSO between two XYLS would sound like.

CQ, CQ, CQ. This is XYL-One calling CQ 20 metres. XYL-One is calling and listening. XYL-All, XYL-All. XYL-One returning. Thank you for your call. You are coming through loud and clear. The handle here is Joan—Jig, Oboe, Able, Nan. The rig is the OMs, and the antenna is a temporary hay-wire dipole, till the OM finishes putting up the new rotary beam. What's the news from you? Everything goes on much the same this end. The DX was coming through well yesterday evening, so of course it was a case of taking the OM's dinner into the shack again.

Why must they call it a shack? It's a good enough name when that's all it is, but take Eileen's case, for example; she does more than any XYL should be asked to, I say—lets the rig be set up in the living room! That's far from being a shack, she has it so beautifully furnished. Of course her OM does his best to make it look like one, with his trailing wires, coils, switches, tubes, resistors, and goodness knows what else, all anyhow! What is it about Ham Radio that makes even an otherwise tidy man get his shack in such a state?

Had a bad day today. The children were home from school, of course, being Saturday, and there were ant-stings, and cut fingers, and quarrels, and baby's nappies to be changed—just one little thing after another, while I was trying to get lunch ready, too. Finally I'd had all I could take, so I put my head around the shack door to ask for the OM's help. You can guess what happened; a lot of hand-flapping to be quiet because he was in QSO! I went out in disgust. — QRX one.

Here I am back again; the OM was calling me. Then after lunch I wanted to do a bit of sewing—I've such a lot to do, as the children all seem to be growing out of their clothes at once. Yes, you've guessed it! Would I kindly stop as the machine QRM was ruining reception?!!

For all that, I must confess I get quite a kick out of listening in when I get a chance. It's wonderful what good friendships can be made with other Hams and their XYLS, though you've never seen them, and in the case of the DX ones, are never likely to see them! I can imagine, too, how much I'd depend on Ham Radio for companionship if I were one of the American wives stationed with their men on lonely little islands like Guam.

Another good thing about it—whatever the disadvantages of the hobby, it keeps our OMs

at home where we know they're not getting up to mischief!

Must go now, the OM is calling me again to help him with that beam tower. I daren't keep him waiting any longer. You know how it is—yet how many times do we have to call them to come to a meal?

73 for now. Hope CUAGN soon!
XYL-One is off and clear with XYL-All, and XYL-One is going QRT.

Get well wishes are extended to Joan, Mrs. VK3WJ, who has been very ill for several weeks and who now has quite a long convalescent period ahead of her. Been in bed with the doctor she has, poor dear. Now don't laugh, because it's been absolutely terrible for her. Anyway, Joan, I believe you've got a lovely slim little figure after your illness so that's something to make you happy and on behalf of all XYLS I wish you a speedy recovery.

A bird whispered to me (a stork it was) that he is going to call on Jan, Mrs. VK5EN, shortly, good luck Jan. Believe you've got some ideas for our column, well how about starting on an article while you're in hospital, you could do it in between feeding times.



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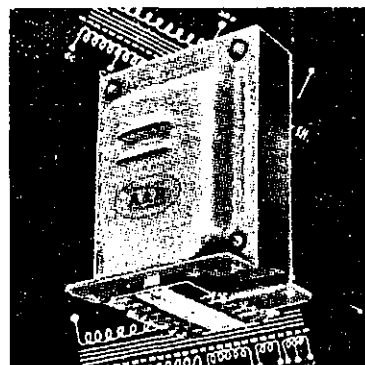
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" 1769	" " "	" "	350-C.T.-350
" 1770	" " "	" "	385-C.T.-385
" 1771	150 " "	" "	285-C.T.-285
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" 1779	" " "	" "	350-C.T.-350
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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

8.5 Mc.—Several reports refer to this band. A station in South-East-Asia was audible around 1400z and European signals showed up around 1800-2000z.

7 Mc.—Apart from regular openings to North America between 0730z and 1230z, Africa and Europe were represented, 1730-2100z.

14 Mc.—During the month all continents were workable, although some reports mention an apparent deterioration of conditions. Openings were frequently found to overlap and definite times cannot be given.

21 Mc.—Similarly, conditions on this band do not allow to define actual times of openings. General conditions were not very reliable.

28 Mc.—This band opened to North America and Europe at the usual times.

NEWS AND NOTES

According to John W6YY, Aland Island, with OH2HO/0, OH3RA/0, OH1RT/0, and OH1ST/0 will count as a separate country as from 1st March (for the A.R.R.L. DXCC, presumably).

New stations in Dutch New Guinea have made the following QSL arrangements: JZ0PA via VK6MK, JZ0PB see QTHs, and JZ0PC via VK5AB (from 5AB).

VS1GX is looking for VK contacts on 3.5 Mc. (from 2AMB).

CR4AS is on 21232 Kc., phone (from W6YY).

QTHs OF INTEREST

(from W6YY, VK5AB, BERS199 and Rod de Balfour)

ET3RL—P.O. Box 399, Addis Ababa, Ethiopia.

JZ0PB—C/o. Naval Post Office, Blak, Netherlands New Guinea.

VR3F—Via R.S.G.B.

CE3ZO—Jim Kirk (ex-G8ZO), P.O. Box 444, Santiago, Chile.

Ex-VK1VH—F. van Hulstsen, 15 St. Georges Crescent, Ashburton, Vic.

XE1RM—J. Adolfo Romero C., Circumvalacion 43, Colonia Popular, Guadaluajara, Jalisco, Mexico.

ZS9Q—Derek Taylor, Box 7, Francistown, Bechuanaland, S.A.

FF8AP—P.O. Box 6020, Dakar, Senegal, French West Africa.

VS4JT—Miri, Sarawak, Borneo.

ACTIVITIES

3.5 Mc.—Frank 2QL contributes the following: UB5KBA, OK3KAH, HB9, DJ2HC, DJ2UK, DJ1EB, OK1KAD. Laurie 2AMB heard VS1GX.

7 Mc.—2QL reports VP2AH*, ZD6BX*, OQ-5RU*, G*, VQ2GW*, VQ4AQ*, and ZS, LZ1AN, ZC4CH, DL, OK, DU7SV and JA. 2AMB follows with VS6AJH*, ZD6BX*, VQ2GW*, VS-1GX*, VS2EP*, SMSBLO*, SM5CXK*, 3W6AA*, and 9S4BM, V5SFY, V5SPM, F8VJ, VQ8AD, VQ8AE, HB9KB, KR6QW, YU1FMN, SM5GTI, YU2BQR, HLIAC, VQ4CC. Neville 2APL keyed with K4AQL/KG6* and spoke to JA1QM*. Bud 2AQJ contributes WTVZS* on phone. 8AHH worked HLIAC.

14 Mc. C.W.—2QL: VQ2GR*, ZD6BX*, VQ-4AQ*, VQ6LQ*, ST2NG*. Harry 2YL: ZK2AB*, MP4BBE*, JA*, HB9*, CR7AD*, YV5DE*, KP-4VUH*, ZC4GT*, EA*, UA0*, CR7FC*, YV5HL*, YU*, PY1ABS*. Graham 2AGB: FYTYF*, FG-7XC*. 2AMB: VP3AD*, VP9CX*, BVIUS*, KP4AW*, VQ4AQ*, 4STM*, ZD6BX*, HC1KD*, TZ2DL*, and CR9AH, VQ2RG, UQ2AB, VS-1HC, OH, UO3AA, CR6AI, CR10AA, ZC4GT, YA1AM, 2AQJ: UA0KJA*, UA0KCA*. Frank 3FC: ZS6*, VQ6LQ*, ZBI*, ISRAM*, ET2*, SM*, YV5*, ZS2*, 4X4*, HRIEZ*. Doug 5AB: LZ1KPC*, OE*, VP2LU*, VP5BL*, KP4AGR*, UR2AK*, VP4*, FQ8*, LU3*, ZD*, VU2*, OAS*, VP8*, VR3B*. John 5HI: ZC4AA*, ZC-4GM*. Ray 5RK: 457L*. Col 7LZ: YA1AM*, UA6AI*, CE3RE*, LUTCD*, YV5HL*, LZ1KPN*, VSIHC*. Eric BERS199: AP2RH, CE3DZ, CR-7AD, DU3JO, IS1FC, MP4BBE, VQ2JN, VQ-4AQ, VOID, VR3E, ZC4IP, ZD6BX, ZS6R, 457MR, OK4Y/MM. Dave WIA-L3039: KP-4URO, VP3BL, UA0CD, PA, OH, YA1AM, UA-3KAH, VU2JG, DM, G, DL, ON, SL, VS2FF, YV5HL, OK, SM, LA, 457MR, PA0AG, DU1CV, AP2RH, 457WP, UB5KBA, VS1GZ, UA0KJA, UA0KKB, VP2LU, VS1GX, HB9, KP4ZC, SP.

† Hans J. Albrecht, 10 Belgravia Ave., Box Hill North, E.12, Vic.

* Call signs and prefixes worked.

z—zero time—G.M.T.

UR2AK, YV5DE, CE3DZ, VR3B. Rod de Balfour: CN8FB, XZ2OM, G, VQ4DT. 3AHH: VQ-6LQ*, G*, JA*, HB9*, DL*.

14 Mc. A.M.—2YL: ET3RL*, 2AGB: HRIEZ*, KCAUSA*, 4X4BO*, OZS*, TG9AD, FUB8C*, 5A17A*, HRIVS*, UA0KJA*, UA0KAE*, LU-9XA*, UB8KAA*, UA9IB*, OQDZ*, VQ9BU*, YU*, HB9*. Bram 6AB: VS8BE*, VS4JT*, G*, JA*, OE*, DL*, DJ*, YV5*, KP4ZC*, F*, I*, EA5BB*, EA*, 6HI: VP1PS*, VP1JH*, LZ-1WD*, UB5UW*, TZ2ET*, XE1CW*, SA3TH*, XE1VW*, EA8BX*, TZ2OE*, KZ3DX*, K3NAK/ VQ2*, KP4ZW*, HK3FV*, KL7BEW*. Rod de Balfour: EA7DT, EA, DL, F, I, CT, G, GM, OH, GW, HB9, LA, SA1TA, SA1TL, SA1TU, CN8AB, CN8FJ, CN2BD, SU1AS, ET2US, FA-9IB, 2ASBE, FF8AP, ZS6AJ, 3V8AS, 4X4KH, 4X4KD, ODSY, ODSBX, AP2U, VU2BK, VU-2AK, VU2AT, VS1, VS2, HZ1AB, HZ1TA, 457YL, 457FS, VS4JT, VR3F, KA, JA, XW8AC, XE2WF, XE1EW, XE1RE, TG9AL, TG9AF, TG9MQ, TG9R, TZ2HP, KP4WLU, KP4VA, VP2DT, VP9DC, KZ5DX, HRIEZ, HP3FL, YS-1MS, HH2JK, HHIHE, YV1AG, YV3BH, YV-5BQ, CE2CO, LUTMAL.

14 Mc. S.S.B.—Only one report has been received this month, from Rod de Balfour: SM-5AQV, OH20Y, HB9FU, DJ1ML, DLAAI, ILO, G3YOO, BVIUS, HZ1AB, HR7WC, KR6AF.

21 Mc.—2QL: KP4ADS*, ZS*, VQ4Q*, HC-7WK*, MP4BBE*, DL*, G*, ON*, OH*, PA*, UA1*, YO*, 3W8AA*, and YN1AA, LU, AP2RH, PJ2AV, 2YL: LZ1KPN*, G*, JA*, GM*, SM*, YO*, DL*, SP*, UB3KIA*, VS4BO*, KV4BB*, ZS4PH*, 2AGH: ZS1JU*, GD3GMH*, OH*, VQ5GE*, ODSLX*, FA8VN*, EI*, UB5WF*, HZ1AB, CR9AH*, BVIUS*, VS4BO*, ZJ0PC*, 2AMB: ZS6DL*, ZS5U*, ZS8R*, OZ*, KP4ADS*, DL*, GM*, G*, OE*, and ZS4KH. 2APL: DL*, G*, JA*, 3W8AA*, 2AQJ: ZJ0PC*, JA*, 3W-8AA*, HR1LW*, F*, ON*, VS4BO*, 5AB: KZ-5DX*, KZ3CP*, ZS*, VU2RC*, ZJ0PC*, JZ-0PB*, JA*, G*, FQ8AD*, DL*, DJ*, VP8ZX*, VP6WR*, VS6CO*, MP4BBF*, YN1PM*, GM*, I*, TG9WB*, LU9DAH*, KL7ALZ*. 5BY: KP4*, UA3*, GM*, LU3*, SM*, 7LZ: EI*, G*, DL*, WIA-L3039: G, CE3ZO, F, OH, 3W8AA. Rod de Balfour: OH, SM, LA, G, F, DJ, DL, TF-2WBT, LX1DC, PA, GM, UA4, SP, ON, I, SV1AE, 457YL, 457GD, ODSAV, VU2EJ, VU-2RC, XZ2OM, VS6, VS2, BVIUS, KA, CR9AL, CR9AH, VS4NW, SAJT, JZ0PB, JZ0PC, VP-1EE, VP5EM, VP9EW, KV4BE, KZ3DK, KZ5FC, KP4ADK, KP4AZ, HR1LW, W4YPP/KL7.

28 Mc.—Only two reports have been received, from 2QL: W*, LA* and OH, and Rod de Balfour: VE, KL7BJC, W.

Rare QSLs have been received by 2QL: VP5DC, 2AMB: VP2DJ, CE3HL, HB1MX/HE, EA8BF, VK9TW, ZS9R, VQ6LQ, HRIEZ, HC-2BH, 7LZ: VR3D, HK1DZ, XW8AC, BERS199: CE3ZO, CN8FD, UR2KAA, VK1VH, VQ2GW, XE1RM, ZE3JO, ZS9Q. Rod de Balfour: VR3D, XW8A.

Thanks to W6YY, and the Northern California DX Club, and VKs 2QL, 2YL, 2AGH, 2AMB, 2APL, 2AQJ, 3FC, 5AB, 5RK (QSP 5BY, 5HI), and BERS199, WIA-L3039, Rod de Balfour (QSP 7LZ).

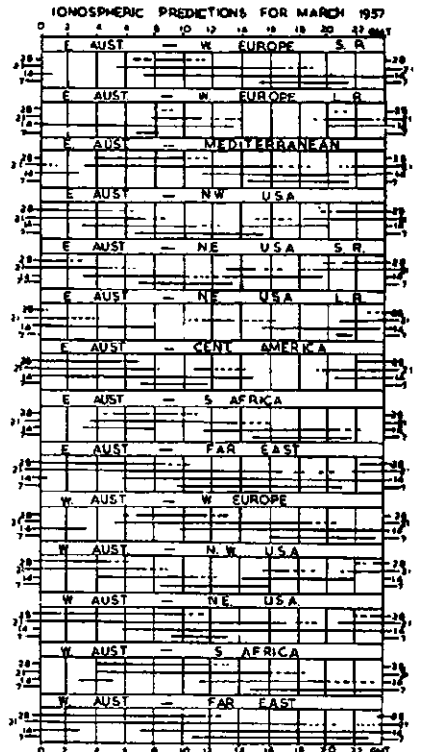
It is with some regret that I now have to discontinue writing the DX column. At the time of writing, I am hurriedly preparing an overseas trip for family reasons. Additional duties during the International Geophysical Year will not leave me much opportunity for Amateur Radio.

Under the circumstances, I am indebted to Frank VK2QL for agreeing to continue this column, at very short notice. Frank needs no introduction to you. He has been a consistent contributor to this page, is an experienced DXer, an excellent c.w. operator, and a good DX-editor. After all, it was VK2QL (ex-VK4QL) who established this column some years ago, until VK7RK took over in November, 1952. Since October, 1953, I have tried my pen on this page. Admittedly, it involved a bit of work but I enjoyed it immensely, and hope that readers were satisfied with all of my forty-one issues of the column. Frank will take over as from next month. Reports have to reach him, at 30 Abbotsford Road, Homebush, N.S.W., by the last day of the month.

I cannot conclude my last column, at least for some time, without a word of appreciation for the co-operation I have experienced during my term of office. With the consistent support of old and young DXers, of Federal and Divisional office-bearers, and the Publications Committee, it was a great pleasure to compile this page. Thank you and please do the same for Frank! OK, friends, when time permits, see you on the low end!

ERRATUM

An error appears in the circuit of the "Clamp Tube Modulation" article (Dec. '56, page 7, column 3). The corrected circuit will appear in the next issue.



Wireless Institute of Australia Victorian Division

A.O.C.P. CLASS

commences

MONDAY, 29th APRIL, '57

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—
Secretary W.I.A., Victorian Division, 191 Queen Street, Melbourne (Phone: MY 1087) or the Class Manager on either of the above evenings.



FEDERAL

Fed. President: W. T. S. Mitchell, VKSUM.
 Fed. Secretary: L. D. Bowie, VK3DU, Box 2611W, G.P.O., Melbourne.
 QSL Bureau: R. E. Jones, VK3RJ, 33 Landale Street, Box Hill, E.11, Vic.
 Awards Manager: A. G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Jim Corbin, VK2YC.
 Correspondence Secretary: H. King, VK2ASU, 19 St. Pauls Road, Balgowlah, N.S.W.
 Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
 Divisional Sub-Editor: Stan Bourke, VK2EL, 17 Clisdell Ave., Canterbury.
 QSL Bureau: J. B. Corbin, VK2YC, Box 1734, G.P.O., Sydney (Inwards and Outwards).
 Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Newcastle: Les Sparke, VK2AOR, 18 Kahlbah Rd., Highfields, via Adamstown; Coalfields and Lakes: H. Hawkins, VK2YL, 9 Comfort Av., Cessnock; Western: W. Stitt, VK2WH, "Cambijowa", Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxlade St., Warrawong; Sth. Western: J. W. S. Edge, VK2AJO, Wallace St., Coolamon; Tamworth: F. W. Fowler, 4 Thompson Crescent, Tamworth.

VICTORIA

President: G. Dennis, VK3TF.
 Secretary: F. G. Ball, VK3YS.
 Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.
 Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.

FEDERAL

FOUR METRE BAND IN GREAT BRITAIN

An interesting piece of news from Great Britain is that British Amateurs have been granted permission to use portion of the 70 Mc. band. To quote the R.S.G.B. "Bulletin": "The 4 metre band (70.2 to 70.4 Mc.) is a most welcome addition to the British Amateur's v.h.f. allocations. It is in a part of the spectrum where very interesting results may be achieved, particularly in the way of DX, with every possibility of the m.u.f. going much higher. The band also promises to be of considerable interest for mobile use."

French Amateurs have had the use of this band for some time and have had excellent results. Their record distance stands at just under 1000 miles.

FEDERAL COUNCILLOR

From VK5 Division comes the news that Mr. G. Bowen, VK5XU, has been re-appointed as Federal Councillor. Those members who listen to the W.I.A. broadcasts will be familiar with Gordon's cheery voice telling the VK5 story to all and sundry. He is also most active with the operations of the Federal Contest Committee and will be attending the Federal Convention in Melbourne at Easter.

FEDERAL QSL BUREAU

Lincoln Lindley, the operator of VK3YL, wishes it to be known that he is a "mere male," and not a female, as the call suggests. Lin, in a recent QSL, advises that he is on temporary duty in "VK" with the R.A.F. and that he will be returning to "G" land shortly, where he hopes to work VK stations from his home call of G3KFA. He requests outstanding QSLs from VK stations be forwarded to him before he leaves for home (direct or via the W.I.A. Bureau).

The 1957 French Contest is scheduled for c.w. from March 2, 1200 G.M.T., to March 3, 2400 hours, and for phone from April 13 to 14, same G.M.T. This is an opportunity for working French Provinces (D.P.F. award) and French Union Countries (D.U.F. award). Code is RT (c.w.) or RS (phone), and the number of the QSO (e.g. 379014). A French station identifies one's REF Section by ciphers, and province or country by letters, which are sent after the call when the prefix is not sufficient for identification: e.g. F8DU/15/IF for 15th REF Sections and Province DPF; lie de France, FASB/OR for REF Section of Oran (in Algeria). FQ8AG/MC for DUF country of Moyen Congo in French Equatorial Africa (AEF). For French Union stations (FF-FQ-

Divisional Sub-Editor: Phyl Moncur, 235 Union Road, Ascot Vale.

QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.I. Vic.

Zone Correspondents: Central Western: W. J. Kinsella, VK3AKW, Magdala, Lubeck; South Western: W. Wines, 48 Cranley St., Warrnambool, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; North Eastern: L. Eliason, VK3ALE, 72 Orr St., Shepparton; Far North Western: M. Folie, VK3GZ, 101 Lemon Ave., Mildura; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe; North Western: C. Case, VK3ACE, Cumming Ave., Birchip.

QUEENSLAND

President: Frank Bond, VK4ZM.
 Secretary: W. J. Rafter, VK4PE, Box 638J, G.P.O., Brisbane.

Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.

Divisional Sub-Editors: F. B. Bond, VK4ZM, and W. J. Rafter, VK4PE.

QSL Bureau: Inwards—J. Files, VK4JF, Wanda St., Buranda; Outwards—Miss Clair O'Brien, 93 Jardine St., Stafford.

Zone Correspondents: Maryborough: R. J. Glassop, VK4BG, 80 North St., Maryborough; Townsville: R. K. Wilson, VK4RW, Hogan St., Stuart, Townsville.

SOUTH AUSTRALIA

President: W. J. Bulling, VK3KX.
 Secretary: B. W. Austin, VK3CA, Box 1234K, G.P.O., Adelaide. Telephone: UX 2621.
 Meeting Night: Second Tuesday of each month at 17 Wymouth St., Adelaide.

Divisional Sub-Editor: E. C. Daw, VK3EF, P.O. Box 44, Gawler, S.A.

QSL Bureau: Geo Luxton, VK5RX, 27 Belair Rd., West Mitcham, S.A. (Inwards and Outwards).

WESTERN AUSTRALIA

President: J. E. Rumble, VK8RU.
 Secretary: J. R. Elms, VK8BE, Box N1062, G.P.O., Perth, W.A.

Meeting Place: Perth Technical College Annex, Mounts Bay Road, Perth.
 Meeting Night: Third Tuesday of the month.
 Divisional Sub-Editor: E. J. R. Cowles, VK8EJ, P.O. Box 11, Bencubbin, W.A.
 QSL Bureau: Jim Rumble, VK6RU, Box F319, G.P.O., Perth, W.A. (Inwards and Outwards).

TASMANIA

President: F. J. Evans, VK7FJ.
 Secretary: M. Hurburgh, VK7MH, Box 371E, G.P.O., Hobart.

Meeting Night: First Wednesday of each month at the W.I.A. Club Room, 147 Liverpool St., Hobart.

Divisional Sub-Editor: H. J. Bracken, VK7BR, C/o P.O., Bronte Park.

QSL Bureau: K. A. Johnston, VK7RX, 34 Tower Rd., Newtown.

Zone Correspondents: Northern: K. J. Briggs, VK7LX, 18 Melbourne St., Launceston; North Western: S. H. Pattison, VK7UW, 38 Mark St., Burnie, Tas.

PAPUA—NEW GUINEA

President: W. C. Gee, VK9WG.
 Secretary: H. S. Young, VK9AMZ, C/o P. & T. Dept., Port Moresby.

QSL Bureau: R. Lloyd, VK9ZAL, C/o Commonwealth Dept. Works, Port Moresby.

FB-FO-etc.) please answer 10 Kc. from the frequency of the station. Send the copy of the log to REF, P.O. Box 42-01, Paris R.P. These logs are usable for application to DPF and DUF without any forwarding of QSLs.

FOAP/MM 30.XII. 58 South 31.08 West 144.12

The R.E.F. has been commissioned to edit a three color map of the itinerary of the Tahiti-Nui. This map will be sent upon request by writing to R.E.F., B.P. 42-01, Paris R.P., France, and including 480 francs, or 16 L.R.C.'s. The map will permit pin-pointing of the Tahiti-Nui's positions after a contact, a reception, or indications from press services. After the raft will have arrived in Valparaiso, those holding maps will be able to send them to R.E.F. The dated positions, as recorded on these maps, will then be verified and sent back to the owner without cost and with the confirming signatures of the expedition members certifying that the holder has taken an active part in this modern Polynesian expedition.

—Ray Jones, VK3RJ, Manager.

FEDERAL AWARDS

Members are reminded that the return of cards by registered mail can only be undertaken if sufficient postage is sent at the time of application.

W.A.V.K.C.A. AWARD

Certificates have been issued to the following: W. G. Hard, W6CTL; V. Kott, OK1FF; J. Hyska, OK1HI; E. Anderson, S5SL; L. Gregg, W0IU; and R. W. Chronic, W7CSW. Total certificates issued to date, 51.
 —G. Weynton, VK3XU, Awards Manager.

NEW SOUTH WALES

The big news for this month is the New South Wales Division's Seventh Annual Ham-fest, held over the Australia Day week-end in January. Proceedings commenced with the monthly meeting of the Division at the usual

SILENT KEY

It is with deep regret that we record the passing of:—

VK3FP—Don Birkitt, 16/1/57.

meeting place on Friday, Jan. 25, continued at Brighton-le-Sands on the Saturday afternoon and evening, and concluded on the Sunday with a get-together and auction at VK2WV, Dural. All sessions were very well attended and a good roll-up of country visitors from most zones was very pleasing. Honours go to the South Western Zone for the largest representation.

At the meeting Mr. Graham McDonald, of Philips Electrical Industries, gave a most interesting lecture on the subject of "Transistors." Mr. McDonald did such an excellent job of explaining the mysteries in the operation of these interesting little "gadgets" and the circuitry associated with them that a rash of transistor experiments will probably follow in his State. The vote of thanks was moved by Don 2ASW, who was responsible for what was probably the first transistor QSOs in Australia. These took place in the 3.5 Mc. band and signals were heard 200 miles distant (input 40 milliwatts!). Don now has his sights set for a QSO with one of the keen W stations!

On the Saturday the gathering here (and saw) a number of fine lectures. Ed 2EN and Vince 2VC displayed two home-built 17 inch TV receivers and demonstrated the use of TV test equipment in the alignment and adjustment of the receivers. The i.f. band-pass was shown and the waveforms of the various pulses demonstrated. Barry 2ZAG displayed and demonstrated two very neatly constructed Standing Wave Bridges for Co-ax Lines and described their construction and operation. Barry also gave many of those present their first sight of u.h.f. equipment, when he demonstrated his power tripler stage for the 1213 Mc. band.

After tea Bert 2ABB introduced some of the newer television tubes and suggested some of their possible applications in Amateur equipment. When some of these become more plentiful they should make possible some very small and efficient pieces of equipment. Harry 2AJZ, deputising for Leo 2AC, described the "Monimatch"—a very useful device which not only measures the standing waves on your feeder, but is left in circuit continuously acting as an excellent indicator for tuning up and a constant "watchdog" on the antenna system. It is hoped to reprint from "QST" the "Monimatch" next month. Ed.1 The evening concluded with some interesting films, followed by the usual late ragchews. Some idea of the prizes won and carried off in the various competitions can be gained from the following list of firms supporting the function with donations: Mullard-Aust., Ducon Condenser Ltd., Lawrence & Hanson, Bambach, W. McLellan, George Brown & Co., U.R.D., U.C.C., Philips Electrical Industries, O. T. Lempiere & Co., VK2AHP, VK2EN.

Perhaps the most gratifying event of the whole Hamfest was the great roll-up at VK-2WI's location at Dural. A total of over 20 cars was counted and the gathering of well over 100 kept the auctioneers, 2ABU and 2FH, with their assistant Harry 2AJZ, very busy indeed. The relaxation of the "fires in the open" ban and the very generous donation by Harry 2AHP resulted in a very fine barbecue and a large quantity of chops and sausages were dispensed very quickly. Favourable comments on the building and location were heard from all quarters. A couple of roll-ups like this one and all the finishing touches to the building and grounds could be completed without any trouble!

Space will not permit thanks to be extended individually to all who worked so hard to make the Hamfest such a great success, but special thanks are due to the Council of the Division for their untiring efforts, to the manufacturers and members who assisted so generously with donations, and to the ladies who toiled so hard under difficulties in the kitchen. Here's hoping to see YOU at the next Divisional Hamfest.

HUNTER BRANCH

No meeting of the Hunter Branch was held in January as the Branch was in recess for the holiday period. Activity by the Amateurs in the district over the last month was not very great. Main activity centred on 7 and 14 Mc. with 2CN, 2SF, 2ZL, 2AOR, 2AFA, 2CS, 2XY and 2AQR being the most frequently heard. Bill 2ZL has been most active and his new modulator sounds f.b. Bill also has his Super-Pro rx working well, but he admits he can't play billiards. Bob 2AQR has been back on xtal due to trouble with his v.f.o. Harry 2AFA heard demonstrating 20 mx phone DX for visitors. Harry had the usual visitor's luck. Jim 2AHT has been working 10 mx DX; he may not have so much free time shortly. John 2XQ, Johnny 2DZ and Bill 2XT have all been on holidays. Johnny went to Coffs Harbour and Bill to Katoomba. Neil 2XY recently became the proud father of a 2nd op.; hope he doesn't cause as much QRM as his old man. Norm 2ANA has no antenna at present due to his feeders snapping off in the last storm. Les 2AOR now possesses a "one-eyed monster" which displays some peculiar patterns when

Les switches on his tx. Bill 2XT has come into possession of a small compact converter which he intends to put to use as part of a mobile rig. Hylton ZL2MN paid a brief visit to Newcastle where he met Neil 2XY, Bill 2XT and Les 2AOR. He stayed overnight at 2AOR's and was shown the sights of the city by courtesy of 2XT.

A TV lecture and demonstration was held during the month at the University of Technology, to which Hunter Branch members were invited, and a number did avail themselves of this offer.

Our next meeting will be held at the University of Technology, Tighes Hill, on Friday, 8th March, at 8 p.m. As this is our Annual General Meeting whereat the Branch officers for the ensuing year will be elected, all members are especially requested to note the date and time and make every effort to attend.

Don't forget to listen for 2AWX, the Hunter Branch station, every Monday night at 8 p.m. or about 14.3 Mc. for the latest information on Hunter Branch activity.

SOUTH WESTERN ZONE

Very pleased at the roll-up of zone members at the State Hamfest; a total of nine Hams and Associates from Griffith, two from Tumut, and one from Coolamon. Thanks chaps for making the effort, although we of this zone have always shown we are not afraid to travel to Conventions and such. I am sure all the zone members who were at Dural will agree with me that Council and others have done a mighty fine job in the building of 2WI. When the building is completed and tx's and rx's installed, it will certainly be something this State can be proud of.

I think the most interesting thing we saw while in Sydney and at the Hamfest was the t.v. which most of us from the country were seeing for the first time. An actual demonstration was given by Ed. Hulme and Vic. Cahill on t.v. sets they had built themselves. Both were very well constructed and worked f.b., a credit to Vic. and Ed.

As far as actual zone news goes, "boy" it's scarce. Your scribe had another visit from Eric 2DY and family who were en route to Griffith. Have not heard Don 2RS at all lately. I have plans to visit Albury shortly, and hope to see the Albury gang in person.

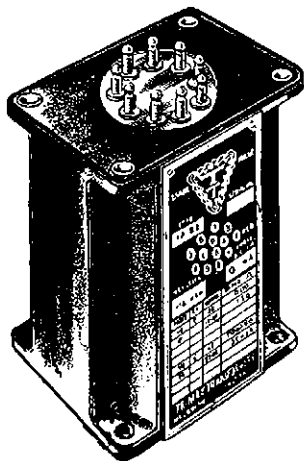
TAMWORTH AND DISTRICT

We start this month's news with an apology for not being on deck for the last two months, but owing to getting our radio club started and trying to educate all the members into being Hams, we have been pressed for time.

Talking about educating younger members. We had a nasty lesson recently, while working portable from the club rooms on 14 Mc. A VK6 came up zero beat on our frequency at strength 9 plus, and proceeded to call YV1A.I. He was unsuccessful in making the contact, so then proceeded to elaborate to some others how he could cut through the rubbish that was going on in the channel and work through it all. The rubbish, of course, was VK2APG/P, at the Radio Club. It is not our intention to do this sort of thing, but I can assure the said gentleman, that his lesson to the 23 members present was most enlightening.

Now some news. Dennis 2AWW is now operating from Tamworth, having installed his modified AT5 which is working f.b. Merv. 2ATD has been successful in working Ken 2ANU at Muswellbrook on a mod. os., running 8 watts. Sam 2LY leaves us this month for a three months' holiday in VK3 land, and is taking his portable with him. Noel 2ASQ has at last got his three element semi-wide-spaced beam up, and it is working very nicely. Noel went to a great deal of trouble to ensure that the beam would be up for a number of years, and has made an excellent job of building it. Bruce 2ZAD now has a xtal controlled rig on 2 mx and puts out quite a nice signal with same; congrats. Bruce, success at last.

Frank 2APF has built a new portable rig, 50w. to a 6146, and is having some good contacts on all bands; may describe the rig at some later date. Nothing has been heard of Sid 2APS, but we believe he has something up his sleeve! Visitors to Tamworth this last couple of months were Norman 2ZL's brother, Ossie 4TN mobile (one of the nicest mobile set-ups we have seen for a long while) and his co-pilot a VK4 Z call. Weather here has been very hot, around the 100 most of the time, and summer static has been most annoying on some bands. We hear Wallie 2AXH has to go to Sydney with his well known XYL, Clare, who is to have an operation; we wish her well and a speedy recovery.



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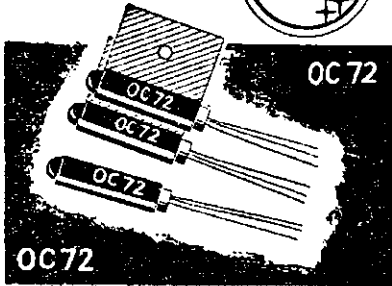
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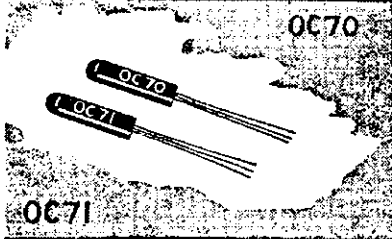
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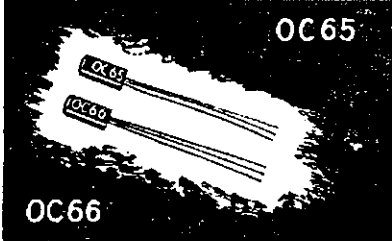
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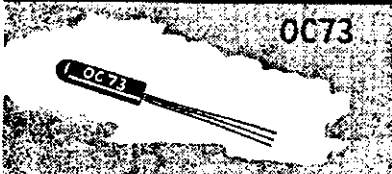
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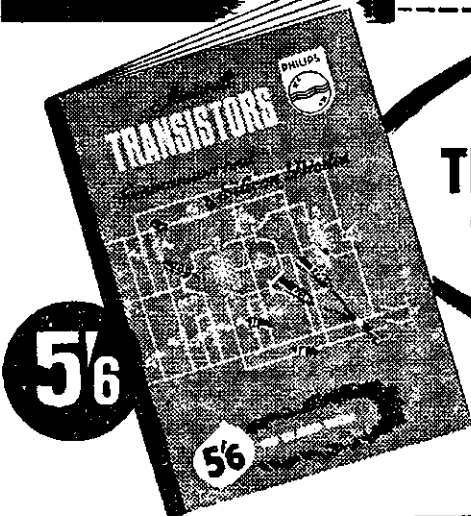
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COALFIELDS AND LAKES

Duncan 2MC will be active by the time these notes appear, getting modulation on an ATS; probably be on 7 Mc. for a time; very interested in antennae, too. Apart from 2RU, a Gostford regular, 2AEZ is active on 14 Mc. c.w. Heard Ern chasing the DX. No news of Bob 2KF this month. The Upper Hunter is being kept on the air by 2ANU and 2VU. 2YL seems to be only other station at present on air regularly; getting quite fair results on 14 and 21 Mc. If any zone stations have any news re doings for inclusion in these notes and don't contact me on the air, a note by end of each month will be appreciated.

VICTORIA

It is with deep regret that the Wireless Institute learned of the death of Don Birkitt (VK3FP), who passed away on Wednesday, 16th January, at Laverton. Don has always taken a great interest in the affairs of the Wireless Institute and was well known for his work in connection with the 2 mx relay of the slow morse transmissions. He had been ill for some months and is survived by his widow and four children.

There was only a moderate attendance at the February general meeting. The first half of the programme was very excellent. Through the courtesy of Roth 3BG, members were privileged to see three very interesting and enjoyable films, namely, "Down A Long Way," "The Persian Story" and "Foothold on Antarctica." The second half of the programme was to have been a discussion on W.I.A. policy, but turned out to be more of a grouch night when members aired their views on almost every subject from the building fund to the 3WI Sunday morning broadcasts and criticism of those poor unfortunates, the very hardest working members of the Institute. However the office-bearers had all the answers at their fingertips and some comments from members of F.E. were very quickly and easily disposed of, in fact in every case the President or Hon. Sec. were able to give answers and explanations to all queries. Syd 3ASC stuck his neck out and volunteered to try a new microphone at SWI in an endeavour to improve the modulation quality. Whereupon Hon. Sec. 3YS immediately signed him up for service without any further ado.

Things were very lively and I was really enjoying the meeting until some cove in the row behind got up and started to criticise the broadcast script, said, "It was monotonous," he did. Now that broadcast script is my baby, and why does he think we have to have fish and chips every Friday for tea? Well, you're all wrong you see, it's because it takes me all day Friday to do it. And if it's monotonous, it's all the fault of you Ham-bodies. If only you'd buy yourself a copy of the Call Book and the Log Book, we'd sell them all and I wouldn't have to put it in the broadcast so often and then everybody would be happy. However, an airing of opinions is a very good thing every now and then and the general meeting is the place to do it.

The following new members were admitted to the Institute as full members: Messrs. H. W. Ellis (VK3AJE, ex-G3JLG), R. G. Steele (VK3GPI), A. W. Adams (VK3VJ), E. F. Caddy (VK3AEC), and W. L. Tremewen, a former member of the Institute's theory classes and who has just recently received his A.O.L.C.P. Mr. Jan van Kerbwijk was admitted as an associate and Messrs. P. R. Armstrong and D. G. Mathews as Junior Associates. Mr. Mathews was present at the meeting and was personally welcomed by the President.

We had a visitor from VK5 present at our meeting, he was Ern 5EN and he seemed to enjoy making the acquaintance of our VK3 members. Ern has a nice friendly personality and the VK3s enjoyed meeting him also. The second 8.W.L. 100 Certificate was presented to Warren Moulton for having shown proof of confirmation of reception of 100 Amateur stations. David 3ZAQ was the winner of the October Bi-Monthly All-Band Scramble.

The next general meeting will be held on March 6 and will take the form of a tour of inspection of the Radio and Television section of the Royal Melbourne Technical College with the possibility of a TV lecture also. The Annual General Meeting will be held on 3rd April.

CENTRAL WESTERN ZONE

We are all very sorry to hear of the misfortune that befell Jim 3AOE recently. He lost his home and almost all his possessions when his house was destroyed by fire. This makes the going very hard for Jim, his wife and nine children, so we certainly hope that Jim's luck takes a turn for the better in the very

near future and that he soon regains all the things which he so tragically lost.

Gordon 3GW is another station on the air during recent months after a period of inactivity. He is on the land in the Rainbow district and obtains power from 110v. d.c. and a converter giving standard 240v. a.c. Herb 3NN, of Yannac, helped by his enthusiastic son Garry, regularly work Melbourne and Adelaide stations on the 2 mx band as well as being also active on the lower frequencies.

NORTH EASTERN ZONE

I must apologise for the lack of notes fellows, but news cannot be compiled without reporters. The general apathy of the North Eastern Zone towards this place in the mag. is such that it is just a waste of time and the space may as well be used to reprint interesting articles from overseas mags. A lot of the chaps are being kept on their toes during this year's bush fire danger period and therefore cannot spend very much time on the ordinary bands. Some just can't be bothered, some are playing with one-eyed monsters, a few chase DX, but Andy 3FD still turns up for the zone hook-up along with Vern 3AXW; occasionally Bruce 3AGG and Les 3ALE.

There has been a suggestion that a picnic type Zone Convention be held after the proclaimed bush fire danger period is over, and, before the cooler weather sets in. Benalla has been mentioned as a likely spot to hold such a function. Be on the zone hook-ups fellows and put your views on record, do it now because later on will be too late.

An interesting few hours were spent last month with a visit from Aussie 4TN, who did a tour down this way, operating mobile with a most elaborate rig in his ute. Jim 3JK is still active and is enjoying his new in-door shack. Vern 3AXW has taken up water skiing. Peter 3AFP and Alan 3UI are busy playing with other branches of electronics, Bruce 3AGG is getting ready for 10 mx with a new converter. Brian 3ASF is playing with new mobile gear, John 3ACK has been reading up on serials, Sid 3CI still has his antenna farm up above the house. Associate Earl Scoones is busy taming a new motor bike, and Ray 3FI gets an occasional chance to spend time placing his gear together.

EASTERN ZONE

Amateur Radio in the Eastern Zone area has suffered lately owing to the new one-eye monster, but some stations have found a spare minute or two to come up on 40 and 80 mx; others have been holidaying, namely, 3ZD, 3ZAB, 3ZCR, 3ZDP, and 3AIT who was worked mobile whilst at Port Campbell by Jack 3AJK on 40 mx. Other mobile stations who have been heard were 3AJK/M, 3ZCG/M (on 2 mx), and 3AAV/M (on 40 mx) who worked SACA (now residing at West Yallourn, and active on 2, 40 and 80 mx). We were all very sorry to hear of Doug's (3ASE) unfortunate motor car accident; hope you soon get well, Doug.

Two mx has been quite active lately owing to the better summer conditions and the Ross Hull Contest. 3ZD and 3VL worked VK7s. Ron 3ZD also worked 3ZAM and could receive 3BC, but no contact resulted. Other 2 mx DX was 3ATV at Birchip who was worked by 3ZD, 3ZAB and 3ZCG.

The Sale boys are building up better serials and receivers. Reg 3ZCR is putting up a 5 over 5. Peter 3ZDP already has his 5 over 5 up about 45 ft., with much improved results. We had David 3ZAT/P as a visitor at Maffra over Christmas. David 3DY is starting to get some 2 mx gear ready. Have not heard Jim 3DI at Leongatha for some time; hope to hear you on the hook-up on 144.18 Mc. on Sunday nights Jim. Other stations heard on two were Gordon 3JH (who is building a cubical quad) and Joe 3TO. Still nothing from the Morwell boys.

GEELONG AMATEUR RADIO CLUB

The club activities for 1957 got away to a good start. Fred 3ALG gave an interesting description of his NC173 rx. The various controls were discussed and the efficient noise limiter heard in action. Fred has been working quite a deal of DX in conjunction with an WBJK. Ted 3AEH has been very quiet on the band, but a visit to his shack has given the reason—TV components litter the QTH. Alf 3AJJ is preparing the shack for a new harmonic and we hope to hear more from him soon.

Jock Beekingham gave us another further talk on test equipment he has made. Listeners were privileged to inspect same; beautifully made equipment. John 3SY gave a television report and spent much time in discussing, with the aid of photos, the types of common interference and distortion apparent on a TV screen.

Many members have been mobile and portable. Bill 3AWZ was in the Yarrowonga district and met some of the Albury boys in the person of 2QD and 2RS. Jim 3ABT has been in the Murchison district, while 3AEH spent some time at Western Port Bay.

It is hoped to hold the S.W. Zone Convention at Geelong over the week-end April 6 and 7. All intending participants should contact 3AEH at his QTH.

QUEENSLAND

BRISBANE AND DISTRICT

We have come to the end of the old financial year and we would like to thank all our members for their support in what has been a very successful period for the Queensland Division. Council hopes that you all will continue to support the Division in the coming year—with the support of our members there's no limit to the things we can do. We now have the "clues" on how to get disposals gear and, though the war has been over for eleven and a half years, the supply of disposals gear is far from dried up. Government Departments have gear which is no longer needed and this is disposed of quite regularly. We are now receiving regular circulars from the Department of Supply listing gear to be disposed of and we are able to tender for gear which would be of use to our members.

Council is trying to arrange lectures for each general meeting and the meetings will be of interest to members, so please attend as many as possible. Brisbane members receive "QTC" during the week the general meeting is held and can't say "I didn't know the meeting was on this week."

Last year members who were slow in sending in their subs. were kept on the mailing list for "QTC" and "A.R." for quite a few months and had to be reminded. Please send your subs. in as soon as possible and save a long drawn out job for the "poor overworked Secretary." All joking aside, gentlemen, slowness in sending your sub. to the Secretary can prolong his letter writing job and increase the grey hairs that have started to appear in his locks since he took the job.

At the January general meeting the 1957 Palm Beach Convention was discussed and between now and the Queen's Birthday weekend in June, you are going to hear a lot about it. A lot of members said they were completely "in the dark" about the Convention last year and we are going to be certain that that complaint can't be made again this year. We would like to get Lennon's "Broad-beach" but we're afraid we will have to take the next best, the Burleigh National Fitness Camp.

The International Geophysical Year publicity is being intensified and it's about time we started to organise our part. We will obtain full details of the part we can play in the investigations from Professor Webster and it will possibly be published in the very near future. A recently published copy of "QST" gave details of equipment for receiving signals from the satellite to be sent aloft into the stratosphere later this year and an excellent description of the satellite and gear to be covered was published in "R.T. & H." This will be just so much "fruit" for the v.h.f. boys and it may stimulate interest in the "a.c. bands."

The Annual General Meeting will be held on Friday, 22nd March, and the Annual Dinner will be "in session" the next night so that any country members who are in Brisbane at the time can attend both. Last year's Dinner was a huge success and with the increase in membership since then, should make it necessary to serve the dinner in two sittings. Fortunately there is enough room at the Anzac House main dining room but we can dream, can't we?

Activity on the bands has been low in the last month and personal pars are very scarce. There have been some really big solar explosions lately and we are experiencing the usual lull in conditions which follow them. But don't be disheartened, the prediction section of "CQ" has stated that the peak will be a little later than expected at first and now state that the Swiss Federal Solar Observatories put the peak in May or June with a record high smoothed sunspot number.

MARYBOROUGH

Grahame 4DJ has celebrated his first month on the air with 101 QSOs and 14 countries, working on 14 Mc. and 7 Mc. After cleaning up some v.f.o. trouble and other growing pains, 4DJ has a well-modulated signal, and will also use c.w.; uses a folded dipole on 14 Mc. and

now has a Geloso v.f.o. driving a single 607. 4AI has nearly finished a new 14 Mc. xtal-controlled tx with a pair of 2E28s in the final. Plans a compact rotary beam for 14 and 21 Mc. Arch 4CB shortly due to re-appear on 26 Mc. 4BG concentrating on 14 Mc. DX while the going is good. Ron can't bear to part with his 3 el. 14 Mc. beam, so the new tower when erected will carry a separate 3 el. for 21 Mc. Fred 2FM and family stayed with 4BG while touring during the holidays and visited local shacks.

TOWNSVILLE

The annual and general meeting was held on 31/1/57 at Graham's place (4BX) and although attendance was not up to the usual annual meeting form, it was heartening to see the two new full members present, namely 4PF and 4MF. After disposing of minutes of previous meeting, the old committee was re-elected with the exception of a vice-president, which post was filled by 4BX; the retiring nominee failed to arrive in time for selection. The usual business was quickly put through and it was gratifying to see the bank balance grow by a small amount, although less members had joined in the previous 12 months.

The boys quickly settled into comfortable positions to hear the T.V.I. tape recording by 4HR. It evoked quite a deal of discussion and few of the boys put in advance notice of stations for sale in the event of t.v. coming our way. The tape recorder was lent by new associate member, W. O'Donnell, who aspires to become an Amateur in the future. "Good luck, Bill."

Vern 4LK is back from a holiday in VK3 and managed to see Canberra in the tour, but said unable to meet many of the boys due to trying to see too much at once. Ted 4EJ back from holidays also, fishing at Magnetic Island and now off work due to sore eyes. Allan 4BE another one just back from the south and looking forward to making up lost time on the bands. Eddie 4WH at long last is back at work, being off sick since last May. Good health, Ed. Our most recent full member, Bob Britton, 4MF, put his rig on the air before coming to the meeting and cautiously called CQ on c.w. and first contact was KGAAAY—no local getting the honor of first contact. May the DX soon mount up, Bob.

Next meeting should have a good roll-up as a very lengthy letter has been received from Harry 4HV giving his experiences in the different parts in all parts of the world he has visited since leaving our midst. You boys who have met and worked Harry while at Heard Island can imagine the doings he tells of. Edmund 4GZ having trouble with his new imported v.f.o. and looking for ways to get the coils back in line again.

SOUTH AUSTRALIA

Seventy-five members attended the January meeting with Allen 3CK, 52X, Alex Anderson and Ces Pike as visitors, all of whom heard and enjoyed another most informative programme given by TVI Committee members Ray 5BT, Rob 5RG, Des 5DK and Brian 5CA, the subject matter being lp. filters and a t.v.i. proofed tx. Actual filters and, of course, the tx were there for examination, which together with the theory advanced found an appreciative audience for a subject of all importance. Most of us now know what is required to clean up our gear, but seeing it done like that is a real help, for methods of keeping leads short, types of screening, etc., are more easily conveyed by example. Congrats fellows, we, the "back seat" boys, appreciate your efforts on our behalf.

The general business of the meeting was mainly devoted to agenda items for the Easter Convention, most of such being vigorously discussed, too.

The retirement of Mr. Burbury from the Post of Superintendent Wireless for S.A. was announced last month. We add our wishes to the many others already expressed, and trust he will enjoy his now less strenuous life, and take the opportunity of thanking him for his patient guidance and consideration whilst in office. Likewise we extend good wishes and congratulations to his successor, Mr. Trainor, and offer this Division's co-operation in the sphere where our interests are parallel.

The Australia Day holiday again caused a gathering of the VK5 gang at the Annual Picnic, held at the Birdwood Oval. The weather was warm and clear, described by the cricket teams as 'ot, but in all, an ideal picnic day. The only pity of it being that more members didn't come along to enjoy the outing and meet the gang in such an informal atmosphere. Heard of one member who hunted for the Picnic at "The Gorge," you will never live that down, Les.

A great deal of the organising, and carrying out of same, fell on the shoulders of our ever-green worker, Joe 5JO, ably assisted by Luke 5LL, whilst our public relations officer, Norm Coltman, turned up complete with 10w. of audio, a bucket full of mikes, and some records, and generally acted as announcer, commentator, and disc jockey. We are ever grateful to you boys and particularly to Joe who works hard at these functions.

There is always some outstanding feature or features at such gatherings, and this year there were two, firstly, Norm (the P.R. type) sported a W.A.S. dickey dirt, it was not fair really and would have been divided up there and then, only, who wanted to work W.A.S. anyway. The other feature was the children—honestly it would have been hard to find a nicer bunch of happier harmonics anywhere—and seeing them have fun was enjoyment itself. They ranged from 5FO's newest little heart-throb to the larger types who with pop guns, pupps, and dolls made an enjoyable day for those of us who were amongst them.

It was pleasing to have Pete 5FM, Scott 5AF, and Don 2AMN (from Broken Hill) amongst us, the regulars don't need mentioning, except perhaps Joe 5JO who brought along his family complete with husbands, nieces and nephews—three car loads.

The kiddies races culminated in prize giving, the "doll-in-ice" finally melted out at the estimated time given by Mr. Audle, whilst Frank Forgie's XYL obtained the lady's prize. Finally the cricket match, once more won by the phone team. There was a suspicion that some of the c.w. team were "ring-ins," but it was too hot to argue.

Gordon 5XU was to have given me some information re his trip to the Caves to pass on to you, but he got a bit "cagy" about it. Now it's known he will be doing an article for the magazine soon, so will give us a more complete story then—we are depending on you Gordon.

The holiday week-end caused a few to go portable/mobile, and amongst those heard were Keith 5MT near Port Pirie using a Type 3 with an aerial held aloft on a box kite!! A good signal too, Keith, and nice to hear you on the d.c. bands. Ron 5MK was portable near Lucky Bay; he also packed quite a signal here.

During the W.I.A. session on a recent Sunday a.m., 5WI went off the air—keep a supply of pennies handy, Gordon, to keep the meter active. The advice being hurled at him on 7146 Kc. whilst he was off had to be heard to be believed, and came from as far afield as Port Pirie, Port Lincoln, Broken Hill, and, yes, Goodwood—for shame, John.

Haven't heard much from the West this month beyond that Alf is going hard at c.w. practice still. John 5MX enjoying fishing and sunbathing. 5LT now back on the air with 6146's in place of the 607's that very blushing retired. Wal 5DF still active only on Sunday, rather busy at the "salt mine" these days.

Frank 5MZ had the time of his life during his stay in VK3 recently, Jim 5LM laid it on for him and from remarks think TV caused quite an impression. He states quite a few VK3s who are in the strong field area are still able to get by without filters and shielding.

At the time of writing there is great activity in preparation for the National Field Day and from all accounts the boys are not going to let Gordon 5XU carry it off this year. It will be interesting to find out how they all scored this time for field days should be more popular than they are in VK5.

Have heard of five more G4ZU beams in the building stage—there will be some mighty sigs from these parts soon and some worthy competition for the DX. Good luck fellows, you will like them. Reg 5QR, who has just completed his new table topper (2 x 6146's final) and whilst awaiting the completion of the G4ZU, tried out the new rig on a roughly erected VK4CC Multiband and on c.w. finds he can work DX OK on all bands!! Wouldn't it?

SOUTH EAST ZONE

Stewart 5MS is on the air again, having been heard on 20 and on 1st January made his official debut on 15 mx by working another country. Erg 5KU has been on holidays so Radio and Gliding have missed out. Les 5ZAG also on holidays. Tom 5TW has been seen with many paint spots on his shoes, and managed to get some on to the new poles soon to be erected. Associate Don is awaiting results of the limited exam. John 5JA is still busy with TV and his results good. Bram 5AB very busy on E.F.s. frequencies, but finds time to begin building a new tx and mod, in which he hopes to incorporate "ultra" mod. Claude 5CS still active on 7 and 14 Mc. activity down a bit.

TASMANIA

NORTH WESTERN ZONE

Another successful monthly meeting took place at the Devonport Fire Brigade Headquarters on 5th Feb. Congrats to the Devonport gang on the job done with VLIDE, the Brigade's local 25w. base station. There are also a number of mobile transceivers too, built by the local boys. In fact the whole station is something to see, complete with workshop, meeting room, showers, etc., and not the least the look of pride worn by the members of the Brigade. Thanks chaps.

The constitution came in for some further discussion, following the receipt of a copy from Hobart. Another item of interest for the evening was the display of a TV set, brought along by Athol 7LR; great interest being displayed by the members present. Wonder if those 17 inch tubes would make a good monitor for the rig, Athol? A welcome to the active ranks is extended to Sam 7SM, who is helping the QRM along with the AT5-AR6 combination; good hunting, Sam, and press on you other Associates. Whilst on welcomes, a hand to Lee 6LC, who has come amongst us recently, and even brought some of his gear over too. Let's hear you on, Lee, when you have settled in.

Roy 7RN was heard portable from Cressy a Sunday or two ago. Quite a good sig., Roy, seeing we haven't heard from you for some time. How did you like the weather fella? Real Tassy summer, what! Built up a 2 inch mod. checker for myself a little while ago and have been pleased with the improved reports received. Passed the circuit on to Rupe 7RM down south, who was as surprised as I was that it was so simple. Incidentally, Athol 7LR tells me TV sig strength was improved by elevating the yagi beam to an angle of about 25 degrees. Anybody else experimented on this?

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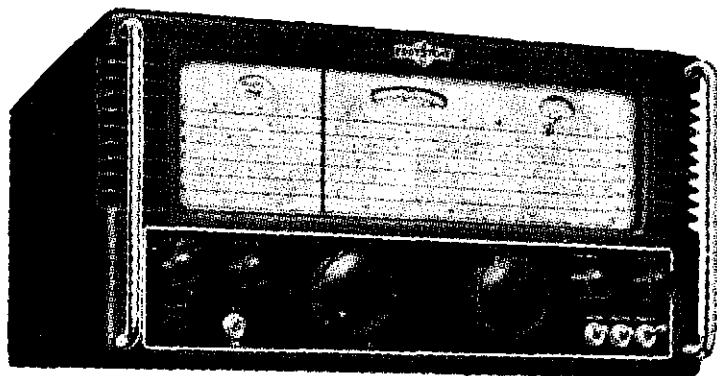
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3537 Kc.	5875 Kc.	6522.9 Kc.	7012 Kc.	7475 Kc.
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4096 Kc.	5950 Kc.	6550 Kc.	7025 Kc.	7550 Kc.
4172 Kc.	5975 Kc.	6561.111 Kc.	7032 Kc.	7575 Kc.
4205 Kc.	6000 Kc.	6575 Kc.	7032.6 Kc.	7600 Kc.
4285 Kc.	6025 Kc.	6600 Kc.	7050 Kc.	7625 Kc.
4445 Kc.	6050 Kc.	6625 Kc.	7075 Kc.	7650 Kc.
4600 Kc.	6075 Kc.	6650 Kc.	7100 Kc.	7675 Kc.
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EDITORIAL



UNITED WE STAND—ALONE WE FALL

The purpose of "Federation" is to ensure that the signatories to the agreement are able to work together in unison, in order to withstand the attacks of a common enemy.

For the guidance of all a set of rules is laid down which ALL agree to abide by, until by mutual agreement rules which appear unworkable or outdated are removed or replaced by more acceptable rules.

In the case of the W.I.A. this power is entrusted to your Federal Council, after each Divisional Council has had an opportunity to fully discuss the proposed change. Differences which appear insuperable on paper usually vanish after representatives have had the opportunity of discussing them around the table at a Federal Convention.

From time to time there appears on the horizon some bush lawyer with a pet theory or an axe to grind. In some cases he conditions the minds of his local audience in the

traditional Hitler style until they are fully convinced he is right. Fortunately for the well being of the community as a whole common-sense prevails and the problem is brought to the conference table for a decision by the majority.

He who insists on creating a kingdom of his own, because he cannot agree to abide by the rules laid down by others, is like the master of a ship who insists on leaving the protection of the convoy because he doesn't like the rules or agrees with the decision regarding route to be followed. He eventually loses his ship either by enemy action or because owners wisely realise that he is needlessly hazarding his ship—hence the moral of our title.

Be wise, insist that your Delegate submit problems to Federal Council at the Convention in order to ensure continuity of the unity which is our strength.

FEDERAL EXECUTIVE.

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THE MONIMATCH™

An Inexpensive S.W.R. and Power Indicator

BY LEWIS G. McCOY, W1ICP

If you have had the opportunity to use a bridge or reflectometer of the type that can be permanently connected to the transmitter, even at inputs up to a kilowatt, you know what a handy instrument it is for tuning transmitters and adjusting antenna systems. It will not only show you when the load at the end of your transmission line is matched to the line, but will furnish a continuous indication of the match. It will also give a visual indication of your relative power output, which can be quite important when making tuning adjustments.

The "Monimatch" is an easy-to-build version of such a bridge, based on a design developed at the Naval Research

● Here it is—an s.w.r. bridge that can be left in the line with any Amateur transmitter, costs only pennies to make, and offers no constructional problems. We have called it the "Monimatch," to indicate its dual function of showing when a match is achieved during matching-network adjustments, and thereafter monitoring the line to make sure that nothing has gone out of adjustment. Make one and you'll find the major problems of matching and transmitter tuning are problems no longer.

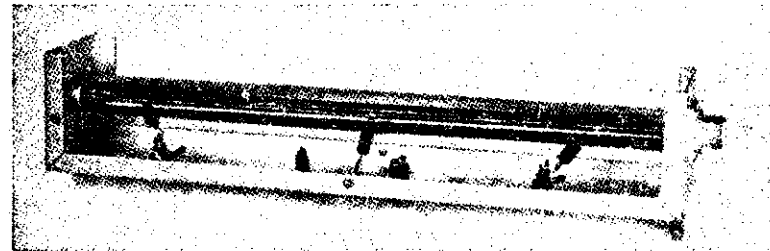
is nothing particularly novel in its construction, can be mounted in an ordinary metal meter case. Such a case will provide sufficient room for the d.c. milliammeter or microammeter (whichever is used) together with the variable resistor and toggle switch shown in Fig. 1.

The transmission line section should have a characteristic impedance approximately equal to that of the actual line to be used with the device, but this point does not seem to be very critical. The construction shown works equally well with 50 and 75 ohm lines, and does not introduce a perceptible s.w.r., over the primary frequency range for which the Monimatch was designed, when inserted in a matched line. (The bridge is useful, incidentally, on both 50 and 144 Mc., the latter frequency being about the limit at which the line length in the instrument could be considered small enough compared with the wavelength.)

The line section consists of a metal trough with $\frac{3}{8}$ " sides for the outer conductor, and a length of $\frac{1}{2}$ " copper tubing centred in the trough as the inner conductor.

In the unit shown in the photograph, the first construction step was making the $\frac{3}{8}$ " diameter holes for the co-ax sockets in the ends of the box. These should be located as shown in Fig. 2. When the co-ax receptacle is mounted it extends approximately $\frac{1}{4}$ " inside the box; the trough fits around this protrusion when it is mounted in place.

The trough can be made either from thin aluminum or copper sheet, aluminum being used in the model shown here. It should be made $12\frac{1}{2}$ " long and then cut back $\frac{1}{4}$ " at each end to make a $\frac{1}{2}$ " tab, as shown in Fig. 2 for holding the trough in place. The preferable method of mounting is to drill a hole in the tab and secure it with one of the screws that holds the co-ax fitting. This requires that the fitting be mounted with its sides making angles of 45 degrees with the edges of the box, as



● The essentials of the Monimatch are a few pieces of metal, a resistor, two diodes, and some fittings. Figs. 1 and 2 show the dimensions.

Laboratory. It is simply a section of transmission line to which a linear inductor is closely coupled. The combination of inductive and capacitive coupling is such that the incident component of r.f. voltage on the line is balanced out when the constants are properly chosen, leaving only the reflected component to actuate an r.f. voltmeter used as the indicator. The circuit of the Monimatch, shown in Fig. 1, combines two such bridge circuits back to back so that either the incident or reflected component may be read.

With this type of bridge or reflectometer the current flowing through the indicator circuit is a function of the operating frequency, so the circuit of Fig. 1 uses an adjustable resistor in series with the d.c. instrument to keep to readings in the desirable part of the meter scale. This avoids the necessity for adjusting the transmitter output to an "on-scale" level, but in turn precludes the possibility of an accurate s.w.r. calibration because the linearity of the rectifier-type r.f. voltmeter used as an indicator is too greatly affected by the amount of resistance in the d.c. circuit. It does not, however, affect the accuracy with which a good match between load and line will be indicated.

The dependence of voltmeter readings on frequency also makes a direct power calibration impracticable. But despite the fact that calibration in terms of either power or s.w.r. is not especially convenient (although not impossible), the instrument is nevertheless capable

of performing the really important functions of determining when a match exists, monitoring the match, and showing relative power output.

CONSTRUCTIONAL DETAILS

It is usually most satisfactory, for the majority of installations, to build the Monimatch in two units, the bridge itself and an indicator unit. A view of the bridge is given in the photograph, with additional constructional details shown in Fig. 2. This unit is built in a 12 x 2 $\frac{1}{2}$ x 2 inch aluminum slip-cover-type box with all parts mounted on the piece having one side and the two ends. The indicator section, which is not shown since there

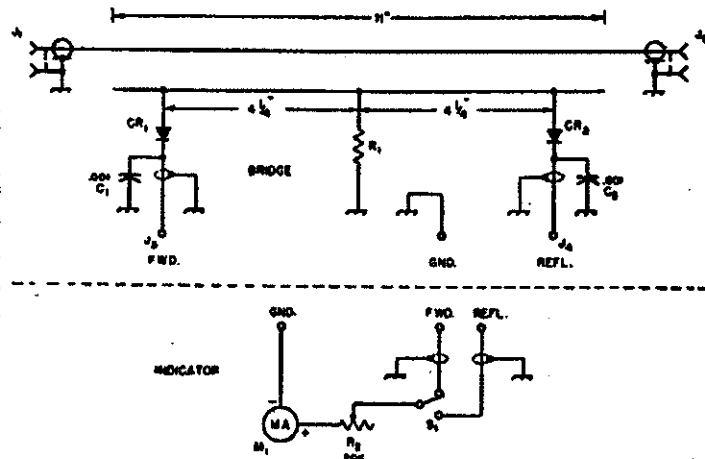


Fig. 1.—Circuit diagram of the Monimatch.
 J1, J2—Co-ax receptacles, chassis mounting type.
 J3, J4—Insulated tip-jacks.
 R1—68 ohms, 1 watt, for 52 ohm line.
 47 ohms, 1 watt, for 75 ohm line.
 R2—20,000 ohm potentiometer.
 S1—S.p.d.t. toggle.

● Reprinted from "QST," October, 1958.

shown in the drawing. An alternative is to use a short length of stiff wire, fastened under two of the screws, to clamp the tab to the fitting. (This is the method used in the unit pictured.) Before mounting the trough, the $\frac{1}{4}$ " copper tubing should be installed between the two inner conductor terminals of the co-ax fittings. The length of the tubing is approximately $11\frac{1}{2}$ ", and its ends are soldered to the co-ax fittings.

After the trough-line assembly is complete the next step is mounting the bridge wire, an 11" length of No. 14 gauge tinned wire. First, trim the leads on R1 to approximately $\frac{3}{8}$ ". Solder one of these leads to a soldering lug mounted on the side of the box (about 1" from the edge) as shown in the photograph. Next mount the tie points which support the crystal diodes. They should be placed 2" from the ends of the box and 1" from the edge. Two short leads of shielded wire are used to connect each of the tie points to the insulated pin jacks, J3 and J4. The pin jacks may be mounted in any convenient location. The cathode leads of the diodes and the 0.001 μ F. disc capacitors can then be mounted in place on the tie points. When soldering a diode, hold the lead with a pair of pliers to conduct the heat away, since the heat of soldering can ruin a diode.

INDICATOR

The required sensitivity of the d.c. meter for the indicator will depend on the frequency band and the amount of power used. Typical current values are shown in Table 1. A 0-1 milliammeter is usable for power inputs over 100 watts. At 100 watts, the 0-1 instrument won't be sensitive enough to give a full-scale deflection on 160 and 80 metres (it takes about 200 watts at 3.5 Mc. for full scale), but it isn't actually necessary to have a full-scale deflection for impedance matching purposes. On the higher frequency bands the 0-1 milliammeter will be adequate even with 25 watts input.

If the power input is less than 50 watts and the bridge is to be used on 160 and 80 metres a 0-100 microammeter will be needed to obtain large enough readings for matching. Incidentally, don't worry about burning out a sensitive meter if high power is used. Naturally, caution should be used when

Table 1

Typical values of rectified current with the indicator switched for forward reading. R2 at zero resistance, and the coupling wire spaced $\frac{1}{4}$ inch from the inner conductor.

Band	10 Watts Output	50 Watts Output
1.8 Mc.	25 μ a.	100 μ a.
3.5 Mc.	72 μ a.	250 μ a.
7 Mc.	200 μ a.	1 ma.
14 Mc.	750 μ a.	Over 1 ma.
21 Mc.	Over 1 ma.	"
28 Mc.	"	"

An output power of slightly over 200 watts was required to obtain a reading of 1 Ma. on 3.5 Mc.

making adjustments, but it is only necessary to be sure that there is enough resistance in series with the meter before tuning on the transmitter. After power is applied the resistor can be adjusted, if desired, to give full scale deflection in the forward direction.

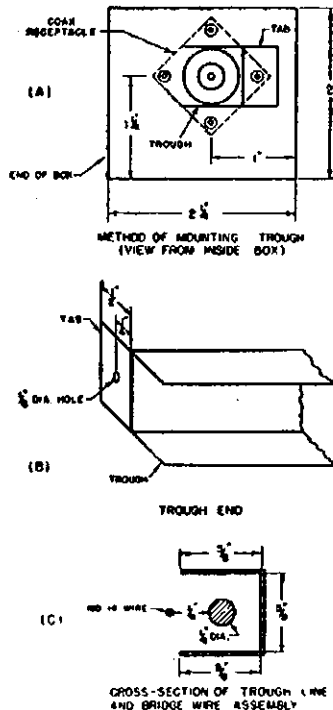


Fig. 2.—The drawing at A shows the method of mounting the trough to the end of the box. The trough is held in place by one of the screws that fastens the co-ax fitting to the box. Dimensions and constructional details of the trough ends are shown at B. A cross sectional view of the trough, inner conductor, and bridge wire is shown at C.

SETTING UP

A non-reactive load of the correct resistance to match the co-ax line is needed for the adjustment of the bridge. If you do not already have such a load or a dummy antenna of known resistance, a suitable dummy for 52 ohm co-ax can be made by connecting four 220 ohm 1 watt resistors in parallel, keeping the connecting leads just as short as possible. This will provide a 4 watt 52 ohm load, close enough to 52 ohms for the purpose. For 75 ohm co-ax, the load can consist of four 300 ohm 1 watt resistors in parallel.

Initial adjustments should be made on 28 Mc. Connect the transmitter to J1 and connect the dummy load (with short leads) between the inner conductor terminal of J2 and chassis

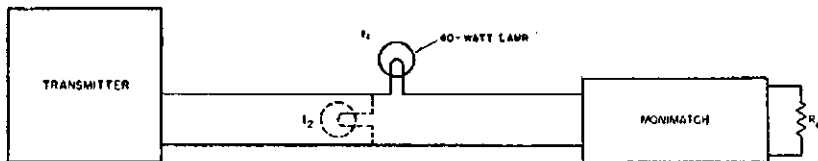


Fig. 3.—Shown above is a simple method of reducing the power output to prevent overheating the four-watt dummy load (R1). For transmitters of more than 50 watts output another lamp (I2), or lamps, should be shunted across the line to make the total lamp wattage equal the transmitter power output. If the transmitter has a drive control or some other method of reducing the output, the above system won't be needed.

ground. Adjust the transmitter output to approximately four watts, taking care not to over heat the dummy load. If the transmitter does not have built-in provision for reducing power output to this level, the arrangement shown in Fig. 3 may be used. The 40 watt lamp in series with the bridge will limit the r.f. current to about the proper value at powers up to 50 watts or so, and for higher power a second lamp may be connected across the line as shown. The total lamp wattage should be approximately equal to the actual output of the transmitter.

Solder the centre of the 11" wire to the remaining lead from R1 and space it about $\frac{1}{4}$ " from the inner conductor of the trough line. The free lead of CR2 should be soldered to the wire approximately $4\frac{1}{2}$ " from R1, as shown in Fig. 1. Before turning on the transmitter for the first test, make sure that the wire does not touch the inner conductor at any point. Then turn on the transmitter and check the reading on the meter. It should be very low or zero. If there is any meter indication, the diode lead should be unsoldered and moved a short distance one way or the other along the wire and the test tried again. When the point is found that gives a good null or zero reading, the bridge is in adjustment for reading reflected power.

Next, remove the bridge from the line and reverse the input and output connections; that is connect the cable from the transmitter to J2 and the dummy load to J1. Then solder CR1 to the bridge wire at the same distance from R1 as CR2, but on the opposite side. Follow the same procedure again, adjusting the position of CR1 for the lowest possible reading. The bridge is then ready for use.

If the bridge is going to be used on 6 or 2 metres and the power input is over 50 watts, the bridge wire should not be coupled as closely as described above. The proper distance will have to be found by experiment, but probably will not be more than $\frac{1}{2}$ " from the inner conductor.

USING THE MONIMATCH

If you use an antenna coupler or balun coils in your antenna system, the bridge should be inserted in the co-ax line between the transmitter and coupler or balun. If a low-pass filter is used for t.v.i. reduction, the bridge should be placed between the transmitter and the filter so harmonics generated in the diodes will not reach the antenna. The indicator unit can be placed in any convenient location. However, to avoid stray r.f. pick-up on the leads from the bridge to the indicator, the leads should be run in shielded wire.

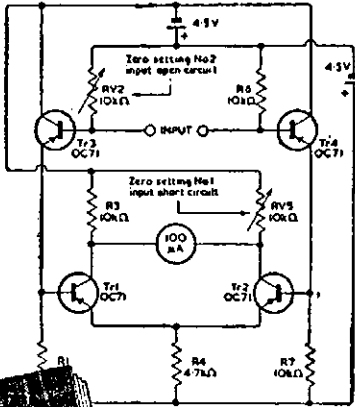
(Continued on Page 12)

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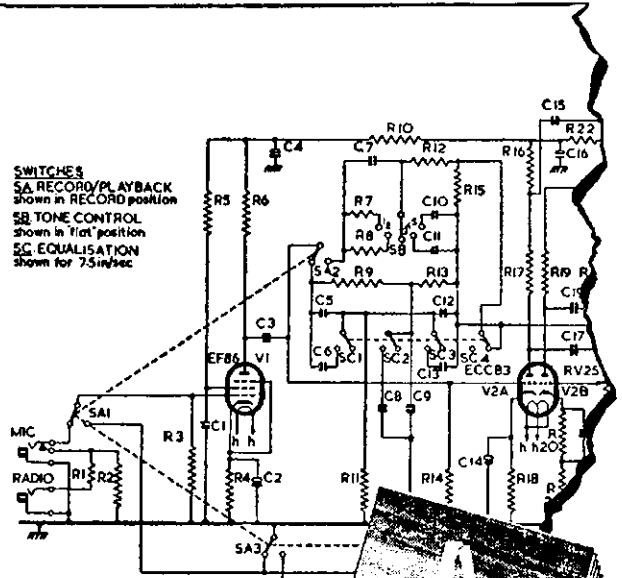
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only the top of the wedge is fluorescent, and then that too becomes cut off; the dot is the last part of the display to be extinguished.
When the bridge is balanced, there is zero input, the 'eye' is open and gives the full 'exclamation mark' display.

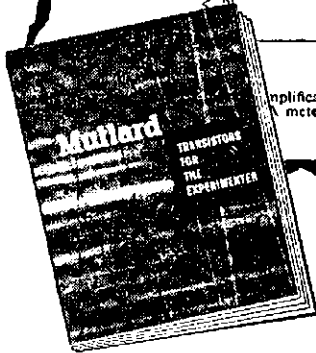


amplification of nearly a', thus causing a voltage meter which is proportional to the applied



SWITCHES
SA RECORD/PLAYBACK shown in RECORD position
SB TONE CONTROL shown in 'flat' position
SC EQUALISATION shown for 75in/sec

3133



TRANSISTORS FOR THE EXPERIMENTER

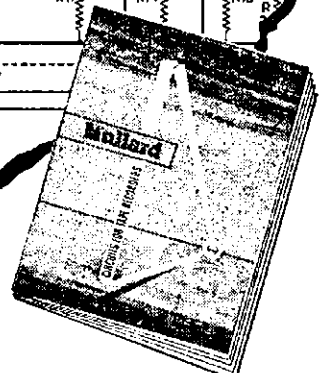
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MONIMATCH, MARK II.*

An Improved Version of a Popular S.W.R. Monitor

BY LEWIS G. McCOY, WHCP

MONIMATCH Mark II., the result of questions and suggestions from many builders of the original unit, has several features that represent improvements over the original design (see Page 2). For one thing, the size has been reduced to less than half. This is accomplished by using two short linear inductors, placed on opposite sides of the centre conductor of the line section, instead of a single long one. The box for housing the Mark II. is only 5 inches long, so the unit can more easily be fitted into a transmitter or antenna coupler.

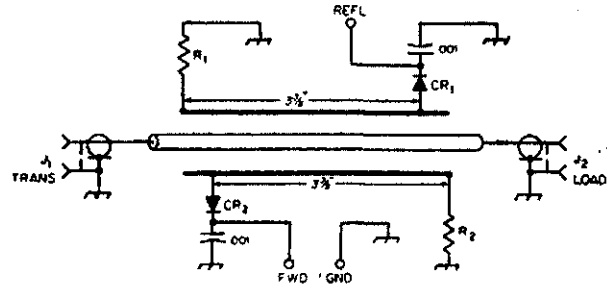
Another feature is the simplification of the construction work. In the original unit a U-shaped trough was used for the outer conductor of the line section. This required a metal-bending job. In experimenting to determine the necessity for using such a trough it was found that two flat strips of metal properly spaced from the inner conductor did an excellent job. In the Mark II., separation between the inner conductor and these strips is maintained at the proper value by two spacers made from insulating material. These spacers also serve the purpose of supporting the two bridge wires.

● Just as we were ready to go to press the February copy of "QST" arrived with this Mark II. version of the Monimatch, so with haste we included it with the original Monimatch. Here's a still better version—smaller and even easier to make. It uses the same indicator as the first model.—Ed. "A.R."

cloned as shown in the photograph. The inner conductor pin of the fitting should be tinned with solder and one end of the copper tubing slipped over it and soldered in place. Then the other fitting can likewise be tinned, mounted on the opposite end of the box, and the connection soldered.

Fig. 1.—Coupling circuit of the Monimatch Mark II. Strip conductors forming the outer conductor of the line sections are not shown.

CR1, CR2—1N34A diodes.
J1, J2—Co-ax chassis receptacles.
R1, R2—See text.



Next, the two strips used as the outer conductor can be installed. These are $\frac{1}{8}$ inch wide and $4\frac{1}{2}$ inches long, and can be made from copper, brass, or even tin from a tin can. The method of mounting them in place is simple. Solder a soldering lug to each end, allowing the end of the lug having the screw hole to project beyond the edge. Bend this part of the lug at right angles to the strip. The top and bottom screws and nuts of the co-ax fittings are used to hold the strips in place. This, along with the insulating spacers, insures correct alignment of the strips with the inner conductor.

The bridge pick-up wires are 4 inches long and are made from No. 14 tinned wire. For a 50 ohm bridge, 150

ohm $\frac{1}{2}$ watt resistors are used for R1 and R2. For 75 ohms, 100 ohm $\frac{1}{2}$ watt resistors will do. Most important, the resistors should be carbon or composition, not wire wound. Many builders of the original unit were unable to get a null because they failed to use carbon resistors.

Standard one terminal tie points are used at each end of the box to hold the 1N34A diodes and the 0.001 μ F. disc ceramic capacitors. These and the pin jacks for the indicator leads can be mounted in place after completing the bridge assembly as described above. Next, solder a resistor to one end of each bridge pick-up wire, keeping the resistor lead as short as possible. The wires can then be placed in the slots in the spacers, after which the other resistor leads should be soldered to lugs

secured under mounting nuts at the adjacent co-ax fittings. The diodes are connected approximately $\frac{1}{8}$ inch from the opposite ends of the wires. This dimension is not critical.

Table 1 in the original unit gives typical values of rectified current with the indicator switched for forward reading. The figures for the Mark II. will be approximately the same.

The writer will be happy to hear from builders of this unit (as well as the original) who may have further suggestions for improvements. Who knows?—maybe we can have a Mark III!

CORRECTION TO CLAMP TUBE MODULATOR

There has possibly been some confusion due to the incorrect circuit diagram published with this article on page 7 (3rd column) of December, 1956, "Amateur Radio."

The matter has been clarified and we suggest you make the following corrections to the original drawing:

(1) Tie plate and screen of 6L6 together, making the modulator tube a triode.

(2) Reverse connections to switch in lead between 6L6 modulator "plate" and screen of final. The R3 and 2 μ F. capacitor should be shorted out for c.w. operation.

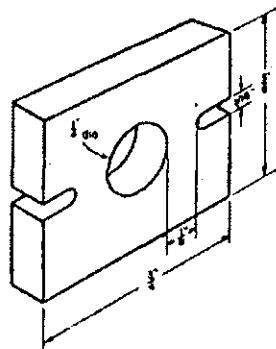
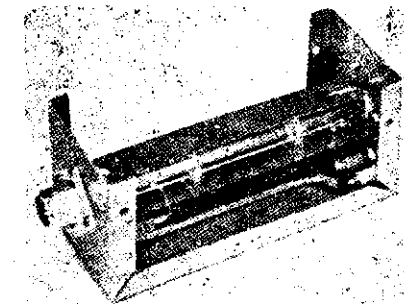


Fig. 2.—Dimensions of the insulating spacers used to hold bridge wires and outer conductor strips in place.



The smaller size of the Mark II. makes the unit suitable for mounting inside a transmitter or antenna coupler. As mentioned in the text, the outer conductor strips are held in place by soldering lugs mounted under the nuts of the co-ax fittings.

The indicator circuit of the revised bridge remains the same as in the original version. The description below is therefore confined to the bridge itself.

CONSTRUCTION

The Mark II. is mounted in a $2\frac{1}{2}$ x $2\frac{1}{2}$ x 5 inch aluminum box. The 5 inch dimension is the only critical one. Any available insulating material of reasonably low loss, such as polystyrene or bakelite, is suitable for the spacers. The dimensions of these pieces are given in Fig. 2.

When the spacers are completed they can be slipped over the inner conductor rod, which is a piece of $\frac{1}{8}$ inch o.d. copper tubing, $4\frac{1}{2}$ inches long. One of the co-ax chassis fittings should be mounted on one end of the box, posi-

* Reprinted from "QST," February, 1957.

A Home Made Three Bander

BY F. H. HARLOCK,* VK6GU

THE writer first heard of the G4ZU beam when VS2BD presented him with a copy of "The Malayan Radio Amateur," and he read the article (Vol. 4, No. 2, p.21) by G4ZU.

This article has been published in many other magazines, and this fact indicates the widespread interest in the beam.

It was learned that the basic principle involved in the use of shortened elements, inductance loaded at the centre, with electronic switching utilising resonant (quarter-wave) lengths of twin feeder to short out the inductances at certain frequencies.

A major step forward was the realisation that having found the physical length of a parasitic element at a certain frequency, the resonant frequency of a driven element of the same physical length must be determined. Having decided arbitrarily on 14.2 Mc. and 21.2 Mc., the length of a reflector for 14.2 Mc. was found to be 35' 4", and the resonant frequency of a driven element of this length using the formula $Lf = 475$, L being in feet and f in Mc. (which formula allows for end effect), is 13.44 Mc. Similarly the length of a director for 21.2 Mc. is 21' 6", and the resonant frequency of a driven element of this length is 22.09 Mc. These are the frequencies to which the reflector and director, respectively, were loaded.

As the writer was unable, at the time, to proceed with construction of his own beam, the prototype was built with and for VK6NF. One inch diameter split conduit was used for the elements, the lengths being eight feet aside for the director, 12 feet aside for the driven element, and 11' 6" aside for the reflector, the director and reflector being respectively five and seven feet from the driven element. A one-inch gap was left between the adjacent ends of each half element. Quarter wave switching sections (of 300 ohm tubular transmission line) were cut to the lengths required (allowing for velocity factor) for 21.2 Mc. and 28.3 Mc.

The three frequencies quoted, 14.2, 21.2 and 28.3 Mc. were chosen because they are frequently used by both VK6NF and the writer. They are also more or less in the middle of the most used parts of the three bands concerned.

These quarter wave sections were fastened to the inside ends of the reflector and director respectively, and were allowed to hang freely. Coils, approximately two inches in diameter, made of 12 gauge copper wire, were bolted to the inside ends of the reflector (8 turns used) and director (4 turns). Each coil is now in parallel with a quarter wave section, across the centre of a parasitic element.

The coils were spread or compressed until each element was found to be resonant at the required frequency (see above), using a grid dip meter coupled to the inductance at the centre. The tuning is quite critical.

● This article has been written in response to requests from many Amateurs contacted by the author when using the beam. It comprises a description of the G4ZU beam, as modified by the author, together with practical constructional and operational details, and includes a step by step description of all things done whether successful or otherwise. Unsuccessful experiments have a definite value, if only to save the time of others who endeavour to duplicate the construction.

At this point, explanation of the theory of operation is no doubt warranted.

On 10 metres, the system acts as a five-element beam, with the driven element working as two half-waves in phase. The reflector may be likened to two half-wave reflectors in phase. The effect of the quarter-wave section in the reflector, which is cut to suit a frequency of 21.2 Mc., is purely that of a small capacity between the elements, and the elements are effectively isolated from each other because of the impedance of the central loading coil. The director, which has an inductance and a quarter-wave switching section cut to the length required for 28.3 Mc., then becomes a single length because the quarter-wave section sets as an electronic short circuit across the inductance.

For the 15 metre band the driven element is an extended driven element. The director, which is centre loaded, has already been adjusted to the electrical length of a 21 Mc. director—the 28 Mc. section having no effect at this frequency. The quarter-wave switching section in the reflector electron-

ically short-circuits the central inductance, making the reflector effectively a single length.

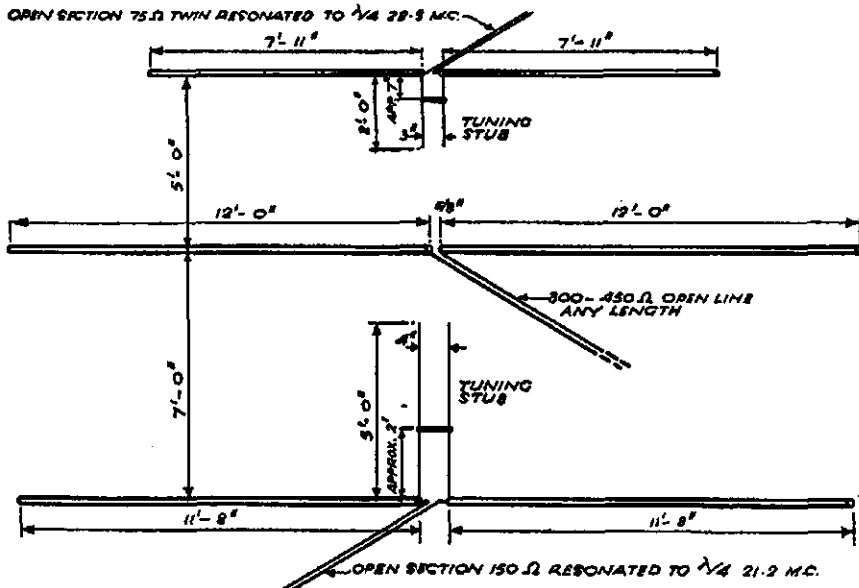
On 20 metres, there is a shortened driven element and a loaded reflector, the quarter-wave 21 Mc. section having no effect at 14 Mc. The director has no material effect when the system is used on this band.

The antenna was fed from a parallel antenna tuning unit by means of 300 ohm transmission line made up to the required length, and was found to load well on all three bands. Experiments were conducted using 72 ohm co-axial cable as the quarter-wave section on the director, but the capacity was so high that it was necessary to reduce the number of turns of the loading inductor. This was not a practicable proposition, as somewhere between one-half and three-quarters of a turn was needed.

Reception only checks were made with the antenna only three (!) feet from the ground, and a very satisfactory front-to-back ratio was observed on fifteen metres. No findings could be recorded concerning 10 or 20 metres owing to lack of activity.

The prototype, in a very rough form and only three feet from the ground, was given a trial on 21 Mc. during one of the daily contacts between VK6NF and ZS5MP. A report of R5 S7-8 was considered sufficiently encouraging to warrant dismantling the three stacked arrays and cutting the 20 metre "ZL Special" elements to the required length for the new beam.

Modifications introduced at this stage comprised increasing the space between the various half-elements, so that the loading coils could sit in between them (instead of being mounted slightly above) and substituting 300 ohm open line for the 300 ohm tubular switching sections; on the grounds that the lower inherent capacity of the open line



* 15 Lilly Street, South Fremantle, W.A.

would allow more turns in the loading coils, with probably higher efficiency.

THE SECOND BEAM

At this stage, with VK6NF obtaining excellent results on the 10 and 15 metre bands, but not very satisfactory results on 20 metres, mainly as far as front-to-back ratio was concerned, the author commenced construction of his own beam. This was made along similar lines, but with alteration to the physical lengths of both director and reflector. Allowance must be made, in determining the total length, for the spacing between the individual half-elements, as the overall length includes the spacing when the electronic switching, due to the quarter-wave section, is operative. Thus the length of each half of the director was made 7' 11" with a three-inch gap, giving a total of 16' 1" when on 10 metres. This figure was obtained from the "A.R.R.L. Antenna Handbook." For the reflector, each side was extended to 11' 8" with a four-inch gap, a total of 23' 8". The driven element was unchanged at 12 feet per side, with spacing to suit the 300 ohm ribbon feed line used.

With this antenna six feet from the ground, excellent results were obtained on 15 and 10 metres, and many good contacts over two to three thousand miles were enjoyed on 20 metres.

This beam was then mounted on a tower 60 feet high, and excellent results on all bands in the forward direction resulted, but there was poor front-to-back discrimination on 20 metres.

At this stage the major trouble was detuning of the loading inductors due to climatic conditions, etc., causing spreading or contraction of the individual turns. As operation of this antenna depends upon reasonably accurate tuning of elements, this detuning was detrimental to its efficiency.

USE OF TUNING STUBS

An alternate method of tuning was sought and the possibility of using tuning stubs was investigated. This method has long been used for tuning parasitic elements, and with the knowledge that the system has proved satisfactory in single-band arrays, experiments were begun.

Two sets of stubs were made of half-inch diameter duralumin tubing, the stub for the reflector being five feet long, spaced four inches between centres, and the stub for the director two feet long at three inch centres. Shorting bars were fitted, and opportunity was taken now to substitute 75 ohm twin transmission line for the director switching section, and 150 ohm twin for the reflector switching section.

These changes were made because it was found that, for the same frequency, the shorting bars could be moved nearer to the elements when higher capacity sections were used. As tuning was not as critical as when inductances were used, it was thought that the closer the shorting bar could be moved to the elements the better.

Checks with ZS5MP between the author using tuning stubs and VK6NF using inductances showed a considerably better signal from the stub-tuned antenna, whereas signals when both beams were inductance-loaded had been identical during some weeks.

IMPROVING FRONT-TO-BACK RATIO ON 20 METRES

Endeavours were now made to improve the front-to-back ratio on 20 metres, without unduly upsetting the excellent results being obtained on the other bands. Theory, in regard to the frequency to which the reflector was tuned, was abandoned, and a field strength meter was used to obtain maximum attenuation on the back of the beam.

The beam was excited at 14.2 Mc., and the shorting bar of the reflector tuning stub was adjusted for minimum field strength to the rear. It was now found that the resonant frequency of the reflector was higher than the 13.44 Mc. originally calculated. Tuning of the director for maximum forward gain on 21 Mc. was not attempted, because it is considered that the tuning is sufficiently broad for the theoretical frequency of 22 Mc. to be used.

Exact adjustment of the quarter-wave switching sections is of extreme importance. The author's recommendations are that they be placed in their intended position, but not connected to either element or tuning stubs. The ends to be connected to the elements should be spread to their final position, then joined together in a loop to enable the grid dip meter to be coupled for adjustment purposes. Care should be taken with the adjustment—cut off half an inch at a time. The old saying, "I've a cutter which will cut off but not one which will cut on," is still very true. When the section is cut to the right length, join each wire to the appropriate element and stub and forget it. The writer enclosed his sections in plastic tubing and sealed the ends.

The only other step in tuning the antenna is to adjust the shorting bars.

The tuning stubs on the writer's antenna are laid towards the centre of the tower for neatness. Any convenient disposition of them will be satisfactory.

An automatic antenna tuning unit was tried, but with the writer's lay-out (75 feet of open wire feeder to a parallel tuned circuit), was found to be unnecessary. VK6NF, on the other hand, uses an automatic tuning unit with satisfaction, but he is compelled by his location to use 130 feet of feeder.

SUMMARY OF CONSTRUCTION AND ADJUSTMENT PROCEDURE

1. Decide upon a frequency in each band—your most used frequency or a frequency near the middle of each band.
2. Determine the length of a reflector for the chosen frequency in the 14 Mc. band and from this calculate the frequency at which it would be resonant were it a driven element, allowing for end effect. Call this frequency "A". Determine the length of a director for the selected 21 Mc. band frequency, and calculate the resonant frequency of a driven element of this length (frequency "B").
3. Determine the length of a director for the selected 28 Mc. band frequency. From this length deduct the spacing to be used at the centre, halve the difference and cut two half-elements to this size.

Determine the length of a reflector for the chosen 21 Mc. band frequency, deduct the centre spacing and cut two half-elements as before. Cut two half elements each twelve feet long for the radiator.

4. The elements can now be mounted with the appropriate spacing (director five feet, and reflector seven feet, and reflector seven feet from the radiator).
5. Tuning stubs with shorting bars should now be made and attached to the reflector and director.
6. Cut a piece of 75 ohm twin transmission line slightly longer than a quarter-wave at the chosen 28 Mc. frequency. Put this line into its intended position, but do not connect it to the director. Couple to grid dip meter as described previously, and prune the remote end until it is resonant at the required frequency. Connect to director using the most direct connection possible.
7. Cut a piece of 150 ohm twin transmission line slightly longer than a quarter-wave at the chosen 21 Mc. band frequency. Position, adjust, and connect to the reflector as described under 6 above.
8. The feed line (of any convenient length) may now be connected to the driven element.
9. The director should now be adjusted, by means of the shorting bar for resonance at frequency "B", and the reflector to be resonated to frequency "A". Further adjustment may be necessary to the reflector later, but frequency "A" is a convenient starting point for the tuning procedure. Good coupling to the grid dip meter may be obtained by putting the g.d.m. coil in close proximity to the shorting bar. A decided "dip" can be observed with this coupling.
10. Excite the antenna at the chosen 14 Mc. band frequency and adjust the reflector tuning stub for maximum backward attenuation at this frequency, using a field strength meter.

The beam is now completed and ready for operation on the three bands. FB DX, OM! 73.

ACKNOWLEDGMENTS

The author wishes to thank the following friends for assistance in various ways. Some are mentioned by call sign in the text:

Mr. E. Powell, VS2BD, and Mr. S. Faulkner, VS3DB, for the original information.

Mr. R. Matthews, ZS5MP, and Mr. J. Herd, VK3JK, for checks and signal strength reports.

Mr. N. F. Odgers, VK6NF, for all the assistance, as mentioned in the text.

Mr. E. C. Hodgson, VK6EH, for assistance in preparing the manuscript.

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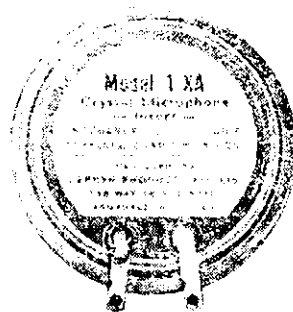
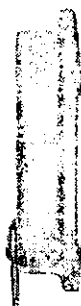
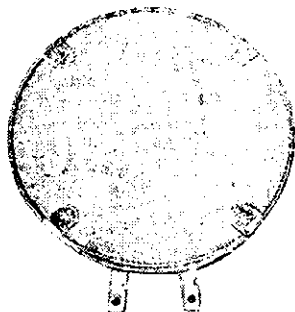
FRENCH TV SIGNALS HEARD IN SYDNEY

Norm Burton, of Revesby, N.S.W., seems to be making a habit of receiving overseas t.v. signals (see "A.R." March). On 7/2/57 Norm heard the French t.v. service sound channel on 41.25 Mc. The present sunspot conditions may lead to further reports of a similar nature.

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The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved.

Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

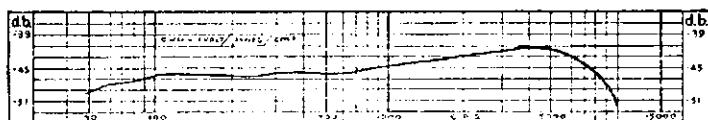
When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars, being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case 1½" diameter (rear), ¾" thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
 Output Level = -45 db (0 db = 1 volt/dyne/cm²)
 Impedance = Model 1XA Grid 1 — 5 megohms.



Approximate Frequency Response Curve

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C.D.E.N. NEWS

The Commonwealth Government is conducting a school for training Civil Defence personnel at Mount Macedon, Victoria. As part of its plan to obtain guidance from every section of the community it is, through the agency of the State Governments, inviting representatives of Government Departments, Utilities, Fighting Services, Industry, Professions and Communication Services to attend short courses at the school for the purpose of learning about the proposed scheme and at the same time contributing their specialised knowledge towards the drafting of the final plan.

The Wireless Institute of Australia, as the recognised representative of Amateur Radio in this country, has been given the opportunity of sending representatives to the school.

In November, 1956, the President of the N.S.W. Division, Jim Corbin (VK2YC), was invited by the N.S.W. Government to go along with its team. On the same course, representing their respective Government Departments, were VK2ZC, VK4EF and VK4ES.

During February this year the Federal Co-ordinator of C.D.E.N., VK3AG, was invited by the Victorian Government to represent the Federal Executive of W.I.A. at the school, where he met ex-VK4LJ, Leo Feenaghty, who will be remembered by old timers for his good work in VK4 Division and production of "QTC," which was at that time the Institute's Official Magazine.

Chas Taylor, ex-VK2ALE, is one of the Instructors at the school and can be relied upon to see that all representatives of the W.I.A. on these courses receive the greatest assistance possible during their stay. Chas. has further offered to give up some of his own leisure to help our C.D.E.N. for which F.E. has already expressed your gratitude.

No person attending this school could possibly come away without appreciating the gravity of the situation in the event of a national disaster, the necessity for well planned Civil Defence and Emergency Organisation and the sincerity of the Commonwealth Government and the School Staff in their desire to achieve a worthwhile and successful plan.

It is hoped that each Division of the Institute will be given an opportunity to send a representative to the school in due course.

Several things have emerged from the above events.

- Divisional Co-ordinators must strive to expand activities and maintain a high level of interest.
- The necessity for pressing Licensing Authority for granting of Novice Licence, in order to obtain sufficient trainees for future requirements.
- The need for immediate introduction and constant use by all Amateurs of N.A.T.O. Phonetic Code.
- The importance of a full scale discussion on this subject at the Federal Convention.

Every member of the Institute who is proud of the Radio Amateurs' record of service in national and local calamities in the past should see that his Division's Delegate comes to the Federal Convention fully briefed.

Make sure that you see and study the plan which was forwarded by Federal Executive to the Divisions many moons ago. If you disagree with any of the proposals laid down therein see that your Delegate comes along with a better one.

A.O.C.P. PRIVILEGES FOR FOR THE BLIND

● The Wireless Telegraphy Regulations which govern the issue of Amateur Station Licences stipulate possession of certain technical qualifications, the minimum of which is either an Amateur Operator's Certificate of Proficiency or a "Limited" Certificate of the same class. This requirement is designed to ensure that Amateur Stations are operated only by competent persons and is necessary in order to avoid the interference to important radio communication services which could otherwise result.

However, in the case of a blind person or one who is unable to undertake the written examination because of a physical infirmity, authority may be given for the issue of a full privilege license which provides for radiotelegraphy and radiotelephony experimentation on all Amateur service frequency bands upon such a person demonstrating by oral test to the satisfaction of the P.M.G. Department his competency in the subjects of Theory and Regulations and his passing the prescribed morse code test of the relevant examination; success in the Theory and Regulation subjects alone would permit engagement in radiotelephony experiments in the Amateur service frequency bands from 144-148 Mc. and upwards.

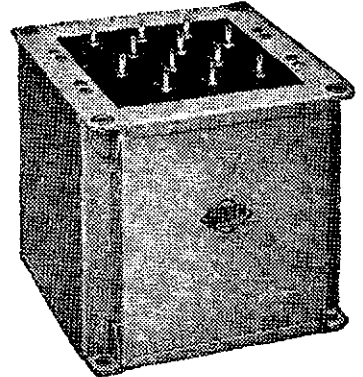
In the event of the grant of an Amateur Station License to physically handicapped persons, the P.M.G. Department, recognising the hazards to which such persons may be exposed in contacting dangerous voltages are infinitely greater than is the case with those who have no physical disability, feels obliged to ensure that every protection is afforded them, for this reason, requires that the direct current plate power input to the final stages of transmitting equipment of Amateur Stations operated by such persons shall not exceed ten watts. Again, for safety reasons, it is a Departmental requirement that blind or otherwise incapacitated Amateur Station Licensees shall nominate other Amateur Station Licensees in possession of all faculties who are prepared to undertake equipment alterations and maintenance duties on their behalf.

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as the Best



- ★ Potted Type Compound Filled (Vacuum Impregnated).
- ★ Primary Z Range: 2,000 to 18,000 Ohms.
- ★ Secondary Z Range: 200 to 21,000 Ohms.
- ★ High Efficiency, with low weight per watt.
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TYPE UM2—60 WATT

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TYPE UM3—125 WATT

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OPERATION OLYMPUS

To Marcus Hurburgh, VK7MH, Hon. Secretary of the Tasmanian Division of the W.I.A., is due the credit of first suggesting the relay of a message of greetings by Amateur Radio from Greece to Australia on the occasion of the opening of the sixteenth Olympic Games in Melbourne in November, 1956.

It was appropriate that this message should be relayed via an Amateur Station near Mt. Olympus in Tasmania.

The proposal was discussed at a meeting of the Institute held early in

up to the last week that it would not be possible to obtain this permission and alternative arrangements were made to exchange personal greetings between the operators at the two stations in lieu of an official message if necessary. However, at the last minute, permission was received from the Administrations concerned.

In the mean time a preliminary visit to the Lake St. Clair area was made by VK7MI, VK7KA and VK7LJ, and the broad features of the operation determined. As mains power was avail-

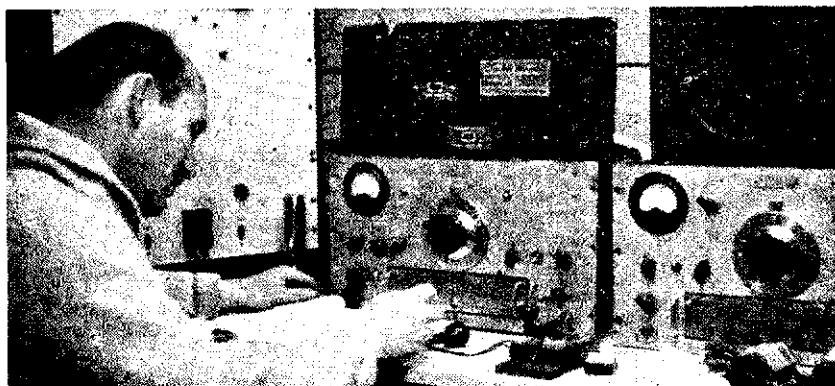
able, the choice of the main transmitter was largely governed by ease of transport. Bill Watson, VK7YY (that "wiz-ard" on the key) offered the use of his compact 100 watt c.w.-phone transmitter and AR7 receiver. Ken Millen, VK7KA, provided a second AR7, while VK7LJ took his SX28 receiver and battery powered Type 3 Mk. II. outfit, the latter being held for emergencies in case of a power failure.

Ground plane aerials fed by co-axial cable were used for transmitting on 14 and 21 Mc., while long and not so long wires were used for receiving. Two complete stations were available for instant use throughout the schedule time.

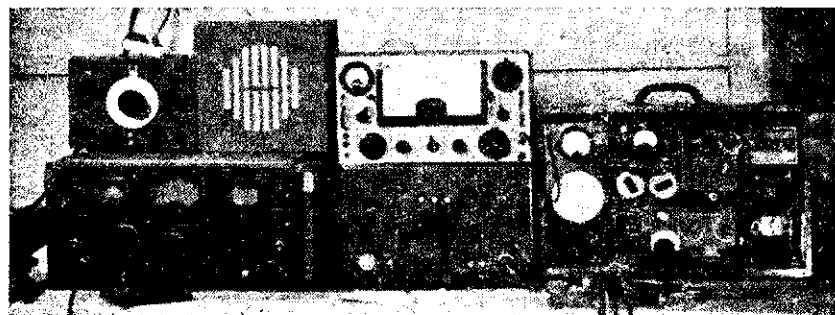
SV1SV was contacted at approx. 0030 E.A.S.T. on 18th Nov. As the 21 Mc. signals were fading out, it was decided to go to 14 Mc. where contact was quickly established and the complete message was received direct. Signals from SV1SV peaked at S7 and in general provided good copy. A tape recording was made of the message as it was received. An acknowledging message was sent to the Attica Amateur Radio Club at this time. The official message was relayed to VK3WI at 0930 for forwarding to the Games Committee in Melbourne.

Little is known of the set-up in Greece. However, it was apparent that there were several operators in attendance and it is possible that the message was transmitted from near the place of Olympia, as mentioned in the text of the message. At all events the Greek Amateurs did a magnificent job in meeting every schedule suggested and in putting a solid signal into Tasmania. A feature of the relay was the very ready co-operation which was so freely forthcoming from stations in all parts of the globe.

The party at Cynthia Bay consisted of VK7MH, VK7YY, VK7CH, VK7LJ, VK7KA, VK7BJ, VK7JO, VK7EJ, VK7BR, VK7DR, VK7FM, and Associates Grace, Tait, Shotten and Porthouse and friend D. Clark, who so kindly loaned the utility for transporting the gear. All did their share of the work—operating, cooking, erecting aerials, looking to the fire and assisting in a thousand and one ways.



VK7YY (Bill Watson) at the controls of VK7WI/7 at Lake St. Clair. 100 watt transmitter and AR7 (VK7YY), and spare AR7 (VK7KA).



VK7WI/7 at Lake St. Clair. VK7LJ's equipment: SX28 receiver, Geloso v.f.o./50 watt transmitter, and Type 3 Mk. II. transceiver.

1956 when it was unanimously decided to proceed with the project. A committee of two—VK7MH and VK7LJ—was appointed to undertake the necessary organisation. Federal Executive bestowed its blessing on the proposal and one of the committee's first functions was to secure the co-operation of the Attica Amateur Radio Club in Greece and to arrange for overseas stations to stand by in case of poor conditions preventing the direct contact with Greece that was so earnestly desired.

Co-operation was freely given everywhere. The A.R.R.L. were of immense assistance in providing liaison with Greece and in arranging for top ranking DX men in U.S.A. and Hawaii to stand by in case a relay was needed. The South African Radio League was anxious to assist. Difficulty was first experienced in obtaining the all important official permission to relay the "third party" message over international boundaries. It was feared right

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★ LIGHT ★ STRONG ★ NON-CORROSIVE

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RADIOTRON TELEVISION VALVE SERIES

The Radiotron 6BQ6GTB/6CU6 is a high perveance beam power valve designed especially for use in horizontal deflection amplifier service of television receivers. Design features include a mount structure which permits cool operation of both grids to guard against grid emission. The plate structure is such that heat is distributed evenly and not localised to form hot spots.

These factors, in conjunction with high design ratings enable this valve to deflect picture tubes having deflection angles up to 90 degrees.

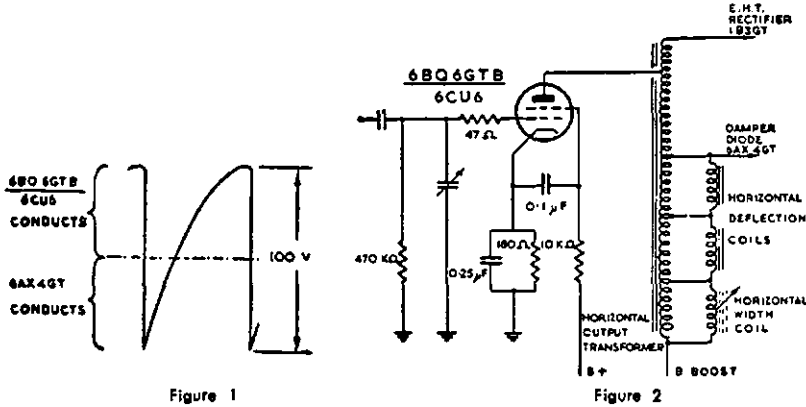


Figure 1

Figure 2

The horizontal sweep oscillator (Radiotron 6SN7GTA) provides a signal of roughly sawtooth form to the grid of the 6BQ6GTB/6CU6 (see Fig. 1). (Figure 2 is a typical circuit of a horizontal deflection amplifier.)

During the first half of the negative but positive going sawtooth, the valve is biased beyond cut-off (for this period, the 6AX4GT damper diode provides current to the deflection coils — see earlier article). As the input signal becomes less negative, the 6BQ6GTB/6CU6 commences to conduct. The output current is transformed through the horizontal output transformer into the deflection coils of the yoke to provide the second half of the sweep.

Due to the sawtooth form of the input signal, the peak current that is drawn by the plate may be 3.5 times the average current.

At the peak of the signal, which corresponds to the end of the horizontal sweep, the sudden negative pulse cuts the output valve off. This change in current through the output transformer, taking place during a few microseconds, results in a high peak voltage on the plate of the 6BQ6GTB/6CU6. This valve is designed to withstand a peak positive pulse plate voltage of 6000 volts.

CHARACTERISTICS:

Heater Voltage	6.3 volts
Heater Current	1.2 amps.

MAXIMUM RATINGS (Horizontal Deflection Amplifier):

Direct Plate Voltage	600 volts
Peak Positive-Pulse Plate Voltage ^(abs. max)	6000 volts
Peak Negative-Pulse Plate Voltage	1250 volts
Direct Grid No. 2 Voltage	200 volts
Peak Negative-Pulse Grid No. 1 Voltage	300 volts
Peak Cathode Current	400 mA
Average Cathode Current	112.5 mA
Plate Dissipation	11 watts
Grid No. 2 Input	2.5 watts

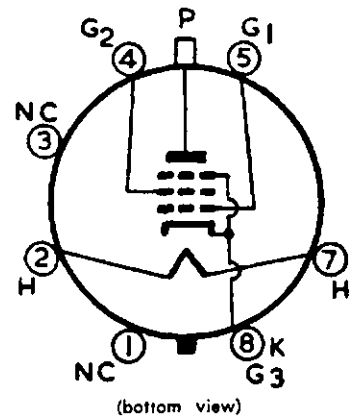
* The duration of the voltage must not exceed 15 per cent. of one horizontal scanning cycle. In a 625 line, 25 frame system, 15 per cent. of one horizontal scanning cycle is 10μ sec.

† For further information on the 6BQ6GTB/6CU6 and other Radiotron Television Valves consult the Radiotron TVI Booklet. Additional copies of this advertisement are available free and post free on request.



6BQ6GTB/6CU6

SOCKET CONNECTIONS



- Pin 1 — No Connection
- Pin 2 — Heater
- Pin 3 — No Connection
- Pin 4 — Grid No. 2
- Pin 5 — Grid No. 1
- Pin 7 — Heater
- Pin 8 — Cathode, Grid No. 3
- Cap — Plate



AMALGAMATED WIRELESS VALVE CO. PTY. LTD.

47 YORK ST., SYDNEY

VC1/57

NATIONAL FIELD DAY, 1957

	RESULTS		
	Portable		
	Phone	Open	C.w.
VK2RS	—	203	—
VK2APF*	119	—	—
VK2AHA†	—	102	—
VK2AJO	50	—	—
VK2BW	38	—	—
VK3GE‡	125	—	—
VK3LC	111	—	—
VK3ADW	—	97	12
VK3AHG	38	—	—
VK3ZM	—	32	—
VK3ZAT	25	—	—
VK3ZCG	17	—	—
VK4TN	183	—	—
VK4HZ	40	—	—
VK5QR§	53	75	22
VK5EF	22	—	—
VK5LR	10	—	—
VK5XU	1	—	—
VK7KA¶	—	—	43
VK7JO	—	78	—
VK9AU	—	—	31
VK9AS	24	—	—
VK9OQ	2	—	—

Multiple Operators:

- * VK2ATD
- † VK2XT
- ‡ VK3AN
- § VK5ZAX
- ¶ VK7LJ

	Fixed		
	Phone	Open	C.w.
VK2ZS	16	—	—
VK3ARJ	43	—	—
VK3OJ	28	—	—
VK5AB	88	—	—
VK5JO	45	—	—
VK5RR	13	—	—
VK5DF	11	—	—

AWARDS

Outright: Phone—VK4TN, Open—VK2RS, C.w.—VK7KA, Fixed—VK5AB.
State: VK2—Phone, VK2APF; Open, No Award; C.w., No Entry; Fixed, VK2ZS.
 VK3—Phone, VK3GE; Open, VK3ADW; C.w., VK3ADW; Fixed, VK3ARJ.
 VK4—Phone, No Award; Open, No Entry; C.w., No Entry; Fixed, No Entry.
 VK5—Phone, VK5QR; Open, VK5QR; C.w., VK5QR; Fixed, No Award.
 VK7—Phone, No Entry; Open, VK7JO; C.w., No Award; Fixed, No Entry.
 VK9—Phone, VK9AS; Open, No Entry; C.w., VK9AU; Fixed, No Entry.
Special: VK3ZAT.
Listeners: N. G. Clarke, 72 points.
 One log disqualified.

R.D. CONTEST, 1956

Corrected Score: VK5LB, 74 points.

AMATEUR CALL SIGNS

FOR MONTH OF JANUARY, 1957

NEW CALL SIGNS

- VK—New South Wales
 2LJ—D. A. Crowley, 25 Glenview St., Green-wich.
 2NB—G. F. Barham, 10 Beaufort St., Northmead.
 2QJ—G. C. Jenkins, C/o. Radio Station 2VM, Moree.
 2ANB—R. J. Baty, 15 Lower Wycombe Rd., Neutral Bay.
 2ACR—R. W. Ritcher, 8 Arthur St., Fairlight Manly.
 2AUS—S. St. George, Broadcast Station 2VM, Moree.
 2ZBO—R. E. V. Crewe, 7 Raymond Rd., Neutral Bay.
 2ZJM—G. E. McPhee, 102 Woll St., Kingsgrove.
Victoria
 31J—D. R. Twigg, 33 Chapman Ave., Glenroy.
 3KF—E. B. Ferguson, 137 Cole St., Gardenvale.
 3MO—A. M. Owst-Atkinson, 32 Heather St., Geelong West.
 3AGK—A. G. Kirmsse, 19 Brunel St., Essendon.
 3AJY—J. W. Murray, 15 Edgevale Rd., Kew.
 3ARI—R. M. Tutton, Lot 86 Wheatsheaf Rd., Glenroy.
 3ZCE—R. A. Low, 8 Airlie Ave., East Prahran.
 3ZDA—C. A. Davey, 121 Mitchell St., Northcote.
 3ZCK—W. H. Harder, Station 3LK, Lubeck.
Queensland
 4DJ—G. F. Pooley, 35 Aberdeen Ave., Maryborough.
 4MF—R. O. Britton, 42 Railway Ave., Townsville.
 4ZAP—B. E. Rickaby, 33 Babbidge St., Coopers Plains.
Western Australia
 6BR—B. R. Field, 5 Crocker Way, North Innaloo.
Tasmania
 7ZAC—R. W. Harrex, 33 Creek Rd., New Town.

CORRECTION

Under the heading of new call signs ("A.R." March) VK3ZDK is shown. This is incorrect. The call sign should read VK3ZDX, which was allotted to R. C. Rutledge, 40 Lawson Parade, Hightett, S.21.

SPECIAL

BRIGHT STAR RADIO are pleased to announce an addition to their line of Crystals. We are now manufacturing—

VACUUM MOUNTED CRYSTALS

for general communication frequencies in the range 3 to 14 Mc.
 Higher frequencies can be supplied.

ADVANTAGES OF THIS TYPE—

- (1) Approximately three times the activity of normal plated crystal due to the absence of air damping.
- (2) Better frequency stability due to the absence of air friction.
- (3) Plating cannot deteriorate with time and cause frequency shift.
- (4) Two or more crystals can be mounted in the one envelope and thus save space.

Price depends on the tolerance and frequency required, and will be quoted upon request.

BRIGHT STAR CRYSTALS may be obtained from the following Interstate firms: Messrs. A. E. Harrold, 123 Charlotte St., Brisbane; Gerard & Goodman Ltd., 192-196 Rundle St., Adelaide; A. G. Healing Ltd., 151 Pirie St., Adelaide; Atkins (W.A.) Ltd., 894 Hay St., Perth; Lawrence & Hanson Electrical Pty. Ltd., 56 Collins St., Hobart; Collins Radio, 409 Lonsdale St., Melbourne; Prices Radio, 5-6 Angel Place, Sydney.

BRIGHT STAR RADIO

46 EASTGATE ST., OAKLEIGH, S.E.12 UM 3387



DX ACTIVITY BY VK2QL†

QTHs OF INTEREST

HS1MQ—47 Jawarad Road, Bangkok.
 ZD2GWS—P. & T. Dept., Buea, Sth. Cameroons.
 ZC5AL—P. & T. Dept., Jesselton.
 FL8AB—Marine National, Djibouti.
 VS4BO—P.O. Box 300, Kuching.
 KG1CA—QSL via W3ZHL.

My thanks go to VKs 2AIR, 2AMB, 20W, 4X1 5AB, 5RK (QSP 5BY, 5HI, 5RX) and BERS185. The page should be back to normal next month, I hope.

THE MONIMATCH

(Continued from Page 3)

To check the accuracy of the impedance match in the system in use, first set S1 to read forward power, apply power, and set R2 for full scale reading, or at zero resistance if the power is insufficient to drive the pointer to full scale. Next, switch S1 to read reflected power. If the line is matched the meter will read zero. If the antenna system employs tuned feeders and a co-ax link antenna coupler the coupler should be adjusted so that the meter shows no reading, or as close to zero as possible.

With a co-ax fed antenna the matching system should be adjusted so that the reflected power is zero or as small as possible. While it has been emphasised many times in the past, the point is worth mentioning again—with such a system all matching adjustments must be made at the antenna. It is impossible to match a co-ax line to an antenna by making adjustments at the transmitter.

If you find that the indicator reads zero in the reflected power position when the transmitter is running continuously, indicating a matched line, but that there is a momentary "dick" of the needle when the transmitter is keyed, you can be fairly certain that there is a parasitic oscillation in the transmitter. Also, if you find it impossible to get a reflected reading of zero, it may be because there is enough harmonic or subharmonic content in the transmitter output to cause a "residual" meter reading even with perfect matching at the fundamental frequency.

To use the bridge as an output indicator, switch S1 to read forward power and adjust R2 so the meter reads about half scale. Then tune the transmitter for maximum meter indication, while holding the plate current to within the ratings for the amplifier tube or tubes. You'll notice when tuning a tetrode amplifier having a screen dropping resistor that the maximum output tuning point won't always be exactly the same as the point at which the plate current dips to minimum. Also, you may find that as you increase the amplifier loading the output doesn't increase correspondingly, and may even go through a maximum and then drop off as the input to the amplifier is increased. You'll probably also find that the power output is rather sensitive to grid excitation with a tetrode amplifier, and too much grid current is just as bad as too little. All of which adds up to the fact that an output indicator such as this gives you considerably more information than the plate current dip alone. Working together, the output indicator and the plate milliammeter will do a good job for you.

As was mentioned in last month's notes, I have now assumed from Hans, temporarily, the responsibility for compilation of the DX notes from reports which you DX'ers send in each month. The circumstances which bring this about are unfortunate, but we all hope that by taking his father back to Europe, that all will be well in regard to his health and that Hans will be back with us again.

Until such time as Hans does return, let's see if we can continue to improve the DX page. Due to the sudden change over, some of the usual contributors may find their reports are not included in this issue, but that is due entirely to circumstances, and that I have to compile the notes earlier than it was necessary for Hans to do. Please remember that "zero hour" is the last day of the month for your copy. By the time you read this issue, Hans will be on the other side of the globe.

My own DX activities this year will be restricted, so I will be dependent on the DX fraternity for reports. However, I will no longer be finding myself in another part of VK when compilation is due, so anything you send will not be wasted. The reason I gave up on return from VK4 was the possibility of not being home to compile the notes.

And now, although I am finding it hard to get into the swing once again, to business.

NEWS AND NOTES

VP8AO on Coats Land claims he will be a new country, but my opinion is he will be Antarctica, but just in case, don't pass him by.

JZ0PA, JZ0PB and JZ0PC advise they will be returning to England in May. If you need a contact, watch 21 Mc. around 1000z daily when VK5AB maintains a sked.

TT0KAB told W6NKR he was in Tanna Tuva.

UA0OM is located in Inner Mongolia, which is the 23rd zone (VK2AIR).

UA3DQ/MM is the Russian ship returning from the Antarctic base and apparently has the old ops. of UA1KAE on board as there are different ops. at UA1KAE now and the op. of the ship is Alex, one of those previously at UA1KAE (VK5RX).

There are three active stations on Christmas Island—VR3B, VR3F, and VR3G.

According to VQ8AB there will soon be a prominent station on Comoro Island.

AP2RH is expected to leave Pakistan in July.

CR4AS is active from Cape Verdi. (last four pars. from W6YY).

ACTIVITIES

3.5 Mc.: Nil.

7 Mc.: 2AMB reports VR2DA*, EA6AF*, HL1CA, FK8AL. 3Q1: G* (0730-0800z). UA1KAE, UB, YU, ZS, CE3AG, BERS195: West Europe, UA0KFG, UB, ZEEJY, ZS.

14 Mc. C.w.: 2AIR: VP6PL*, HK3*, FM7WP*, SP3DG*, ZK2AB*, VQ4EF*, VQ4AV*, CR9AH*, KG1CA*, ZC5AL*, HL1AC*, UA0OM*, FG7XC.

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.

* Call signs and prefixes worked.

z—zero time—G.M.T.

FG7XE, FG7XK, 5A4TC, EA9BK, ZD3A, ZD9P, VR8BC, 2AMB: CE9AI*, FM7WP*, FM7WR*, ZC5AL*, FB8ZZ*, LA8BC*, VR3B*, FY7YF*, VQ4GP*, LULIBA*, KC6UZ* (Truk), FG7XC, HK3TH, ZC5JM, 16RAM, CN8FJ, 9S4CH, ZD3A, AP2RH, VP7NI, KW6CB, ZK2AB, CR7AF, VK0AB, VQ5GJ, FB8BR, FB8BX, OA4BP, VR3G, VQ4AQ, 20W: UA0's KQB*, SK*, AA*, KJA*, KYB*, UA9VB*, UA9KYB*, UA4PL*, UA6UF*, UB5UB*, UC2KAB*, UI8-KAA*, UL7KAA*, UJ8KAA*, PZ1AH*, VR3B*, VS4BA*, AP2RH*, PJ2ME*, HK5CR*, HK5BY*, SL1BD*, VQ6LQ*, ZC4IP*, VO3X*, LU9XA*, YJ1RF*, KJ6BS, 3Q1: UR2AR*, FM7WP*, FM7WR*, FY7YF*, ZK2AB*, UJ8KAA*, VP-8AO*, UI8KAA*, ZC5AL*, ZL5AA*, OY7ML*, VQ5CJ*, ZD9AE, VP2LU, ITIAT, ET2US, PZ-1AP, KG1CA, EA9DF, EA6AM, IS1FIC, VP6RG, LX1JW, BRX: UA3DQ/MM*, GM3ITN*, OA-4FM*, VK9AJ*, ISRAM*, UL7KAB*, ZC5JM*, FB8BD, FB8BR, UA1KAE, ET2US, VQ4GP, YV5HL, YV5DE, YV5AE, TF2WEM, 5BY: ZC5JM*, BERS105, at his usual listening post, heard CR9AH, CE4AD, EA6AW, FQ8AF, PJ-2AV, UA3DQ/MM, KC6SP, KC6UZ, KG1CA, PY7RQ, ODSLJ, VK0AB, VQ5GJ, ZK2AB, ZC5AL, VP6PL.

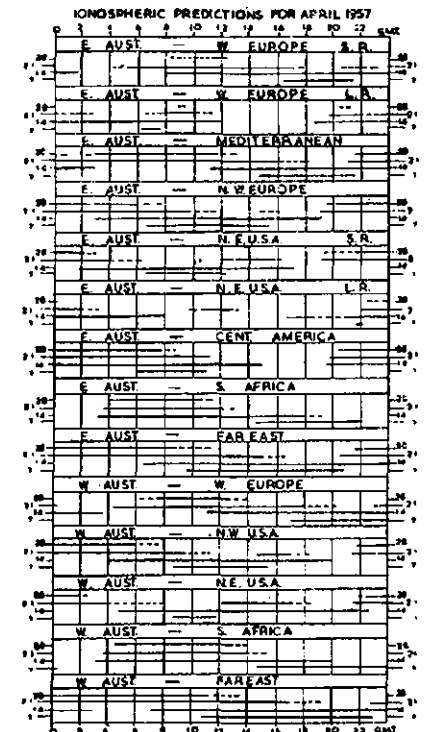
14 Mc. A.m.: 2AMB: FM7WQ*, OA4FA*, HZ1TA, CX2AX, VS4JT, VR3F, 5AB: KZ5IF*, HS1MQ*, West Europe*, 4X4HK*, KC6SP*, ZL5AA*, VS4JT*, E3RL*, HZ1TA*, ZB2P*, ODSBU*, BERS105: EA2DJ, KR6AF.

21 Mc. C.w.: 2Q1: W*, VE*, CR9AH*.

21 Mc. A.m.: 5AB: KZ5DX*, KZ5CP*, KZ-5IF*, ZSIDO*, JZ0PC*, JZ0PB*, KP4AZ*, UQ2AN*, SV1AB, SV1AE, West Europe*, CR7BB*, ODSAV*, 4X4FF*, 4X4JC*, 4STMG*, VP8CH*, VS4JT*.

28 Mc. A.m.: 4XJ: W*, VE*, DL*, G*, HC-1KV*, HP1LO*, VP1EE*, KL7BCS*, VU2RM*, OK1KTI*, VS4BO*.

QSL's enumerated gladdened the hearts of 2AIR: HP1LO, VP3YG, VU2JA, OE6ST, VR3B, XE1PJ, 3W8AA, UC2KAB, PJ2AN, 2AMB: OA4FA, UA2RO, 3V8BS, XE1PJ, LU-4ES, LU3AL, LU8ZW, ZE1JV, EA2CB, EA2CK, EA7AM, FY4FP, LU4DFP, 20W: KJ6BS, 3Q1: 3W8AA, FB8BR/FB, G6UC/M, UC2KAB. The QSL for G6UC/M was from his car on 21 and 28 Mc. c.w. 3rd phone, 10 watts to a whip on his bumper bar 5HI: UA6AF, VS4NW, VK1VH, HRIEZ, YU4QE, BERS195: CR7BS, FL8AB, ISRAM, VK1RW, VRIC, YV3AN, ZD2GWS.



FIFTY-SIX MEGACYCLES AND ABOVE

NEW SOUTH WALES

144 Mc.: Two meetings have been held this year at the Group's new theatre at the Gore Hill Technical College close to t.v. station TCN9, and both meetings held much interest for all who attended. The first was given to an introductory and informative talk by Max 2OT who described the complete layout of the station's buildings and their uses as well as the gear and the general technical equipment that would be made available to the Group at a later date. General business of the meeting was dispensed with to allow for technical questions and answers among members. Much discussion around queries relating to t.v. for Amateurs took place and a question raised by 2ANF caused a lot of interest among the members and a lot of answering by 2OT and 2OA to the enjoyment of those present, until at midnight the President 2APQ closed the meeting, suggesting that the discussions continue over the air from the various QTHs.

The second meeting saw quite a good attendance, the chief feature of the evening being a lecture by Leo 2KS, assisted by Horrie 2HL, with slides, the subject being on v.h.f. communications as used in the Railways and Transport Departments. Everyone there now agrees that if trains are to run "on time" v.h.f. communication is essential. The lecture was interrupted by Perc 2APQ to allow Harry 2AJZ to introduce K2OLH, James Morrissett, Associate Editor of "CQ," for a short stay. This fellow Ham expressed on behalf of his own V.h.f. Group back home their desire to correspond with VKs regarding any items or features in which we and they are commonly interested, and suggested that the m.u.f. conditions might soon allow contact between VK and ZL. After this brief interview the lecture was continued by Leo and with supporting slides he described various types of receivers, transmitter, relays and antennae. He was very ably thanked for his very fine effort by Jim 2ZBD who expressed the hope that we would soon again have the opportunity of further lectures by Leo.

Time was then given to introduce from the Amateur Astronomical Association a Mr. Gill Miles (who also has a call sign). He then explained how the astronomers propose to view the passing of the satellite which is to be released from Florida early in July. He said it will be equipped with a tx of some milliwatts of power operating on a frequency of 108 Mc. In seeking the co-operation of the V.h.f. Group he is endeavouring to obtain at least one minute's notice of the satellite's approach to the meridian it will cross, the viewing of which will not be for longer than seven seconds, so that at least one of the thirty observers who will be looking in their moonscopes will be successful in actually seeing the satellite. Anyone interested in assisting the astronomers in this International Geophysical Year will be most welcome if they get in touch with Mr. Gill Miles or the Secretary at 42 Lincoln St., Belfields.

By listening to the weekly v.h.f. broadcast at 7.30 p.m. each Sunday night you will hear the latest and up-to-date news on 2 mx from station 2WI and all the latest doings of the v.h.f. section. The Group's name has been changed to "The V.h.f. and T.v. Group of the W.I.A. N.S.W. Division" Once a month a 2 mx Hidden Tx Hunt is held on the Wednesday night nine days before the first Friday of the following month. Fix the date and join in the fun for the next one. "Whacko, you beaut," said Eric 2AFM to Perc 2APQ when he was first in at the one held on 27th Feb., 1957, when John and Ces planted 2AZO in the trees at Bald Face Point. Second was Dick 2ZCF and third place went to John 2ZAV. Nine cars participated in the event and a good time was had by all.

Adrian 2HE is busy arranging for suitable skeds with ZL and VK6 in an attempt to take the best advantage of the m.u.f. predictions and hopes that all interested in 2 mx DX will let him know when they would be available to make skeds.

At the general meeting of the W.I.A. on 22nd Feb., 1957, the evening's entertainment was handed over to the V.h.f. Group. Mr. Perc Healey outlined the general principles and called on Bob 2OA to give a short talk on receivers and antennae, which was followed by another short lecture by 2AZN. Films were also shown depicting the work of the v.h.f. in conjunction with the Bushwalkers around Jenolan Caves area, inside and out.—2AFM.

VICTORIA

The most interesting piece of news for the past month was the creation of a new State record on the 144 Mc. band. On 18th Feb. Max 3ZCW at Ouyen worked Col 7LZ at Launceston, a distance of 512 miles. This record will take some beating as the previous State record was 403 miles for a contact between Arch 3BW at Portarlington to Hugo 2WH at Forbes. Congratulations Max. It was a very excellent break-through all round and many very good contacts were made. On both 17th and 18th Feb. conditions were outstanding and the first VK5-VK7 contact was made when 5CJ at Mt. Gambier worked 7FF. Some of the Melbourne gang worked as many as six Interstate stations on the one evening, namely 5CJ, 5CH, 5ZAM, 7FF, 7BQ and 7LZ. There were break-through periods also reported of reception of Melbourne television. Reception ABV Channel 2, which has the frequency band 63 to 70 Mc., was reported from the vicinity of Brisbane and Col 7LZ reports that Launceston received its first television show from HSV Channel 7 which has the frequency band 181 to 188 Mc.

The results of the V.h.f. Field Day which was held in conjunction with the National Field Day on 10th Feb. are as follows: First and winner of the certificate was Ian 3ZCF portable Mt. Bunninyong with 1831 points, including bonus points for longest contacts with 3ZAD on Mt. Donna Buang (98 miles) on 144 Mc., 3ZAT on Arthur's Seat (70 miles) and 3ZBN at Nunawading (70 miles), both on 288 Mc. Second was Reg 3ZAD portable on Mt. Donna Buang with 1473 points including bonus points for longest contacts with 3ZCF (98 miles), 3ZAV at Geelong (80 miles) and 3ZDP at Sale (80 miles) on 144 Mc. Third was Bob 3ZAN portable on Pretty Sally Hill with 1312 points including bonus points for long distance contact with 3ZAT at Arthur's Seat (68 miles) on 288 Mc.

There was an exceptionally poor attendance at the Fox Hunt held in February and as a result it was decided not to hold a hunt in March but to discuss ways and means of making the hunts more interesting at the March v.h.f. meeting. The winner of this hunt was again Tom 3AOG who has his mobile gear working very nicely. The final location was at the home of Ray and Nance Price where a post mortem and rag chew took place during supper. Thanks Ray and Nance for inviting the Group to your home.

For their February meeting approx. 40 members attended a visit to the television station HSV7. Mr. Potter of the HSV7 staff took the Group over a tour of the studios and production equipment and then Mr. Lloyd (ex-3ABT) and technical engineer of HSV7 then gave a talk on the equipment and answered questions. At the finish Geoff 3YJ made a very nice suggestion that we should, by way of a thank you to HSV7, take up a collection for their drive to buy television sets for the Children's Hospital and he himself started the collection off which amounted to somewhere in the region of £5, being formally presented on a television screen.

Don't forget the City-Country Get-together of the V.h.f. Group to be held on April 17 when it is hoped to have a demonstration of home-built t.v. equipment.—Phyl Moncur.

SOUTH AUSTRALIA

Main news of the v.h.f. gang here this month was the activity following the good conditions prevailing on 16th to 18th Feb., when most of us were alerted by the kindness of Ian 3ALZ. Many thanks for your telegram Ian, that's the kind of thing that makes this game interesting; you certainly started something for all beams were directed to VK3 very smartly and some very interesting contacts were made. Didn't do so well from this QTH, but didn't surprise anyone, the only outstanding item being that 3ZCW can write down that his carrier was heard here and it could have been a c.w. contact, but further afield things were better. Hughie 5BC made the grade with many contacts on 2 mx with VK3s and extended his range accordingly. Col 5CJ worked Hughie and then followed with contacts in VK3 and VK7. This was paralleled by Claude 5CH who in all made 144 contacts, about 350 miles seems to be their best distance. Les 5ZAG also worked up to 300 miles into VK3, so he is happy, whilst 5ZAM is still his active self and really working them, but Tom 3TW lets his beam as a bird carrier, step on it old man we want to hear you on again.

There have been quite a few queries recently regarding frequencies of various bands, so in order to help you identify those elusive carriers, and maybe work 'em, here is the list as recorded here, if there are any errors let's know and we will correct:

VK—	Mc.	VK—	Mc.	VK—	Mc.
5GL	144.001	5MT	144.62	3PO	144.28
5GL/M	144.20	5MT/M	144.20	3ZL	144.80
5QR	144.01	5EF	144.59	3ZDM	144.34
5QR/M	144.20	5IW	144.86	3ZCF	144.36
5GB	144.08	5ZAM	144.41	3ATR	144.37
or	144.88	5CH	144.51	3ZCW	144.18
5RO	144.125	5CJ	144.005	3NN	144.72
5EN	144.125	5MK	144.50	3YS	145.25
5BC	144.13	5TO	144.29	3BQ	145.40
5HD	144.13	5ZBS	144.32	2WH	144.001
5RI	144.132	5ATN	144.43	2AMN	144.09
5AX	144.42	5RK	144.14	7PF	144.43
5ZAW	144.27	5ALZ	144.085	7LZ	144.62
5ZAX	144.16				

Ron 5MT has stated "publicly" that he has designed and is making up a 64 el. beam on 2 mx to show us just how DX is really worked. Ray 5BT puts forward a suggestion for a horn type antenna for Mt. Lofty for use for anyone caring to go portable there or to have it "back-to-back" excited to get those elusive sigs over the hills. For the benefit of those Inter-staters who do not know our City's v.h.f. problem, we are at the foot of a high range, to wit, Mt. Lofty, that is a remarkable screen eastwards.

Tom 5TL is now on 58 Mc. at Alice Springs with a beam directed south and looking for contacts, so fire a sig up there chaps and get Tom back on to the v.h.f.

Don 2AMN (yes, Broken Hill—but we grab him as a VK5er, being a member of our Division) is on 56Mc. also and looking for contacts. He uses half 12AT7 into half 12AT7, into 12AT7, to an 807, on 56 Mc. and by means of key switches and relays can go from 144 to 56 Mc. at will; good work Don, shoot a sig here and let's hear it. Advice still current re 2AGZ (Broken Hill) who fires to Adelaide on 2 mx each evening 6 to 9 p.m. E.S.T. an automatic transmission on c.w. using 145 Mc. The band is simultaneously monitored so if you hear it call straight back, don't wait for a break in the transmission.

The f.m. and/or p.m. modulators referred to last month have eventuated with Reg 5QR having his complete and working, very good too on both 2 and 1 mx. and at 25 miles it's very difficult to tell the difference between it and a.m.—worth keeping in the back of the mind if your v.h.f. sigs upset hearing aids or the like. Neil 5ZAW has his final going on 1 mx with an 829B, a little strife with drive perhaps, but doing fine all the same.

Finally, and don't forget this please, advise me (5EF, Box 44, Gawler) of any unusual break-through on 56 or 144 Mc., this information is being recorded now, so we need your help to make the collection of such information useful.—5EF.

TASMANIA

We had always hoped but never actually thought 2 mx conditions could be as good as on 17th and 18th Feb. At first it seemed to be just a good opening to the Melbourne area, quite a few stations being worked at good strength by 7PF and 7LZ. 3ALZ attempted to attract the attention of VK3 western district stations, but couldn't break into the net. 7FF was about to give it away when 3ATN turned his beam at 2214 and R5 S8 reports were exchanged, this about 440 miles.

Signals from then on began to build up and 3ATR, who had QRT, was alerted by landline and came on to work 7PF and 7LZ. 7LZ had already worked 3ATN. 3ZCW wasn't strong enough until 2344 to work 7PF at R5 S8, then later at 0230 was S8 with 7LZ. The distance to 3ZCW is approx. 514 miles.

At 2318 7PF and 5CJ made the first 2 mx VK5-VK7 QSO, with R5 S8 reports. This was followed by a QSO with 5ZAM. 7PF had to QRT at 0230 on 18th, when the band was still full of strong signals. 7LZ QRT at 0230 when signals were even stronger.

Col 7LZ missed out on the VK5s because he has to go over the top of a 400 ft. hill in that direction, the only station he has heard over the hill was 3ANQ, but unfortunately missed out on a QSO.

Conditions were still good on the night of the 18th, but signals not quite so strong. 7FF worked 5CH, but other than this no other new stations were worked. Nothing was heard of any VK2s or 5BC, who was on. The distance worked would have put us well into VK2. The inversion had gone by the 19th. 3ALZ only being worked that night. Because of QRM 7LZ has moved his frequency to 144.62 and 7FF is considering going higher when he gets enough nerve to rub the crystal.—7FF.

S.W.L. SECTION

This month we begin a new feature in this column, namely "S.w.l. of the Month." To enable me to keep this feature interesting your assistance is needed. Drop me a line telling me all about yourself and your interests in general and you may be featured in this capacity. Now to the "S.w.l. for April."

If you look up the scores for the latest VK/ZL Contest you will see the name of Geoff Morris leading the Listeners' Section. Geoff who is 16½ years of age holds the Victorian Group number W1A-L3017 and is one of four blind members of the Group. He has been listening for about 2½ years and in that time has gained the following awards: 1954 VK/ZL Contest, 1st; 1955 VK/ZL Contest, 2nd; and 1956 VK/ZL Contest (the latest), 1st, with 1354 points scored.

His first receiver was the household radio-gran with no r.f. stage, but he now uses an Eddystone 750 with a three-band W8JK beam (20, 15 and 10 mc) erected by his father to suck in the r.f. An AR8 may soon be added to the station set-up. Geoff is at present studying for his Leaving Certificate at Wesley College, Melbourne. He was dux of the Royal Victorian Institute School for the Blind four years in succession, and thus created a record. His log is kept in Braille and he also has several Braille publications on Amateur Radio obtained from the U.S.A. He listens mostly on Friday, Saturday and Sunday nights, but fits in a little time now and again during the week.

His other hobbies include record collecting, music (he plays the piano), chess and playing cricket with other old boys from the R.V.I.B. And last, but by no means least, Geoff is a fanatical supporter of the Camberwell Football Club. (I wonder if he's as fanatical as Eric Trebilcock?)

By the way, let me know what you think of this feature chaps.

INTERSTATE NEWS

Only one letter from VK2 this month, the writer being Barry Cartwright of Richmond, N.S.W. (Thanks for the letter Barry). He's been very busy lately building a converter covering 20, 15 and 11 mc and now hopes to really hear some DX. His next projects will probably be a preselector and a rotary beam. His cousin, Laurie Cartwright, who is waiting for a Z call to be issued, and 2AP are helping Barry when he strikes trouble. (Good luck to all Hams aiding s.w.l.'s.)

VK2 Group Feb. Meeting.—This meeting took the form of a night of planning for our future programme. There were many good suggestions put forward so come along to our meetings and learn all about the interesting events in store. (We meet on the last Tuesday of each month at 8 p.m. at the W.I.A. Rooms, 191 Queen St., Melbourne.) At the March meeting George 3WJ will have given a demonstration of a panadaptor. We'll let you know next month how it went.

The April meeting will take the form of an Auction Night, so come along with all the pieces of junk you have and want to be rid of. Capacitors, valves, resistors of unknown value, odd chassis; bring them all along.

Again, by courtesy of the postman, we return to correspondence. Mr. W. R. Hempel, from 3 miles out of Kyabram, where local interference is nil, sends a very interesting letter. He has just retired from the Air Force and taken up farming. A rhombic antenna and an SX71 take care of the signals for him. Whilst in Singapore with the R.A.A.F. he was a member of the squadron radio club and has worked quite a deal of c.w. DX from the club station, VSIGK. He hopes to have his ticket and be able to carry on operating before the end of this year. Let's hear more from you OM. I'll answer your letter as soon as I can.

The old faithful, Dave Jenkin, W1A-L3039, from Orboist, is still managing to wield the pen each month. The joints in his rx aren't soldered yet. Just twisted together. Now he's going to double up on the I.F.s. In an endeavour to chase that bloke Selectivity. This, because the xtal filter won't work. Keep plugging at it Dave, and we hope you fix it too. Dave, by the way, heard UA0GF on 7 Mc. c.w. at the unusual time of 1652 hours G.M.T. recently.

VK5 Group.—From John Campbell we learn that Len Cragen has had to resign the position of Minutes Secretary. The Group have asked me to convey their thanks for a job well done, Len. John, who steps into his shoes, has now moved to 37 Thanet St., Brooklyn Park, South Aus., asks that all correspondence

* Compiled by Ian J. Hunt, W1A-L3007, 211 St. George's Road, Northcote, N.16, Vic.

be sent to that address, and that if it is intended for this column it be posted in time to reach him before the 26th of each month. John's new location is about 300 yards from the local A.B.C. stations' transmitters and his antenna is a whip but he's having no trouble. He has a 30 ft. pole to go up soon so he should be able to hear plenty when everything is properly arranged. The VK5 Group hope to have Gordon 5XU come along to one of their meetings soon to talk on his recent trip to the Nullarbor Caves.

John also tells us that the South Australian visitor will have a stand at the Royal Adelaide Exhibition at the Wayville Showgrounds beginning on 3rd April. VK5WI will be in operation on all bands and S.w.l. Group members will be assisting in whatever ways they can. Hope everything goes well for you chaps.

YL CORNER

BY PHYL MONCUR

Our YL for this month is Gwen Churchward, VK3US, KYL of Rex VK3VL. She is very tiny, well under 5 feet I'm sure and has a very happy, friendly personality. She and Rex live at Leongatha, a country town in the south east of Victoria. Their home is located right on top of a hill, a wonderful location for a rotary beam, also a wonderful location for a rotary clothes line, a fact which along with radio has to be very much considered as far as Gwen is concerned as she has two quite small harmonics, Peter 3 years and baby Eric, and it's a case of signals on one rotary and lots of nappies on the other. However, with the help of Rex, who is very considerate and helps out wonderfully with the chores, she manages to get on the air quite a bit in the evenings, but this is the end of the story, let's go back to the beginning, somewhere towards the end of the 1930's.

In those days when they were both quite young they didn't have very much money to spend on radio, in fact they didn't have very much of anything apart from just loads of enthusiasm and one very important thing in common, they wanted to be together and they wanted to do the same thing together, and that thing was radio. They started off with their shack in an old fruit pickers' hut on Gwen's father's property, then the war came and they got married and the old hut was converted into a five room dwelling so Gwen could be near her family while Rex was away in the Army and also it was a home for Rex to come to when he was on leave.

When the war was over, they both really settled down to radio and decided to get their tickets. They studied together and took turns at sending and receiving c.w. to give practice to each other. To get practical experience Rex always let her do the building of their equipment, wiring up power supplies, modulation equipment, etc. The first rig she completely built herself was for 40 metres and she'll never forget the thrill she got when she turned it on and it worked first shot.

She studied almost fanatically, day and night for six months and then the big day came—the A.O.C.P. examination. This turned out to be a bitter disappointment though, they both sat for it and Rex got through but she missed out and you just couldn't imagine what stumped her, she went through with flying colours in theory and c.w., but it was those gosh darn Regulations that let her down. She got 69 marks for them and would have only needed 70 to pass and so for the sake of one mark there was Rex with his licence and she didn't have hers. She had studied so hard at theory and c.w. that she just hadn't had time to spare on thorough study of the Regs. However, it was only a matter of time and the next exam, she made sure of them.

The day she came home with her licence they had a real celebration, but perhaps not what everybody would consider as celebrating. What did they do? Why they hurried up and got tea over as quickly as they could and then rushed out and turned on the main switch so she could air that new call sign and they went flat to the boards till the early hours of the next morning, in fact till there just wasn't another signal on the bands to come back to them.

She has always enjoyed radio and anything to do with it and recalls the first Field Day she and Rex went on. They didn't have a car of course in those early days so it was a matter of pile up all the radio gear on the wheel barrow and together they pushed it up on top of a hill where they erected a dipole on broom sticks. They have entered in lots

of Field Days and at one time they held the State record for a 6 metre contact, working from Mt. Bunninyong to VK3PK at Mt. Buffalo with a little portable, a distance of just under 200 miles.

She has made a lot of good friends in W. land; one, Lenore Conn, W6NAZ, she talks to two or three times a week when conditions are good and exchanges magazines with her, and another couple, also a husband and wife team, who they are good friends with, is Arlie WAHLF and her husband, Roy WAVFO.

Before she had the children, Gwen used to work a lot of DX but now finds she can't spare so much time for DX but is happy just to be able to fit in time for 2 mc contacts for which she uses a 522 and 4 over 4 beam and crystal locked converter. She and Rex also have equipment for 5, 10, 20 and 40 mc.

At present with the help of their good friend Jim VK3DI they are building their home at Leongatha where they are living in the part that is already finished, but still have another two rooms to add to it. Of course the shack, which is detached from the house, was built very first thing, but then with such a "radio-active" family, you wouldn't expect anything else would you?

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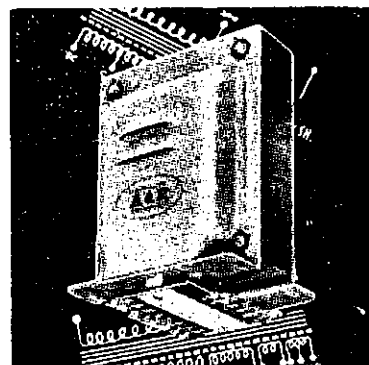
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" 1769	" " "	" " 350-C.T.-350	" 1782	" " "	" " 450-C.T.-450
" 1770	" " "	" " 385-C.T.-385	Type 1400	250 Ma. D.C.	Sec. Volts: 565, 500, 425 each side C.T.
" 1771	150 " "	" " 285-C.T.-285	Type 1371	300 Ma. D.C. (400 Ma. Inter- mittent Rating)	Sec. Volts: 1000, 850, 750 600, 500 each side C.T.
" 1772	" " "	" " 325-C.T.-325			
" 1773	" " "	" " 350-C.T.-350			
" 1774*	" " "	" " 350-C.T.-350			
" 1775	" " "	" " 385-C.T.-385			

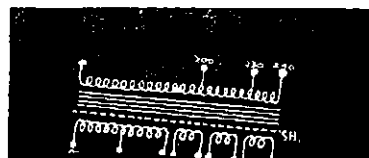
* Includes 2.5 Volt Filament W.D.G.

Types 1763 to 1782 Vertical Mountings with Terminal Boards. Type 1400 Horizontal; Type 1371 Vertical with Top Term. Board.

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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

AMATEUR ADVISORY COMMITTEES FOE 1957

New South Wales: Messrs. G. A. Hall, 2AGH; N. McNaughton, 2ZH; E. A. Marstella, 2AEZ; A. J. Smith, 2AIR.

Victoria: Messrs. R. A. C. Anderson, 3WY; F. P. O'Dwyer, 3OF; N. L. Storck, 3ZO.

Queensland: Messrs. S. R. Baxter, 4FJ; J. G. Files, 4JF; A. Harris, 4TN; H. T. Hewitt, 4FD; J. T. Hope, 4XL; L. E. H. Mallison, 4LM.

South Australia: Messrs. S. F. Ackland, 5SF; A. R. Anderson, 5GM; M. Bradley, 5BJ; B. A. Paik, 5FQ; W. W. Parsons, 5PS; H. E. Vivian, 5FO.

Western Australia: Messrs. J. A. Cook, 6JA; J. R. Elms, 6BE; C. Hitchins, 6HC; D. A. Meadowcroft, 6ZAQ; H. T. Mulder, 6MK; J. E. Rumble, 6RU.

Tasmania: Messrs. C. Harrison, 7CH; L. R. Jensen, 7LJ; K. A. Johnson, 7RX; K. E. Millin, 7KA; W. N. M. Nisbet, 7BN; D. M. Watson, 7DW.

FEDERAL QSL BUREAU

Dick Kemp, K6VUH, 12802 Izetta Ave., Downey, Calif., ex-W5MET, requests publicity to the fact that W5MET is now permanently closed, and that anyone not having received his W5 card may obtain same from the new QTH.

The U.S.K.A. advise details of their well known Contest, Helvetia 22, which this year is scheduled for 1500 G.M.T., May 18, to 1700 G.M.T., May 19. Objective is to contact as many of the 22 Swiss Cantons as possible, either by c.w. or phone on any band. The usual serial number exchange is to be made, five digit for phone and six digit for c.w. Three points are earned for a contact and the total points are multiplied by the number of cantons worked. Logs must reach B. R. Bosert, HB9QO, Communication Manager U.S.K.A., Lauriedstrasse 6, Z.U.G., Switzerland, by June 6. Logs must be on a separate sheet for each band used and the usual certificate of conformity with rules and spirit of the Contest must be enclosed. Certificates will be awarded to the two high-scoring entrants in each country.

When the President of Portugal visited Mozambique in late 1956, a general exhibition was held at Lourenco Marques to mark the occasion. The exhibit buildings were set up amongst trees and in one such building was an Amateur Radio exhibit. A 100 watt transmitter was operated for the duration of the exhibition by CR7 Amateurs using the call sign CR7BS. Many VK stations were contacted and a QSL forwarded to each. The QSL is in the form of an eight-page booklet with the call sign prominently displayed on the front cover. Any VK who did not receive his QSL may obtain same by application to CR7LZ, Box 812, Lourenco Marques, Mozambique, East Africa.

TLGA, Alan Frame, bemoans that for every QSO QSL card he receives, he gets two s.w.l. report cards. Wait until you feel the full impact of the Iron Curtain S.w.l.'s, Alan. —Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

As is usual at the February meeting of this Division, the V.h.f. Group provided the lecturers for the meeting held on the fourth Friday at Science House. Members of the Group, including Perc 2APQ and Bob 2OA, gave interesting talks covering a wide field of v.h.f. techniques in the limited time available, and the Division seems assured of even more converts to the v.h. frequencies as a result of their efforts.

A spirited discussion took place on the subject of the Institute's New South Wales Headquarters station and its building at Quarry Road, Dural. The building, by the way, is now complete and all is ready for the installation of transmitters, water tank and furniture. A rather more powerful signal should be heard from VK3WI by the time these notes appear in print.

Orders are coming in steadily for the excellent car badges which are available from the N.S.W. Divisional Secretary at Box 1734, G.P.O., Sydney. Samples have been sent to other Divisions and the badges are now available at a cost of 30/- plus postage. The badges are the usual car-badge size and are a replica of the Institute's lapel badge, very well executed.

A noteworthy visitor to Sydney during the last few days has been Jim Morrisett, Assistant Editor of "CQ" Magazine, otherwise K2OLK. Jim has been on "Operation Deepfreeze" with the U.S.S. Curtis which visited the U.S. bases in Antarctica and was prevailed upon to give a talk over VK2WV on Sunday, March 2. It was rather unfortunate that conditions did not allow his most interesting talk to be more widely heard. One thing is that the Curtis had something to do with the Aurora which played havoc with conditions during that week-end!

Now for a few words on a very sore subject—commercial interference in the Amateur bands. There have been some discussions on this subject on the air, but Noel 2AQH, who so kindly offered to gather the reports, and details of the offenders some months ago has not been overworked. It's not enough to talk about it—as reported in these notes months ago, we need report of times, frequencies, call signs, etc. If a commercial station interferes with you in exclusive Amateur territory please send all the details you can to Noel 2AQH—the commercial would very smartly do the same thing if you got on his channel outside the band. This is the only way we can get some action.

HUNTER BRANCH

The February meeting of the Hunter Branch was held at its usual location at the University of Technology on the 8th of the month. Secretary, Charlie 2ARV, was absent on holidays, so Varley 2SF acted in his stead. President Bill 2XT conveyed the congratulations of the meeting to Harry 2AFA, who had recently received the OH Award for working 15 Finnish stations in five districts.

Lionel 2CS gave a lecture on a pi-coupler and an aerial tuner which he has in operation. He explained their method of construction, gave diagrams and gave an account of results obtained. Following the lecture two films of topical interest were shown and the meeting concluded at 10.30 p.m. with the usual ragchew.

It had been mentioned in correspondence that the I.R.E. had invited Branch members to a lecture on a "Project TV Receiver" on the following Friday night and those Branch members seen in attendance at the lecture were Varley 2SF, Bill 2XT, Chris 2PZ, Frank 2FX, Les 2AOR, and Associate Bill Waite.

Associate Stewart Fairburn has received word that he has passed for his Limited licence. Associate Frank Stobbs, who has not been in the best of health, attended our last meeting. Frank was a welcome visitor and we hope to see him more often in the future. Jack Hamilton and Syd Daniels had a few contacts using the Type 3 belonging to Ron 2ASJ; Jack has also been holidaying at a Narrabri sheep station. Ron has no rx in working condition at the moment, but Harold 2AHA is working on Ron's B28 to get it going again.

Ernie 2FP was seen examining the 100 ft. high water tower at Stockton on which 2ASJ would like his 2 mx beam, his Alan 2FT was heard testing on 40 mx recently. Let's hear more of you Alan. The 40 mx band has quietened down since Bill 2ZL went to the Blue Mountains for his holidays, but will soon liven up when Bill gets back on. Harold 2AHA and Bill 2XT had a station operating in the National Field Day at Toronto. Reports indicate that Harold and Bill did quite well. Jim 2AHT and Associate Gordon Sutherland both became fathers during the month, so that's two more junior ops, in the district.

N.S.W. DIVISION W.I.A.

NINTH ANNUAL

**URUNGA
CONVENTION**

will be held over

EASTER WEEK-END

APRIL 19 TO 22

This is a week-end where you can meet your Ham friends. Full details re accommodation, etc., appeared on page 14 March "A.R."

The next meeting of the Branch will be held on 12th April at 8 p.m. at the University of Technology at Tighes Hill. Listen for 2AWX every Monday night at 8 p.m. on 14.3 Mc. for latest news on Hunter Branch activity.

UPPER HUNTER GROUP

Things are very quiet in this area at the present time. Tas 2GV heard on at lunch time and is still working on the AT5. 2VU busy calibrating v.h.f. grid dip oscillator and still runs ATR2B on 80 and 40 mx. Les 2ZCB is moving to Newcastle and informs me that he will be soon well under way on 144 Mc. as he had no room for building gear in his quarters at Seone. 2ANU has been holidaying at Terrigal and visited all the local shacks—2ON, 2RU and 2EH. For those with ATR2B's, Ken reports that by two simple modifications, the stability and quality of modulation can be greatly improved. (1) Reduce the value of coupling condenser between the m.o. and p.a. from 0.002 uF. to 50 pF. (2) Increase the screen resistor of the 807 modulator from 3,000 ohms to 22,000 ohms.

Main item of interest was the alerting of the emergency net when the recent cyclone swung inland and the rivers started to rise. Fortunately it blew itself out and the service was not required. According to the long range weather forecaster anything is likely to happen in the next month or two and suggests that we adopt the motto "Be Prepared."

NORTH COAST AND TABLELANDS

Don't forget Urunga at Easter! Crieff, Noel and company are all set to go for another bumper Urunga Convention. What? You have not booked that accommodation yet? Please write to Noel "posthastily"—he may be able to do something for you, even at this late stage. We are hoping for a good roll-up of North Coast Zone members this time and the Convention gets bigger and brighter each year. See you at Urunga?

TAMWORTH AND DISTRICT

Sam 2LY, who has been holidaying in VK3, will be returning to N.S.W. early. We hear something about Noel 2ASQ becoming involved with a large thundercracker during his last "holiday" with a certain military establishment; what happened, Noel? 2ATD and Dennis 2AWW have been very busy at work, allowing little time for Ham Radio. Please keep a lookout for ZAPF who will be operating a station for the Tamworth Radio and Electrical Club at the Tamworth Show on April 2 on 7 Mc. The holiday season seems to be really on. Bruce 2ZAD has also been holidaying, in Sydney. Ben 2ABT, of Coonabarabran (I can spell it, Ben) having some strife with microphones and spending a lot of time playing with a mysterious "gadget"—also has new rig under way.

SOUTH WESTERN

During early February your scribe, accompanied by Assoc. Stan Abbey and two other friends, made the trip to Albany to call on Don 2RS. We found that Don and Herb 2QD were indulging in a spot of fishing, and were later joined by Bert 2AEM on the banks of the Murray. The fish were a bit like DX, but at least we did bring fish back to Coolamon, thanks to the Albany boys.

We had some excitement on walking back from the river. While walking in single file, Don stepped over a 4 1/2 ft. tiger snake, your scribe stepped on the snake, and you can judge that as I am writing this that I was extremely lucky to escape. However, a stick was procured and the tiger duly dispatched. I am sure all were a little white and shaky for a few minutes after. We were well looked after by Glenda for eats, as we are always when we visit Albany.

The Coolamon Key Clickers Club, aptly named by Ian Hunt, is growing in size. We now have four in class. Latest additions are Arnt Orntsen and Ken Vickery from Wagga, who make the trip of 25 miles every second Tuesday. Your scribe also has had a couple of visits lately from Alf Moye, 2BW, of Wagga. Alf looks like getting more active soon. No news from Griffith or Tumut.

VICTORIA

At the March general meeting of the VK3 Division, members were again privileged to have Mr. Kempson, who is in charge of the radio and television section of the Royal Melbourne Technical College, as the lecturer. The

programme for the evening took the form of a tour of inspection of the College's television equipment. There was a good attendance at the meeting and members were divided into two groups and while one group went on the tour, the other group was entertained with films on television and then the procedure was reversed. Members were very interested to have the opportunity of watching a working demonstration of the television equipment available at the school and found it a most impressive demonstration.

Mr. Kempson had gone to a lot of trouble in arranging all the studio equipment in one room so that it could be viewed as a single unit. He gave a very full description as he demonstrated each piece of equipment and answered questions from members as he went along. Keen interest was shown when he demonstrated the two camera work of phase dissolves and super-imposing of one scene on another. The tele-cine room was also of great interest where he took the back of some of the section so members could see what ticked inside. The equipment itself was really first class and showed great credit to both the Education Department and the private firms who have helped financially in its purchase. Such great interest was shown by the members that Mr. Kempson very generously offered to give a further lecture later on in the year to devote more time to blackboard diagrams, circuitry, etc.

We were pleased to have three visitors at the meeting in Floyd Hoffman, W9VPD; Norm Hannaford, VK2ZB, and Mr. George Baty, father of Ray Baty, ex-VR3A, now VK2ANB.

The following new members were welcomed: Mr. R. R. Longworth as a full member, and Messrs. N. W. Sherring, A. Hillier, G. A. Fox and N. R. Raymond as associate members.

The next meeting will be the Annual General Meeting and will be held on Wednesday, 3rd April, at 8 p.m. at the Radio School of the Royal Melbourne Technical College.

Congratulations to Max 3ATK on the arrival of his second son, and to Jack 3VZ who has a small daughter, his first harmonic.

Owing to the lack of interest in the Bimonthly All-Band Scramble it has been decided to limit these contests to two a year.

During the past year lectures at the general meetings have been recorded on tape and are available on loan to any member or group possessing a twin track tape recorder.

The lectures include "Single Side-band Suppressed Carrier Transmission" by Jack Vertigan, 3WR; "Sunspots and DX" by Alan Foxcroft, 3AE; "The Work of Frogmen During Wartime" by Commander Batterham, R.A.N.; and "Radio Control of Research Missiles" by Hans Albrecht, 3AEH. They are double track recordings and have been recorded at 3.75 inches per second and the duration is between 1 and 2 hours playing time. Inquiries should be made direct to Len Moncur, 3LN, 235 Union Road, Ascot Vale, or phone FU 6239.

NEW VICTORIAN DIVISIONAL ZONES

Following requests from various country members to the VK3 Council, and discussion held at the last State Convention, Council considered suggestions for means of a more equitable distribution of members in the zones, keeping in mind as far as possible common interests (other than radio) shared by members.

The Eastern, North Eastern, and South Western Zones were happy as they were and did not wish to be altered.

To cut a long story short, Council obtained a large map of Victoria and pin-pointed all members who would be affected by any change of zones, produced a map showing zone boundaries and sent a copy to those concerned for comment.

As all comments received were favourable, the new zones became operative as at the first of March, 1957. The map printed herewith shows the boundaries better than words can ever do. If any dispute should arise over a borderline case, reference to Council's map will clear the matter up.

The zones affected will make any arrangements necessary regarding financial adjustments, etc., as set out in Council's letter.

We wish the new zones every success in the future. May their membership grow, adding to the strength of the W.I.A.

80 METRE TRANSMITTER HUNT

If you want to have a really enjoyable afternoon out then come along to our 80 mx tx hunts. We just never miss on having a lovely sunny day and the crowd is growing and growing. There were 62 present at the hunt held on 3rd March last when Jack 3VZ, assisted by Alf 3IE, his harmonics and their cobbler in crime, Jim Shaw, hid the tx. There was a very good signal at the starting point and most competitors were on the scene before

the tx was discovered by the winner, Laurie 3ALY, second was Len 3LN and third was Eric 3ADU. The location was at Wilson Reserve at Ivanhoe where the tx was buried under dirt, leaves and twigs in the middle of some very thick scrub.

Wilson Reserve is a very charming picnic spot complete with swimming facilities in the river, a large grassy area for the picnic tea and as if that wasn't enough there was also a miniature railway to the delight of all the harmonics and the OM's and even the KYLs who couldn't resist going for a ride on its scenic one mile tour along the river bank. But all this came after the tx was discovered and its discovery was by no means an easy task. There was literally just miles of fine wire strung up in and out of the trees (that's the reason Alf took his harmonics along to help) and no matter where you went you got a good signal, even when you were quite a distance from the tx.

The next hunt will be held on Sunday, 7th April, when Laurie 3ALY will be hiding the tx. Come along and bring a picnic tea, we're sure you'll enjoy it.

SOUTH WESTERN ZONE

Well I am afraid our zone is a dying race as activity has been almost nil. Jack 3JA and Neil 3HG have been on at 10 a.m. for the hook-ups, but no one else seems to come on so you cannot write notes if nothing is passed onto the person concerned. Gordon 3AGV has

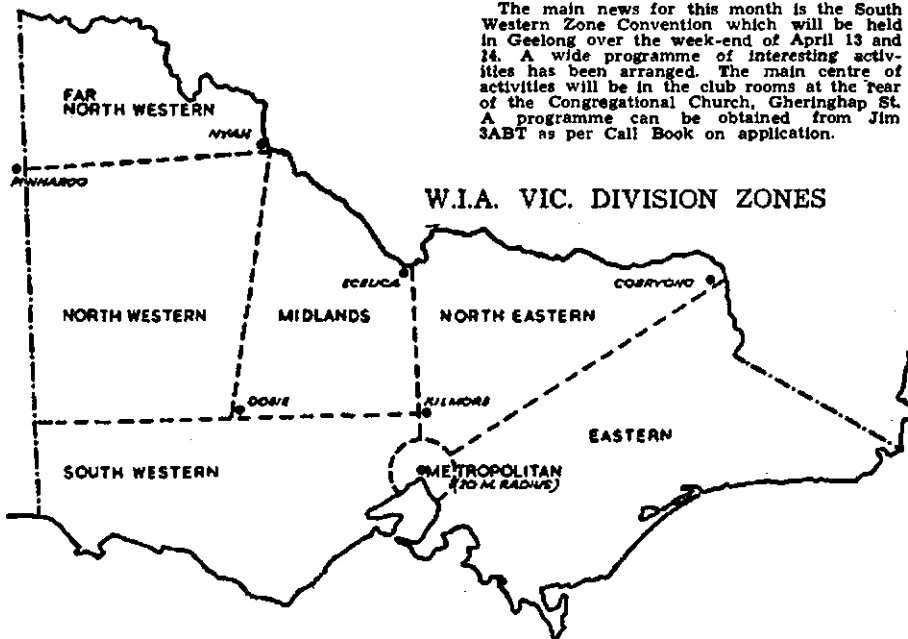
maybe there isn't any interest! As there has not been any communication with the zone correspondent there isn't any zone notes. I have gone on strike and, henceforth if the zone wants notes, they will have to get some scribe who knows what is going on amongst the members. It isn't possible for me to get on the air for every zone hook-up, but there are members who never get on at all. Now before I pull my head in, I wish to put on record that if it wasn't for VKs 3FD, 3AXW, 3CI, 3AGG and 3ALE there wouldn't be a zone hook-up. As for the unfortunate associate members in the zone, I'm sorry fellows, but I never hear from any of you. Rest in peace fellows, nobody knows what you're up to so nothing will get into print. As for the spies—you're sacked.

It seems to me that most people are in the W.I.A. only because they can get someone to look after their hobby OK, that's good, but being in a dead zone of the said W.I.A. isn't so good. R.I.P. I can't wake you up.

"Here lies the body of the North East Zone. Because nobody cared and nobody tried, It folded up and flaming well died. Its members are all active with DX far and wide, Collecting QSL cards which are their joy and pride. But when it comes to hook-up time they fade away and hide."

GEELONG AMATEUR RADIO CLUB

The main news for this month is the South Western Zone Convention which will be held in Geelong over the week-end of April 13 and 14. A wide programme of interesting activities has been arranged. The main centre of activities will be in the club rooms at the rear of the Congregational Church, Gheringhap St. A programme can be obtained from Jim 3ABT as per Call Book on application.



a very nice 144 Mc. QTH now, nice and high, also very good for tv, which Gordon has plenty of.

All those who are intending to attend the Convention in Geelong on 13th and 14th April are asked to send a deposit of £1 per head for booking fee to Ted Blackney, 3AEH; also don't forget that this Convention is also the Annual Meeting to decide on the various office-bearers for 1957, so we will hope to see you all there. The programme is as follows:

Saturday:

3 p.m.—Arrival at club rooms at rear of Congregational Church, Gheringhap St., Geelong (near P.O.). Geelong Hams will be listening on 80, 40 and 2 mx to contact mobile stations.

6.30 p.m.—Dinner at club rooms, followed by zone meeting and a talk and films by Len Moncur, 3LN.

10.30 p.m.—Supper at club rooms.

Sunday:

10-12 a.m.—80 and 2 mx tx hunts simultaneously.

12-2 p.m.—Picnic Lunch in Eastern Gardens.

2-3 p.m.—Demonstration Fox Hunt by V.h.f. Group. Scramble, games for children and adults, etc., has been arranged.

4.30 p.m.—Close down.

NORTH EASTERN ZONE

Don't forget the proposed Zone Picnic get-together to be held soon. So far there has not been any comments from the zone members,

Wireless Institute of Australia
Victorian Division

A.O.C.P. CLASS

commences

MONDAY, 29th APRIL, '57

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—
Secretary W.I.A., Victorian Division, 191 Queen Street, Melbourne (Phone: MY 1087)
or the Class Manager on either of the above evenings.

Club members recently visited Jim 3ABT for an inspection of his gear. Jim is well known here for the painstaking care he puts into his constructional work. We were privileged to view a wide range of equipment which not only looks very professional, but also performs equally well. A 3 stage tx is monitored by a compact c.r.o. unit; freq. standards of 100 Kc. were obtained by a nice osc. unit. There were also converters for all bands in the course of construction. As well as running on a.c., the Ham station can run on batteries with vibrators and genemotors. A new Ham shack recently constructed makes operating a delight. Jim's wife, Con, and the ladies brought a very happy evening to a close with a fine supper.

Ron 3AYB gave us a most interesting talk on Earthing Systems and their application. See you at the Convention.

QUEENSLAND

BRISBANE AND DISTRICT

Maybe we're a little premature with this news but we just couldn't resist the temptation. You, no doubt, remember our part in the Junior Chamber of Commerce Hobbies' Show; well, the J.C.'s. were so happy with the show that they are already planning the next show in November. Now here's the part we have been asked to play. The next Hobbies' Show will be in the City Hall proper and the theme will be "International Understanding." It would be better if we quoted from the J.C. Secretary's letter: "We propose planning the Show around the Amateur Radio Hams who are best equipped to carry the theme into operation by world radio contacts." By the way, a proportion of the proceeds will go to that worthy cause, "The International House Appeal."

Band conditions have not been wonderful lately and the only occupants of 20 mx at night seem to be Tom 4TT, Del 4RJ, "Hon. Pres." 4ZM, and our far northern "agent-extraordinary" Norm 4NT. For associates who want slow morse copy, Norm has 5 w.p.m. transmissions every Wednesday night from 8 to 9 p.m. on 1432 Kc. or thereabouts. Norm at present has only planned to continue these weekly broadcasts until the April exam, but I know that he will continue after that date if he is asked nicely. We believe a special "thank you" goes to Bob Fitzsimmons for punching the key. Bob is an associate of the Division and your Secretary hopes it won't be long before we have Bob as a full member.

Council was disappointed at the lack of response to the appeal for members willing to

give assistance in emergency to have their names recorded in a list for Inspector Lloyd. All of a sudden names started rolling in with subs. and now we can give Police Rescue and Intelligence a good size list. You can still send your name in to the Secretary, but be certain you include the name of the Police Officer in charge of your district.

We have some very good disposals gear coming up and the price will amaze you. We won't tell you what it is yet, but when we have the gear safely in our hands, the full dope will appear in "GTC." Don't waste time getting your name in if you are interested because there will almost certainly be a ballot for it.

Our latest DX visitor, Bill Bentson, W7QFY, has been and gone but we are still in a state of amazement at some of the gear he had, especially the cute little seven transistor portable. It was only about seven by three and a half by two inches, but it gave as much output as the normal portable on the market here in Australia. It got its "herbs" from two torch cells. Now is the time to get the clues on these "gimmicks," so don't pass over the articles by Hans 3AHH, which are fairly regular in "A.R." We have heard a whisper that a big Ham equipment manufacturer in the States has a combination of receiver and 100 watt transmitter in the size of a normal receiver ready for release in the near future. It is just full of transistors.

The VK2 Division has had some special W.I.A. badges struck for fixture to cars and if anyone is interested a letter to the VK2 Division may bear fruit. This is the best way of identifying your vehicle as belonging to a member of the W.I.A. because we think it is almost impossible to persuade the State Government to grant us number plates with our call letters as they do in the States.

TOWNSVILLE

Quite a large roll up was experienced for the monthly meeting held on 28th February at Graham Walker's residence. Indeed it was quite encouraging to the club officers who have been disappointed at times when it is hard to get a quorum. John 4DD was welcomed as a new member and put forward quite a few suggestions to try and hold the members' interest. Just shows what new blood will do. As Graham had to leave the meeting early, it was decided to defer discussion on another class for the A.O.C.F. until the next meeting in the hope he will again be the class supervisor.

An idea for each Amateur to give a small lecture on some aspects of Amateur Radio in turn was enthusiastically received and John (Continued on Page 20)



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Or are you just contented
That your name is on the list?
Do you attend the meetings,
And mingle with the flock,
Or do you just stay away
And criticise and knock?
Do you ever go and visit
A member who is sick,
Or leave the work to just a few
And talk about the "clique"?
Come to the meeting often,
And help with hand and heart,
Don't be just a member,
But take an active part.
Think this over; Old Man,
For you know right from wrong—
Are you an active member,
Or do you just belong?

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volunteered for the first night, to be followed in turn by 4LR and 4RW. The April meeting is to be set aside for discussion of troubles encountered.

Ted 4EJ and John 4DD haunting the 10 mx band in working Britain, closely followed by Alan 4BE who comes up at times on 21 Mc. John 4DK finds it hard to make sked times during lunch hour and would like any of the gang to come up on 7 Mc. at 3 p.m. Bob 4MF awaiting modulation tranny, and Frank 4FP hopes to be on the air very soon. Ken, who has a Z call, wants the gang to try 144 Mc. Bob 4RW cleaned up his modulation and now experiences difficulty in operating on 28 Mc. Andy 4BW can be relied on to come in and give signal reports; does a lot of listening and little talking. No word from any of the boys around Cairns. What about it someone? Don 4PW, who is on transfer to Collinsville, is expected to liven up 4ZO and get his signal on the air.

MARYBOROUGH

4DJ has worked 40 countries in his first two months on the air. Must have worn his tx out as he's building a new one. 4AI is putting a 6148 in the final in place of the pair of 2E26s. Alan has spent a lot of time building and de-bugging his new rig. The 40 ft tower at 4BG went up without incident, with the help of the local lads. While building the new three element 21 Mc. beam, Ron is using the future driven element as a dipole with good results. 4CB is still working to Brisbane on 2 metres.

SOUTH AUSTRALIA

The last get-together was a dual affair starting with the Annual General Meeting and concluding with the monthly meeting. We really got formal at the start, and the meeting opened according to notices, agenda and constitution with a first class attendance. President John 5KK gave his report which was well presented and well received, and as it is likely to be published in full later on won't repeat it here. Our membership is interesting, 222 full and 158 associate, total 380 (97 being country members by the way).

The Treasurer, Jim 5FO, that crafty scrooge, gave his report (as audited, he said), but I thought too little was made of the gains for the year and who was largely responsible for them. We are very fortunate in the "watcher of our purse" and he is as hard to get money from as a certain gentleman is to say "yes" in U.N. The point is that finances are remaining buoyant and enough to prevent any thought of altering membership fees, and that's the talk we like.

The monthly meeting followed after a smoke-o and QSL card distribution, when such things as Federal Conventions, Exhibitions, etc., were dealt with. We have one new full member, T. Drake (5DL), and two new associates, L. Mullins and R. Greise.

One very interesting point arising from correspondence was the information from VK7 that they had formed an Interference Committee, not necessarily t.v.l. or h.c.i., but to handle the question of Ham-caused interference generally. A very good thing that and a lead to other Divisions to follow suit, for quite apart from t.v.l. there is a growing need for group assistance, which our Institute can provide, to help overcome the various "Ts" that crop up these days, not the least of which is to commercial w.h.f. services.

It has been suggested that a different site be chosen for our next Annual Picnic, to add a bit of variety to life, so if any of you types have suggestions bring them forward. The idea appears to think up something early to provide booking of such a place, etc., and to enable the "social club" to spring to action.

Gordon 5XU concluded our evening with a mighty interesting talk on some of his experiences whilst at the "Caves," and as he has promised to do an article on it, will not repeat here. Thanks Gordon.

Our T.v.l. Committee under the guidance of Ray Tuck, Chairman, is an active one chaps, not all theory, and their advice is available to any member rebuilding or meeting trouble with their present rig. They really have the clues, so don't miss the opportunity of consulting them when you do run into strife, and better still, don't complete your plans without letting them vet the ideas and thus prevent trouble.

The marathon effort this month was Joe 5JO and his ride to Gawler on push bike to see the tri-bander whilst it was down for modification to Mark II. Two hours flat for the forward journey with an extra five minutes for the return. Real keen our Joe when he wants to see something—hope what you saw was worth the effort OM.

The interest shown in the National Field Day this year was the best for some time and experiences gained will prompt greater activity next year. It is felt that more field days would be acceptable to maintain the interest and keep the cobwebs off the gear meantime, so what about it, has anyone any suggestions? Such a thing would also improve our approach to C.D.E.N. and keep more gear ready for action. By the way, Doc 5MD was heard calling me at One Tree Hill when portable, just after I'd told someone (a W I think) that my antenna was suspended from two trees. He wanted to know how come?

The Exhibition project is progressing well, the tower is up due to the planning and muscles of Carl 5SS, Graham 5ZBT, Frank 5MZ and Gordon 5XU, and the ZL Special under way by Joe 5JO. All sorts of activities going ahead in planning v.h.f. links with special long, long yags mentioned.

The Emergency Net Committee has procured six 12v. input transceivers and have been tried out in the field using 5JK and 5MD as base stations. The experiments were done on vertical whips and different frequencies, and looks like being a good reliable net.

SOUTH EAST ZONE

Most of the activity in that part was centred on v.h.f. which is reported elsewhere, but in spite of that Erg 5KU has his beam working on DX and doing quite nicely thank you. Stewart 5MS has managed to work two more new countries, although don't know at the moment what that brings his total to, but it must be hard to find new ones now Stewart, the score please some day. Bram 5AB still on his new rig, that is not finished yet, due mainly to his activity with the local bush fire net. 5JA still playing with his tx, whilst the rest of the boys really went to town on 2 mx.

NORTH WEST ZONE

Yes 5WC have come out of hibernation and have reported to your scribe on some of their doings. Things there have been a bit steady of late, but renewed interest now arising from membership growth, so we look to more activities from the "glibber boys" from now on. They have promised some coloured photos of their shack and persons, reckon black and white could not do justice to either, so we look forward to displaying the technicolour masterpieces. W.B.E. and W.A.C. Certificates adorn the shack wall and they talk glibly about working some ET3s and CN8s "and a few rare ones!" Not bad going, and evidence the rhombics still work. Burnie getting himself a "bomb" and intends going mobile, so we might hear his own call sign soon.

Wally 5DF reports from Port Lincoln that Jack 5LR spent a caravan holiday at Lincoln and managed quite a few contacts with portable gear whilst there. Geoff 5RH and Bob 5RT, visitors to Lincoln recently on business (at Wally's salt mines), naturally paid 5DF a visit, much to Wally's delight. Pat 5LT still working DX on 20 mx with his usual success. Alf Mack still plodding on with morse practice. George 5GA may find time to get back on the air this winter when also it is expected that Wal 5DF's new tx may be far enough removed from the drawing board to connect to 50 cycles.

STOP PRESS

Who is this Phyl Moncur person, who in YL Corner ("A.R." March) mentions one of our precious VK5 types and his expanding staff? OK Ern 5EN, don't work too hard, remember fathers need support at such times. Learn to fold those squares in the form of vector diagrams and it won't seem like work any more.

WESTERN AUSTRALIA

The February Divisional meeting was the first of the year, no meeting having been held in January and elections were held for Federal Councillor and Advisory Council.

Federal Councillor, Ron Hugo (6KW) was re-elected unopposed.

Advisory Council proposed by the Institute was 6BE, 6HC, 6MK, 6OR, 6RU and 6ZAV. These recommendations have been accepted and appointed by the P.M.G. Department.

5WT gave an interesting lecture on television as it affects the Amateur. He demonstrated his home-built t.v. receiver to the meeting. This is running most of the time on Channel 2 from Sydney and Melbourne in case of a break-through. It was built from disposals h.f. gear and showed what can be done with conventional equipment without any expensive circuitry or parts.

6BO, after receiving a telegram from 5ZAM reporting a major temperature inversion over Eastern Australia, kept watch together with 6BE and 6BK on 2 mx from 1800 to 2200

W.A.S.T. in case of a break through, but nothing happened. However, we believe that a very high m.u.f. is expected during March and all v.h.f. enthusiasts will be watching the bands from 28 Mc. up.

TASMANIA

NORTH WESTERN ZONE

Did any of the active members take advantage of the fine display produced by the Aurora Australis recently? I haven't had any reports on what happened in the t.v. range but I didn't receive any TWI broadcast the following Sunday.

Caught up with associate Athol Lockett this month. Found Athol under the bonnet of a radio control taxi, and thoroughly enjoying himself. Can't we swipe one of the car transceivers Athol?

A very successful first tx hunt was held in the N.W. Zone on 10th February. The hidden tx was operated by Jim 7JO. The starting point was the War Memorial in Ulverstone. I arrived late with the XYL, 3 harmonics and no d.f. receiver, but such is fate. Three of our members were getting f.b. sigs by going in the wrong direction, so I was able to collect an envelope as they came back. Dennis 7DR was first to find Jim at the mouth of the Forth River, followed very closely by associate Max Ives. Appears Max had done the thing methodically, by taking a cross bearing and proceeding to the point of intersection, whilst Dennis 7DR had followed his nose.

Haven't heard of anything of Chas 7CF as yet, although there's a whisper abroad we'll hear you again soon Chas. Saw Johnny Lee, a Devonport associate, at his place of toil, very busy with a spray gun at the time, but John tells me he is also very busy with the A.O.C.P. course. Would like some help with his c.w. A job for the local boys there. Congrats to Leon 7JP and Trixie who had a visit from the Wireless Bird early in March. A lovely little daughter I believe Leon. 73 to Trixie. I believe the Wireless Bird called on Bob Wilson recently too, but haven't got all the details as yet. Best wishes to the XYL and babe, anyway Bob.

Saw associate Ken Browne in Burnie, outside a place of public entertainment, to wit, a picture theatre, during daylight hours. However, that was OK as Ken helps operate the projection machines. Visited the TWI tx during my annual leave one Sunday in February. Had some trouble getting into the place too. Rang Len 7LE who told the operator of the day, Tom 7AL, over the air that a visitor was at hand, thus proving once again the usefulness of Ham Radio. Thanks, Tom, sorry I couldn't stay longer.—7LS.

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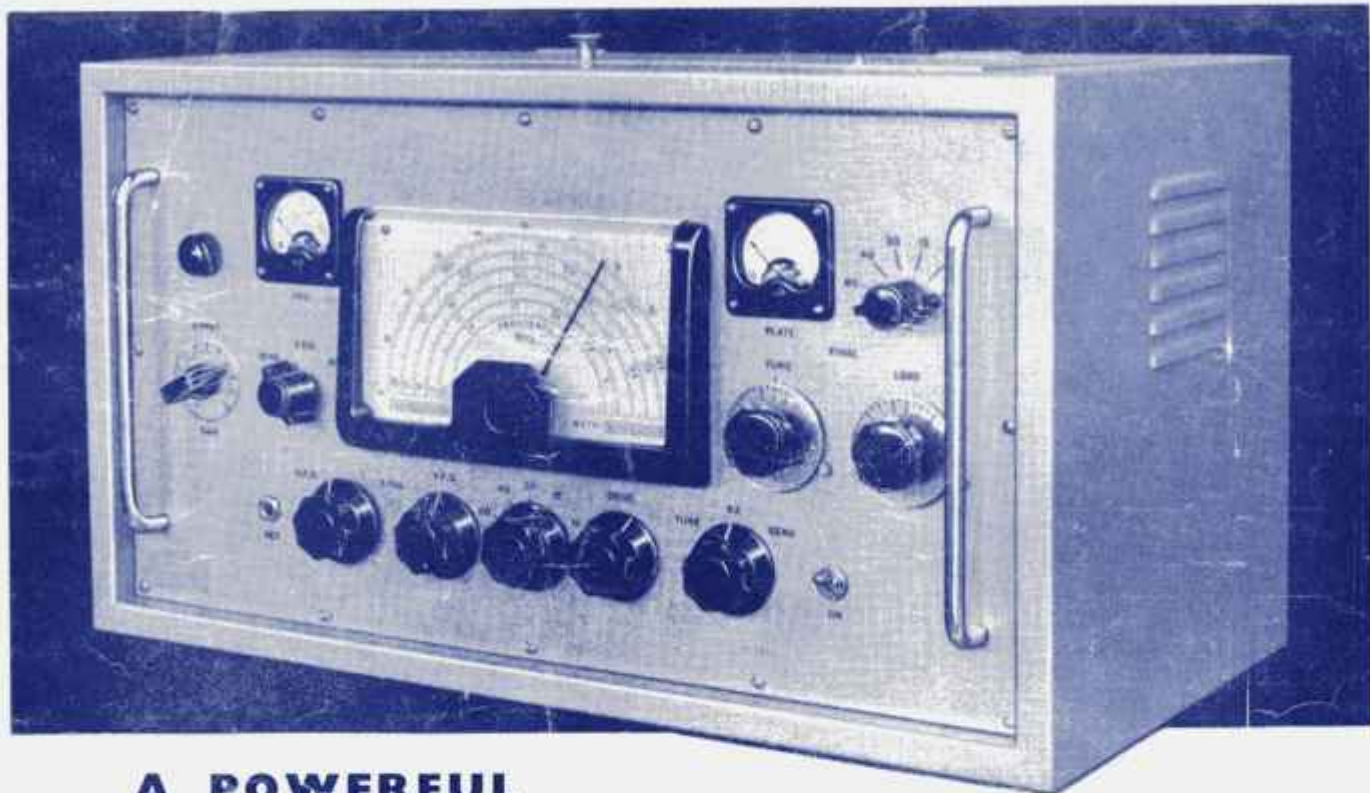
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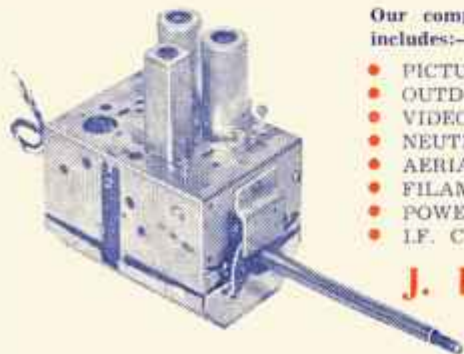
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VK2WI: Sundays, 1100 hours EST, 7146 Kc.; 2000 hours EST, 144 Mc. No frequency checks available from VK2WI. Intra-state working frequency, 7050 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 57.5 and 146.25 Mc. Intra-state working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.L.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK3MD and VK6WI by arrangements on all bands to 56 Mc.

VK6WI: Sundays, 0930 hours WAST, on 7146 Kc. No frequency checks available.

VK7WI: Sundays, at 1000 hours EST, on 7146 Kc. and 3672 Kc. No frequency checks are available.

VK9WI: Sundays, 1000 hours EST, simultaneously on 3.5, 7, 14 and 144 Mc. Individual frequency checks of Amateur Stations given when VK9WI is on the air.

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EDITORIAL



One of the outstanding features of any organisation operated by voluntary workers is that quality we know as loyalty.

In the Wireless Institute of Australia most of our honorary voluntary helpers are loyal in their attention to duty and it is refreshing to see how they carry on each year in the various departments in which they serve the general membership.

It is not uncommon and it is certainly refreshing to find men of outstanding ability in their technical, administrative or business activities giving such costly, loyal and continuous service over a period of many years in Institute affairs.

Sometimes we hear of members criticising certain executive officers of Divisions, Federal Council, or Federal Executive with the remark: "Oh he has been in the job too long."

Although such comments are considered to be fair and reasonable, especially by those who set themselves up as critics, it would only be sensible to pause a while and ask whether this long service does not reveal and demonstrate the loyalty of the person under attack.

Most organisations where honorary workers spend their time and exert their talents for the good of the general membership, have certain officers who, through long years of service, possess very valuable knowledge and experience which is essential to the constitutional operation of the society which they serve.

Of course the successful society is one whose members, by constitution-

al means, see to it that on each of their executive groups some new blood is injected from time to time, but nevertheless a stabilising effect can only be obtained when the society retains amongst its councillors a fairly large proportion of "elder statesmen" whose memory of past experiences are used to stabilise the actions of the future.

We have heard it said that "so and so" has been in the job too long, but let us be sure that we don't get rid of him before we can replace him with someone of equal experience in his specialist field and in particular find his replacement by one of comparable loyalty and mature judgment.

Members of the Wireless Institute of Australia have ample constitutional means to rid themselves of any individual who is inefficient or who uses his position for financial gain, but let us remember that most honorary officers serve for the "love of the game" or because they believe in Ham Radio as a national asset and not because they desire personal elevation or public acclaim.

The matter of course rests with each Divisional member; if your Council, Federal Council, or Federal Executive is disloyal, inefficient, or lacking in experience or business acumen the fault is yours, you can alter the position by appropriate action at meetings, but keep in mind the vital question—"Will the new man be loyal over the years?"—before you change the officer in question.

FEDERAL EXECUTIVE.

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Conversion of the AT5 for 80-40-20-15-10 Metres

BY D. C. HABERECHE,* VK2RS

WITH an apparant never-ending supply of these particular transmitters, and at a price which I feel sure would make the original manufacturers shudder, the question arose whether it is possible to convert them to Amateur use. In their original state they do quite a reasonable job on 80 and 40 metres, however the fact that above this, doubling in the p.a. is employed, it was considered that some considerable modification would be desirable to obtain better efficiency, a consideration which today on our very crowded bands was deemed necessary. It was decided that the following features would be included:

1. Simple conversion, i.e. without a complete re-build.
2. Straight through operation on all bands up to and including 10 metres.
3. A more suitable and more efficient p.a. tank circuit.
4. Some degree of harmonic attenuation in an effort to reduce the possibility of t.v.i., etc.

If all these features are to be included it would appear that it would need some really exhaustive modifications, however this is not the case, the complete job can be done in a couple of evenings, with only a few additional components required.

One point which I feel should be made known at this point, it is assumed that the l.f. portion is no longer required. Some of the components used in this section are removed, whilst others are re-used in the modifications.

CONVERSION

Stage 1—The V.F.O.

Locate the 4-5 Mc. oscillator coil. From the top end of this coil bridge or short out four turns. Remove the trimmer across the coil, adjust the iron-core so that 7.2 Mc. is tuned with the tuning condenser wide open. If this is still not tuning to the desired range remove or short out another turn. Some adjustment may here be necessary depending on the model. Incidentally, this coil is readily accessible as will be seen when all covers including the base plate are removed.

These modifications do not appear to effect the stability of the circuit. Long term tests by the author have proved the stability to be well within the Amateur's requirements.

Stage 2—First Buffer-Doubler

Remove all wiring from the socket of the 6V6 modulator stage with the exception of the filament, cathode and wiring to pin 6. This stage is then modified by the following method to become a buffer-doubler.

- (1) Remove the plate connection from the 807 buffer stage and re-connect to the plate pin of the 6V6.
- (2) Connect the screen to the screen supply of the 807 buffer, at the same time parallel a 40K resistor across the 807 screen dropping resistor.

(3) Remove the 50 ohm grid stopper from the 807 grid; extend the pigtail and bring across to the 6V6 grid pin.

(4) Connect to ground the cold end of the original cathode by-pass condenser and resistor. These you will find mounted on the resistor strip above the valve sockets.

This then completes this stage. It will be seen that in effect all we have done is transferred the original 807 buffer circuit to the new 6V6 stage.

Stage 3—Second Buffer-Doubler

(1) Connect a 100 pF. condenser from the plate of the 6V6 buffer to the grid of the 807, at the same time connect a 40K resistor from grid to ground.

(2) Remove all wiring from the l.f. oscillator tuning condenser, not forgetting three small condensers attached to the underneath side of the double gang

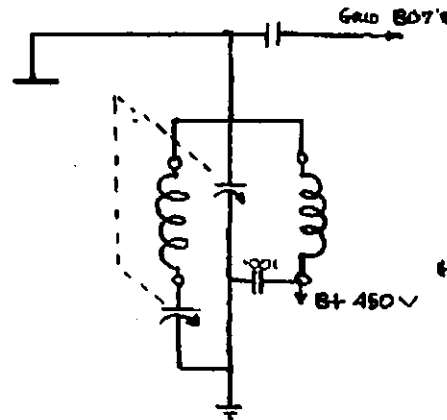


Fig. 1.—807 Buffer All-Band Circuit.

condenser. These are a little difficult to remove, due to their inaccessibility.

(3) Construct the all-band coil (described in Fig. 1) and connect as shown. It is possible to mount this coil vertically between the 6V6 buffer and 807, keeping the leads to the tuning condenser as short as possible.

Stage 4—Final

(1) Remove p.a. tank coil and the two block condensers immediately accessible when the coil is removed.

(2) Remove all plate circuit wiring with the exception of the copper plate cap leads.

(3) Construct the p.a. r.f. choke (Fig. 2). Attach this to the bolt carrying the plate leads.

(4) Connect a 1,000 pF. 1 kv. condenser from the plate to the p.a. tuning condenser.

(5) From the lower end of the r.f. choke connect a 1,000 pF. by-pass condenser (1 kv. rating) to ground. From this point also connect a 25K 10 watt resistor to the screens of the 807s, at the same time remove the 0.1 μF. screen by-pass condensers and replace with 1,000 pF. condensers. Do not remove the screen stopping resistors.

(6) Remove screen circuit wiring to the on/off switch located near the aerial terminal.

(7) Return cathode bias resistors to ground through a keying jack if this has not already been done.

(8) Construct a 5-turn coil from 14 or heavier gauge copper wire, diameter of 1" and spaced to approximately 2" overall. Attach this to the rear end of the tuning condenser, preferably at the point where the 1,000 pF. condenser from plate to the tuning condenser is connected. The other end of the small coil is allowed to remain free until such time as the p.a. coil has been modified and re-fitted.

Modifications to P.A. Coil.—From the rear end of this coil remove all turns up to the first tap position, remove all connections to the rear switch section (this is no longer required). The first tap position (from rear) then becomes the 80 metre switch point and is returned to the first switch position. On the last switch point or 10 metre position the whole of the large coil is switched out of circuit and the 5-turn coil previously constructed is wired to this position. On 15 metres approximately one turn of the large coil is

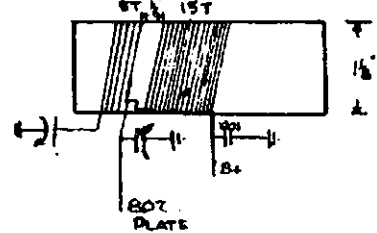


Fig. 2.—P.A. R.F. Choke.

* 805 Abercorn Street, South Albury, N.S.W.

loaded resonance points should occur at the following capacities: 80 metres, maximum capacity; 40 metres, three-quarters capacity; 20 metres, approximately half capacity; 15 metres, quarter capacity; 10 metres, very nearly minimum capacity.

Stage 5

Remove the l.f. p.a. section (four screws beneath the p.a. tuning condenser). Mount in this compartment a three-gang b.c. type tuning condenser with all sections paralleled. Mount in such a position that one of the holes previously taken up by the l.f. controls can be used. Connect this condenser to the moving arm of the p.a. band change switch. From this point connect

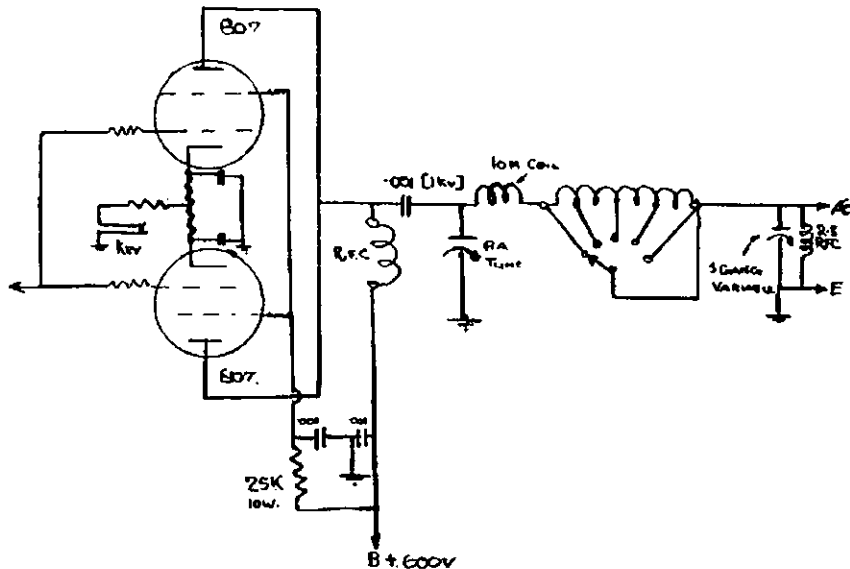


Fig. 3.—Modified P.A. Circuit.

also a 2.5 mH. r.f. choke to ground. This choke will prevent arcing in the aerial loading condenser under modulated conditions. Also connect the aerial terminal to the moving arm of the switch.

TUNING PROCEDURE

80 Metres: Adjust the v.f.o. (3.5 Mc. range), first buffer broadly tuned with the plate circuit switched to the low end of the 10 Mc. range. Tune second buffer to 3.5 Mc. (near maximum capacity of all-band tuning condenser). Adjust pi-coupled p.a. to resonance and vary the aerial loading condenser until the desired coupling is obtained.

If you are not familiar with the now popular pi-coupler and the methods of adjustment, it would be advisable to refer to one of the many articles to be found on this particular circuit and familiarise yourself on the way it works, etc.

40 Metres: Adjust the v.f.o. (3.5 Mc. range), first buffer as for 80 metres, tune second buffer to 7 Mc. (near minimum capacity of all-band tuning condenser), and adjust p.a. and loading.

20 Metres: Adjust the v.f.o. (3.5 Mc. range), first buffer tune to 7 Mc., tune second buffer to 14 Mc., and adjust p.a. and loading.

15 Metres: Adjust the v.f.o. (3.5 Mc. range), first buffer tune to 10.5 Mc. (although originally this circuit would

tune to 10.2 Mc. approximately only. It will in nearly all instances after the modifications have been effected, be found to tune to the desired range with a small overlap, no doubt the lower input capacitance of the 6V6 does help here). Tune the second buffer to 21 Mc. and adjust the p.a. and loading.

10 Metres: Adjust the v.f.o. to 7 Mc. on the modified 4-5 Mc. range, tune first buffer to 14 Mc. and second buffer to 28 Mc. Adjust the p.a. and loading.

Adequate drive for all bands with the exception of 10 metres should be available with 350 volts on the 807 buffer stage. However, it will be necessary to increase the plate supply voltage to 450 volts to gain sufficient for 10 metres with a little in reserve.

It is also possible to tune 15 metres by using the 7.0 Mc. oscillator range, triple in the first buffer, and straight through in the second buffer. This will permit more output or drive to the p.a. if this should be required.

The overall drive available with no voltage on the p.a.: 80 and 40 metres, over full scale; 20 metres, 12 Ma.; 15 metres, 9 Ma.; 10 metres (450 volts on 807 buffer), 7 Ma. or better.

It is hoped that this article may be of help to those who would like to convert an otherwise limited piece of equipment into a comparatively efficient All-Band Transmitter entirely suitable for Amateur use, most particularly for those who desire a compact transmitter.

The writer would be pleased to hear from anyone who may undertake this conversion and, of course, anyone who may have further suggestions.

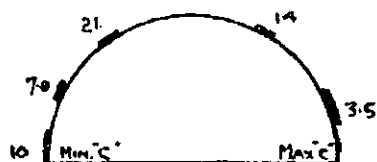


Fig. 4.—Sequence of Band Positions on 307 Buffer Tuning Condenser.

VALVE DATA

5AS4

FULL-WAVE VACUUM RECTIFIER

The Radiotron 5AS4 is a full-wave vacuum rectifier of the filamentary cathode type, intended for use in power supplies of television and radio receiving equipment having high direct current requirements.

The 5AS4 has a maximum peak inverse plate voltage of 1550 volts, and a maximum peak plate current per plate of one ampere. When operated as a full-wave rectifier with an alternating plate to plate supply voltage of 600 volts r.m.s. in a circuit with capacitor input to filter, the 5AS4 can maintain a direct output of approximately 290 volts to the filter at a direct current of 300 Ma. Similarly, when operated as a full-wave rectifier with an alternating plate to plate supply voltage of 900 volts r.m.s. in a circuit with capacitor input to the filter the 5AS4 will maintain a direct output of approximately 460 volts to the filter at a direct current of 275 Ma.

Base: Octal.

Socket connections:

- Pin 1—No connection.
- Pin 2—Filament.
- Pin 4—Plate No. 2.
- Pin 6—Plate No. 1.
- Pin 8—Filament.

Electrical Data (tentative)

Filament Voltage 5.0 volts
 Filament Current 3.0 amps.

FULL-WAVE RECTIFIER

Maximum Ratings:

Peak inverse plate voltage 1550 max. volts
 Steady state peak current per plate 1.0 max. amp.
 A.C. plate supply voltage (r.m.s.) per plate 550 max. volts
 Transient peak plate current per plate 4.6 max. amp.

Typical Operation

Capacitor-Input Filter:

A.C. plate to plate supply voltage (r.m.s.)* 600 900 volts
 Filter input capacitor 40 40 μ F.
 Total effective plate supply impedance per plate 21 67 ohms
 Output current (direct) 300 275 Ma.
 Output voltage (direct at filter input) 290 460 volts
 Voltage drop across valve 54 50 volts

Choke-Input Filter:

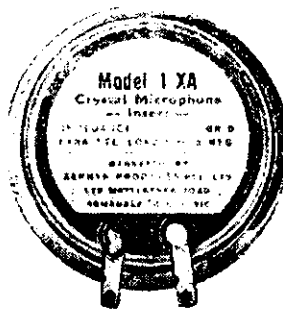
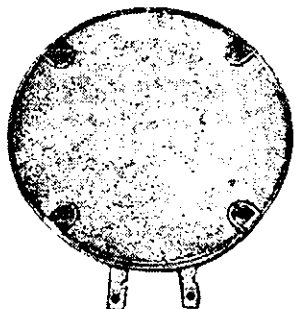
A.C. plate to plate supply voltage (r.m.s.)* 1100 volts
 Filter input choke inductance 10 H.
 Output current (d.c.) 275 Ma.
 Output voltage (d.c., at filter input) 440 volts

* Measured without load.

MODEL "1XA" CRYSTAL MICROPHONE INSERT



AUSTRALIAN MADE — — FOR AUSTRALIAN CONDITIONS



FITTED WITH PLATED REAR SHIELD TO ELIMINATE HUM PICK-UP

- Patented crystal unit guarantees outstanding efficiency and performance.
- Protected against ingress of moisture with approved moisture sealed crystal element.
- Small — compact — lightweight — durable.
- Will not blast from close speaking.
- Precision engineering ensures realistic reproduction and high output with long life and dependable operation.
- The only unit available with a genuine sintered metal filter.
- Good high frequency response ensures excellent speech reproduction.
- Aluminium diaphragm mechanically protected and frequency controlled by "Zephyrfil" filter.
- Australian made throughout.
- Only carefully selected cements used throughout, to suit Australian climatic conditions.

TECHNICAL DETAILS

Rochelle salt crystal microphones are perhaps the most widely used for all types of service where quality speech and music reproduction at high output levels is a requirement. They are dependable in performance and when fitted with the appropriate "Zephyrfil" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved.

Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars, being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case 1½" diameter (rear), ¾" thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
 Output Level = -45 db (0 db = 1 volt/dyne/cm²)
 Impedance = Model 1XA Grid 1 — 5 megohms.



Approximate Frequency Response Curve

AVAILABLE FROM ALL LEADING TRADE HOUSES

ZEPHYR PRODUCTS PTY. LTD.

58 HIGH STREET, GLEN IRIS, S.E.6, VIC.
 Phone: BL 1300

Modifying the AR7 Receiver

PART ONE

BY G. M. BOWEN,* VK5XU

GENERAL DESCRIPTION

A communication receiver, based on the H.R.O. design, this receiver covers from 138 Kc. to 25 Mc. with a break at 410 Kc. to keep clear of the 455 Kc. i.f. channel. Five sets of coils contained in removable coil boxes cover this range. Tuning range ratio for A, B, C and D coil boxes is approximately 3:1 whilst E range covers from 12.5 to 25 Mc.

The receiver has eight valves, this including a double triode (6C8G), one half operating as a v.t.v.m. for the "S" meter, and the other for the b.f.o. circuit. The set I believe was originally designed around high gain pentodes but the shortage of overseas supplies made it necessary to use 6U7Gs, as r.f. and i.f. amplifiers, a 6J8G as converter, and a 6G8G coupled to a 6V6G for the audio stages.

A very good crystal filter in a balanced tuned type of phasing network enables signals as close as 200 c.p.s. to be attenuated below nuisance strength when the filter is correctly aligned. (Quite a few sets being sold at present have had the crystal removed from the small mounting box!)

The input to the first r.f. stage can be used with a balanced transmission line or alternatively one side can be bridged to earth and a single wire attached. The latter arrangement gives the best results for all band coverage for short wave listening.

Two r.f. stages give a large attenuation of second channel interference which can be a decided nuisance on the 14 Mc. band with the high powered broadcast stations on the 15 Mc. band.

No fancy circuitry is found; all sections follow well tried and trouble-free designs. The noise limiter is what it says and is not a noise suppressor of the lamb type and it reduces noise and signal to a common level. This is done by reducing the screen voltage on the 6G8G—first audio—to a point where saturation occurs on positive peaks and cut-off on negative peaks.

The power supply enables the set to be operated from the a.c. mains or from a 12 volt accumulator. It is separated from the receiver as is also the speaker. A pair of 6X5GT valves with plates paralleled ensures a very high degree of regulation, under mains fluctuation.

A study of the circuit will show that a.v.c. is applied to the first audio valve (6G8G) and this is done to achieve a certain amount of muting when there is no signal together with a much more uniform output of the audio signal. The 6V6G is coupled to an output transformer mounted on the chassis and this has output windings for the permag. speaker and the phones.

Quite a few receivers coming onto the Disposals market are performing very poorly and a common fault seems to lie in the misalignment of the crystal filter stage. When this is by-passed (leaving only the 1st i.f. and 2nd i.f. stages) the sensitivity of the receiver

● With this article we introduce a series relating to the popular AR7 Receiver. This part of the series gives a general description of the equipment and details of "lining it up."

To those particularly anxious to improve the AR7, the series is especially recommended. You will be taken, stage by stage, through the entire receiver, being shown what steps should be taken to make the receiver comply with present day requirements.

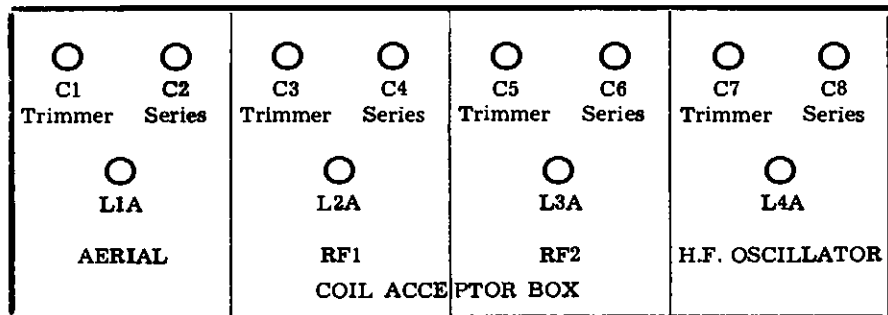
To those who feel that modifications to commercially built equipment are not justified, this, the first article, should appeal. We warrant you will, eventually, make all the modifications to be described!

isolates to a degree the b.f.o. input which is fed via a small trimmer condenser to the second diode. It is thus possible to operate with the b.f.o. and a.v.c. on, if an alteration is made in the switching. (See modification.)

Following usual practice a.v.c. is applied to both r.f. and i.f. stages as well as that mentioned already. The converter has no a.v.c. applied for obvious reasons. A 5,000 ohm potentiometer, in series with a 50,000 ohm bleeder resistor, affords separate manual control for the r.f. and i.f. stages and operates independently of the a.v.c.

The overall sensitivity of the set should be less than 2.5 microvolts input at any frequency for an output of 50 milliwatts measured across a resistance of 100 ohms connected to the "phones" jack.

Front of Receiver



improves remarkably. However, it should be possible to have the filter correctly aligned, but it needs the use of a wobulator and a c.r.o. to really do the job properly. Even then it takes up to four hours!

The controls are the usual ones found on this type of receiver and they are well labeled on an etched stainless steel escutcheon overlaid onto a steel panel. The dial mechanism should be checked to see that it has no play, before attempting any calibrating; the worm gear is spring loaded and although it may be worn, when it is cleaned up, greased with vaseline and the tension on the springs increased, the play should disappear.

The heaters of the valves are operated from a 12 volt winding on the transformer or are switched to the 12 volt d.c. input when operating from battery supply. Hence the series parallel connections to the sockets as follows: The two r.f. valves; the converter and the 1st audio (6G8G); the two i.f. valves; the 6V6G and the 6C8G, with a 42 ohm resistor across the heater of the 6C8G to allow 0.45 amp. to the 6V6G heater.

Delayed a.v.c. is obtained by rectifying the signal obtained from the plate of the 2nd i.f. valve and fed to one diode of the 6G8G. This connection reduces the loading on the secondary of the i.f.t., gives a higher voltage and

Adjustments to the coil units are made through the holes in the coil acceptor housing and are marked L1 to L4, C1 to C8 (see diagram).

- L1—Inductance adjustment on aerial coil.
- L2—Inductance adjustment on first r.f. coil.
- L3—Inductance adjustment on second r.f. coil.
- L4—Inductance adjustment on h.f. oscillator coil.
- C1—Aerial trimmer.
- C2—Series trimmer (Coil E only).
- C3—1st r.f. trimmer.
- C4—Series trimmer (Coil E only).
- C5—2nd r.f. trimmer (mixer input).
- C6—Series trimmer (Coil E only).
- C7—H.f. oscillator trimmer.
- C8—Padder, series condenser on h.f. oscillator coil for coils A, B, and C. Series trimmer (Coil E only). Coil D uses a fixed padder.

ALIGNMENT PROCEDURE

Extreme accuracy is required in the alignment of the i.f. circuits. Slight misalignment of these i.f.t.s. will have a marked effect on the sensitivity and selectivity of the receiver. They are permeability tuned with an iron-dust core and there is quite a deal of movement either side of resonance, which makes aural checking almost useless.

A very stable signal generator or a Bendix BC221 are suitable instruments.

(Continued on Page 6)

* 73 Fortrush Road, Toorak Gardens, S.A.

Modifying the AR7 Receiver

(Continued from Page 5)

Remove the grid cap from the converter valve and connect the output of the signal generator through a 500 pF. and return the grid to earth through a 100K resistor. Connect the grounded side of the signal generator lead to the receiver chassis. Short out the oscillator gang to stop heterodynes from external signals getting into the i.f. channel and causing spurious readings.

Having checked to see that the crystal is still in the receiver—remove the small cover of the shielded section near the right hand side of the front panel—set the receiver controls as follows:

Crystal switch to IN; selectivity condntrl on zero; phasing condenser to centre scale; a.v.c. switch to a.v.c. position; tone control on 10; r.f. gain on 8; noise limiter on 10; audio on 6; b.f.o. condenser to centre. Set the "S" meter adjustment to a suitable value that can be read easily.

Vary the frequency of the signal generator until a maximum reading is obtained in the "S" meter, indicating that the frequency is exactly that of the crystal. Leave the signal generator alone and switch out the crystal filter.

Adjust the iron cores; those above chassis level are grid circuits, below the plate circuits. Make quite sure that all movement is positive and that there are no loose slugs, etc. Leave L5A, the crystal filter transformer grid circuit, well alone for the present (this appears beneath the chassis and is the nearest screw to the chassis side). Align the i.f.'s. in the usual order from the converter to the second detector.

To check whether the xtal filter is aligned swing the signal generator plus and minus 5 Kc. of the setting and note whether the reduction in signal strength reading in the "S" meter falls off symmetrically. If it does, then do not meddle with any part of the filter circuit; if it doesn't, then tread warily. Leave it alone for another occasion!

Now to the r.f. amplifiers and h.f. oscillator. If there is any reason to doubt the mechanical construction of the coils and their trimmer condensers (and if you have just got them from Disposals there is every reason), remove the coil shields from the structure and then the coil and condenser assembly carefully. Do not expect to find all the connections identical. Note carefully on paper the way that the connections are made and save yourself a headache later.

With coils A, B, C and D the alignment procedure is the usual low frequency inductance and high frequency trimmer adjustment that can be found in any handbook. Coil E has neither padder nor inductance adjustment since the series condenser will perform the necessary band spreading.

In Coil E, the series trimmer C8 is adjusted instead of L4 to obtain the correct oscillator range; C2, C4 and C6 are adjusted at the low frequency end of the range and C1, C3 and C5 at the high frequency end.

Since Coil A covers a band which very few Amateurs are interested in, this article will deal with the conversion of this unit to operate from 25 to 35 Mc.

Type 3 Mark II. Receiver

Adding A.V.C. and Audio Volume Control

BY G. M. BOWEN,* VK5XU

THOSE of us who are fortunate enough to own one of these receivers realise what wonderful little sets they are for mobile work as well as for standby shack receivers. However, they were never designed to receive phone signals and therefore a.v.c. was not incorporated. This fact, for Amateur work, is likely to cause the loss of one's eardrums when tuning over the band if we have the gain control on maximum and land on an S9+ signal.

Having had this happen to me a few times, the circuit was studied for an easy way to add a.v.c. It was quickly ascertained that the gain control was not the usual cathode bias type, but used a back-bias system and a 50K potentiometer (VR1). An isolating 470K resistor (R6D) connects this gain control line to the grid circuits of the two i.f. valves.

Simply solder the 1 megohm resistor between the two soldering positions as shown in the diagram and a.v.c. is yours.

To really obtain the benefit of a.v.c. the r.f. gain control needs to be at maximum, or nearly so, and hence some form of audio volume control is needed. This modification is not quite so easy, but is still "a piece of cake" as we say! The most important item is a 500K miniature potentiometer and these are now available—mine is a Ducon with a diameter of one inch.

Drill a hole, immediately above the b.f.o. condenser, in the front panel to take the potentiometer, allowing enough clearance for the cover to be replaced when the operation is over. Mount the pot with its solder tags facing towards the central division screen. Now, with the chassis upside down again refer to diagram and then find the small shield around the second i.f. valve socket. Drill a hole as shown large enough to take two shielded leads from X and Y up to the potentiometer.

Lead X solders to the moving arm (centre solder tag) of the pot. and Y to the maximum in the usual volume control circuit arrangement. Disconnect C6C from the solder tag (No. 4 in diagram) and attach to the lead X. Do not forget to earth the braid and the potentiometer in the usual manner.

Now, connect up the receiver and note the vast difference you have succeeded in getting.

A further improvement can be had by diving into the power supply and soldering a 250 ohm 3 watt resistor in parallel across the bias resistor that you see attached to the output sockets. Now that you have a.v.c., it is unnecessary to have such a high value of fixed bias on the valves and the gain on weak signals is very much improved.

Do you need a switch to short out the a.v.c. when receiving c.w.? No! The r.f. gain control (marked volume on the knob) is backed off until the bias is high enough on the valves to stop the action of the a.v.c. and the audio volume control is then adjusted for comfortable level.

If you need proof that the a.v.c. is working turn the meter switch (on the tx of course) into position 1 and note how the receiver voltage rises and falls with the signal strength.

Don't be worried by the fact that the 500K potentiometer is in parallel with the detector diode load RID (a 1 megohm resistor) for I found by experimenting with isolating condensers that there was no measureable difference whichever way I had the circuit. Since the above method is the easiest and works well, I leave it to you. The 500K potentiometer can be replaced by a 1 megohm one as the value is not critical.

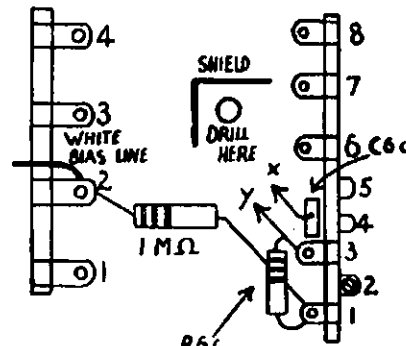


Fig. 1.

C6C is 0.001 uF. condenser and R6C is 150K resistor. Tag No. 2 (right hand strip) is earthed.

Getting the little grey cells to work, it was reasoned that a 2 megohm resistor connected from the bottom end of the third i.f.t. to the "bias" line on the other side of the resistor (R6D) would do the trick. Each one of us is loath to dive into the inside of a commercial receiver, but after much delving around to find R6D and the junction of R1D (1 megohm) and R6C (150K), it was discovered that a 1 watt resistor with its nice long leads fitted exactly between the two tie points (see diagram).

Subsequently it was found that a 1 megohm resistor worked better than the 2 megohm one. With the chassis upside down and the control panel away from you, you will see two solder tag strips running at right angles to the front panel. On the left one there are four soldered connections, and on the right, eight connections at the top nearest to you.

* 73 Portrueth Road, Toorak Gardens, S.A.

A SIMPLE CAPACITY BRIDGE FOR THE BLIND

BY A. W. DUFFIELD, ZL2DT

WITH a keen interest in Radio, such as it was in my school days, I suppose that it is only natural that I would become interested in Ham Radio. I passed the necessary examination and was issued with the call ZL2DU. After about five years' activity other interests were developed and this call was allowed to lapse and the station was dismantled.

At the re-opening of the Amateur bands in 1945 I again became interested and was issued with the present call of ZL2DT. However, six months later I had the misfortune to lose most of my sight. At this time I was living at Foxton Beach, but after coming out of hospital, I came back to Palmerston North to live with my parents.

At first, time hung heavy on my hands, but as my Ham gear began to drift back from the beach, I found a new interest in Radio.

It was quickly realised that new methods of construction would have to be evolved, particularly in soldering by touch. During this period considerable swearing ability was also developed. For some time a standard type of electric iron was used but later a quick heating type was bought and better and less painful soldering was done. No restrictions were placed on my building of equipment except that all live spots had to be completely shielded against accidental contact.

My remaining sight was slowly deteriorating and in about three years my meters were useless to me even with the magnifying glass. My thoughts turned towards a transmitter which would not need tuning up every time I wanted to change bands. A broad-banded switched exciter was built to give output on 3.5, 14 and 28 Mc. This unit worked into separate buffers and finals for each band. Though this outfit

worked quite well, it was irksome that I had to get someone to check the meter readings.

I replaced the commercially made frequency meter with the home-made touch-reading one which has already been described in "Break-In." When information was received via the Braille Technical Press, on auditory meters, a multi-tester of this type was built.

Some trouble was experienced in obtaining the necessary accurate resistors for this job, but, with the co-operation of local Amateurs and Dealers, a selection was made. Though the principle is simple, the results are amazing. This unit gave voltage readings up to 1,000 at 20,000 ohms per volt. Current readings are from 1 amp. down to a tenth micro-amp. Resistance readings are from 1 ohm to 10 megs. There are eight ranges to each use. Very precise measurements are possible and the accuracy is mainly governed by the accuracy of the resistors used in its construction. This instrument, together with a simple capacity bridge, solved my colour-code problems. An auditory continuity checker which will show continuity up to several thousand megs, is also a useful piece of gear.

During the past eight years, practically all the alterations to the rig have been confined to the r.f. section and the ease of change from band to band has been the major consideration. About two years ago work was started on the present rig. The exciter unit measures 6 x 6 x 10 inches and uses four 12A6s and a 1625. At the turn of a switch it will give output on any of its five bands. This unit also houses an auditory meter which reads the voltages of the five power supplies together with grid and plate currents of the larger tubes.

The final uses a pair of 24Gs. The final tank condenser is the result of a

lot of thought and work. It comprises five rotors and ten stators and two neutralising condensers built around a five position two pole band selection switch. Each pair of stators has its own coil and the condensers are set and left tuned to the part of the band most used.

This rig is modulated by a pair of 1625s in Class AB2. A 3-position switch gives c.w., phone and tune-up positions.

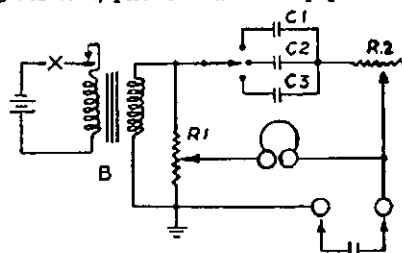


Fig. 1.—Capacity Bridge.
C1—2 uF. R1—10,000 ohms.
C2—0.02 uF. R2—200 ohms.
C3—0.0002 uF. B—ZC1 buzzer.

CAPACITY BRIDGE

As I was having trouble sorting out condensers, my thoughts turned toward a meter which would give me some assurance that I had picked out the right one for the job. The following unit was built, though it has now been replaced by a combined capacity inductance bridge.

The reading is taken with a pair of headphones when a null is produced by the balancing of the bridge. It is powered from a pair of torch cells driving a ZC1 buzzer.

As standards, three ordinary "run-of-the-mill" condensers were used. When checking electrolytics, the variable resistance R2 in series with the standards is set to give the best null and is left in the minimum position at other times. The balancing potentiometer should be a linear wire wound job and the resistance value is not critical.

The highest output tap on the buzzer was used. The signal in the phones in out of balance condition on the two high capacity ranges is very high, and it would be a good idea to make the range switch a double pole affair so that a lower tapping could be used or resistances switched into the circuit on these ranges.

The unit was built into a box 5 x 5 x 2½ inches with the balancing pot near the centre with about a 3 inch diameter scale. When calibrating the instrument, values equal to the standard condensers will fall close to the centre of each scale, but the stray capacity will probably shift the lowest range somewhat.

AN INVITATION

When in London Visit R.S.G.B. London Luncheon Club

The Club meets at Bedford Corner Hotel, Bayley Street, Tottenham Court Road, third Friday of each month at 12.30 p.m.

Particulars can be obtained from the Hon. Secretary, Frank Fletcher, G2FUX (Phone: Ruislip 2763) or R.S.G.B. Headquarters (Phone: Holborn 7373).

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AMATEUR CALL SIGNS

FOR MONTH OF JANUARY, 1957

CHANGES OF ADDRESS

- VK— New South Wales
 2KG—K. H. Greenhaigh, Garden Grove Pde., Adamstown Heights.
 2ML—R. M. Ellison, 17 Station St., Corrimal.
 2OZ—W. E. Dixon, "Piccadilly," West Market St., Richmond.
 2PT—A. Stephenson, 10 Sketchley Pde., New Lambton.
 2XD—K. J. Williams, "Kenmar," Knights Rd., Galston.
 2AFH—C. W. R. Holman, 24 Wyong Rd., East Lambton.
 2ALQ—J. M. Brennan, 9 Boronia St., Dee Why.
 2AOB—R. B. Digby, 23 Bolwarra Rd., Narrabeen.
 2APH—E. A. Hayward, 21 Bellamy St., Pen-nant Hills.
 2ASY—S. A. Sibby, 23 Panarama Rd., Kings-grove.
 2AXD—E. A. Druitt, 13 Curtain St., Griffith.
 2ZCH—A. K. Hore, Allambie Rd., North Manly.
 Victoria
 3KU—B. D. Clarke, 154 Neil St., Greensbor-ough.
 3QG/T—C. P. Smith, 132 Peel St., North Bal-larat.
 3YH—R. V. Fisher (Cpl.), R.A.A.F. Unit, Wer-ribee.
 3AGI/T—D. W. G. Grove, 1 Hood St., Hampton.
 3AIN—I. Grant, 1 Donald St., Burwood.
 3AMC—J. McDonald, 22 Glenbrook Ave., East Malvern.
 3ANC—N. H. M. Chapman, C/o. P.O. Mirboo North.
 3APK—P. C. Perkins, 28 Arthur St., Belmont.
 3AXX—N. E. Turnbull, 24 Bethall Ave., Park-dale.
 3ZBJ—G. S. Jennings, 66 Laura St., Apsendale.
 3ZCF—I. B. Fraser, 109 Adair St., Ballarat.
 Queensland
 4LC—J. L. Currie, King St., Caboolture.
 4DY—E. Wright, 44 Garden St., Stones Cor-ner, Brisbane.
 4SN—F. H. Shannon, 16 Tongue St., East Ips-wich.
 South Australia
 5JE—E. J. Cawthren, 40 Seaforth Ave., Som-erton Park.
 Western Australia
 6EE—R. R. Elkin, 24 Alfred St., Leederville.
 6ZAO—R. G. Smith, 6 Clause St., Willagee.
 Tasmania
 7SD—D. M. Smith, 77 Hampden Rd., Hobart.

CANCELLED CALL SIGNS

- VK— New South Wales
 2ZBJ—G. Jenkins (Sgt.), Transferring to Vic.
 Victoria
 3HN—E. W. Martin.
 3IQ—K. J. Duff.
 3RO—R. J. Biddle.
 3AFB—R. J. Baty, Now VK2ANB.
 3AHX—C. W. R. Holman.
 3AKM—A. K. McLennan.
 3AND—N. T. Buchanan.
 3ZBO—R. E. V. Crewe, Now VK2ZBO.
 Queensland
 4GP—D. A. Crowley, Now VK2LJ.
 4SK—S. S. St. George, Now VK2AUS.
 South Australia
 5ZAI—A. D. Nutt, Transferring to N.S.W.
 Western Australia
 6JY—B. Bellringer.
 Tasmania
 7ZAW—P. Woodruff, Transferring to Vic.
 7GM—A. G. Kirmsse, Now VK3AGK.
 Territories
 1RB—R. Dowden.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

- VK— New South Wales
 2LZ/T—W. E. C. Bischoff, 4 Buena Vista Ave., Wentworth Falls.
 2SD/T—L. W. N. Squires, 27 Fletcher St., Bondi.
 2ZCF/T—R. C. F. Norman, 23 Queen St., Croydon.
 Victoria
 3TU/T—J. F. Irvine, 258 Balwyn Rd., Balwyn.

FOR MONTH OF FEBRUARY, 1957

NEW CALL SIGNS

- VK— New South Wales
 2AHL—W. A. Lewis, 437 Woolaware Rd., Bur-raneer.
 2AKW—G. H. Humphrey, 28 Davidson Ave., Concord.

- 2ATF—A. Field, 12 Merris St., Belmore.
 2ATP—K. E. Peters, 84 Howard Ave., Dee Why.
 2ZBN—A. D. Nutt, 12 Austral Buildings, Anzac Parade, Maroubra.
 2ZDP—E. A. Phipps, 194 Princes Highway, Sutherland.
 Victoria
 3ED—F. D. Smith-Wescott, 40 Queens Ave., St. Arnaud.
 3ASA—J. R. Schulz, 174 Nelson St., Nhlll.
 3AVA—R. S. Mackie, 6 Cromwell St., Caulfield.
 3ZAP—P. Woodruff, C/o. 19 Brunell St., Essen-don.
 3ZCI—W. L. Tremewen, Ferndale Ave., Up-vey.
 3ZCN—G. L. C. Jenkins, Noble St., Noble Park.
 3ZCO—L. M. Stone, 18 Douglas St., Rosanna.
 3ZDN—R. M. Macrae, 1 Symonds St., East Hawthorn.
 Queensland
 4RP—Air Training Corps, R.A.A.F., Perry Park, Brisbane.
 4ZDR—D. W. Rickard, Meyer St., Southport.

CHANGES OF ADDRESS

- VK— New South Wales
 2ML—R. M. Ellison, The Grange, Kings Rd., Cooranbong.
 2MP—M. E. Pfeffer, 59 Cox St., Windsor.
 2VP—R. A. Blades, 2a Boronia St., Balgowlah.
 2ANE—Eastern Command Signal Regt., Gorm-ley St., Lidcombe.
 2ANP—Hqqs. Naval Amateur Radio Station, R.A.N. Air Station, Nowra.
 2AQC—P. R. Ladd, 21 Walworth Ave., New-ports.
 2AVB—R. W. Pratt, 27 Chapman St., Kiama.
 2AWI—Wireless Institute of Australia (N.S.W. Div.), Quarry Rd., Dural.
 2AWY—W. O. Yates, 57 Kite St., Orange.
 Victoria
 3AAI—N. K. J. Feistead, 92 Haldane St., Beaumaris.
 3AGK—A. G. Kirmsse, Lot 15 Canterbury Rd., Heathmont.
 3AJQ—J. R. Kling, Lot 8 Cassia Gr., Frank-ston.
 3ARB—R. A. Bouchier, 241 Clarke St., North-cote.
 3AUS—S. D. Wheeler, 31 Barnard St., North Kew.
 3AUX—G. R. Hughes, 2 McMillan St., Elstern-wick.
 Queensland
 4GG—G. Hellbronn, Smith St., Millmerran.
 4ZZ—J. L. Kane, 61 Toombul Rd., Northgate.
 South Australia
 5FX—P. J. Harper, 17 Second St., Keith.
 5KD—D. F. Dawson, 8 Fairfield Rd., Elizabeth South.
 5OC—L. O. C. Baker, Old Belair Rd., Belair.
 5PO—A. M. Perriman, 7 Fourth Ave., Klemzig.
 Western Australia
 6FL—F. C. Lambert, 83 Second Ave., Bassen-dean.
 6LA—L. C. Allen, 189 Lockhart St., Sth. Como.
 Tasmania
 7CA—M. A. Chaplin, 54 Bald Hill Rd., Treval-lyn.
 7DC—D. H. Clifford, 4 Shasta Ave., Moonah.
 7ZAG—W. G. Grewling, 14 Keynsham Rd., Claremont.

CANCELLED CALL SIGNS

- VK— Australian Capital Territory
 1APW—A. F. Fyett.
 New South Wales
 2TO—L. G. England.
 2AIV (Portable)—W. H. Kennedy.
 2ATN—F. G. Barron.
 Victoria
 3FP—D. Burkitt.
 3ACO (Portable)—D. A. Greenham.
 Queensland
 4FA—A. Field, Now VK2ATF.
 South Australia
 5WG—G. N. Covan.
 Tasmania
 7BL—B. E. Lloyd, Transferred to Victoria.
 7ZAH—L. J. Hodgkinson.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

- VK— New South Wales
 2CL/T—L. H. Taylor, 45 Hardy St., Ashfield.
 2ZH/T—N. MacNaughton, 50 Killeaton St., East St. Ives.
 2AGO/T—H. G. Wilson, 31 Glenview St., Greenwich.
 2AHH/T—N. A. Hanson, 3 Ryan Ave., West Kempsey.
 2ANF/T—J. R. C. Miller, 21 Sutherland St., Lane Cove.
 Victoria
 3YS/T—F. G. Ball, 62 Shannon St., Box Hill.

Ross Hull Memorial Trophy V.H.F. Contest Results

Outright and Trophy Winner:
 VK3ALZ.

Awards:

- VK3ZAM (L.A.O.C.P.)
 VK5ZAM (Call Area and L.A.O.C.P.)
 VK7PF (Call Area)

Scores:

VK3ALZ	934	Points
VK3ATN	896	"
VK3ZAM	774	"
VK3ZAT	544	"
VK3ZBE/AEL	428	"
VK3ZAE	349	"
VK3ZD	294	"
VK3ZBS	271	"
VK3YS	240	"
VK3ZCG	215	"
VK3OJ	163	"
VK5ZAM	286	"
VK5BC	194	"
VK7PF	213	"

AUSTRALIAN V.H.F. RECORDS

50 Mc—	Date	Miles
VK5KL-W7ACS/KH6	26/8/47	5355
VK2RU-JA1ANO		4854
VK4NG-JA1AHS	22/1/56	4145
VK6HK-VR2CG	3/1/55	3928
VK6WG-VR2CG	3/1/55	3816
VK9DB-ZL3GS	26/12/53	2804

56 Mc—

What Records?

144 Mc—

VK5GL-VK6BO	30/12/51	1321
VK5QR-VK6BO	9/2/52	1319
VK3ZCW-VK7LZ	18/2/57	512
VK3GM/3-VK7LZ/PF	9/3/52	317

288 Mc—

VK5MT/5-VK5RO/5	13/4/52	109
VK3AFJ/3-VK3AAF/3	21/3/54	64

576 Mc—

VK3ANW-VK3AKE	11/12/49	81.6
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2300 Mc—

VK3ANW-VK3XA	18/2/50	9.1
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VK5AE TO OPERATE AT HOBBIES' EXHIBITION IN ALICE SPRINGS

In conjunction with the Alice Springs Youth Centre's Hobbies' Exhibition, which is to be held on 6th May, it is the intention of local Amateurs to instal a working exhibit.

The station, which will operate on telephony in the 14 Mc. band, will use the call sign VK5AE (that of Mr. F. A. Eastick, of Alice Springs). Operators will be VKs 5AE, 5EW and 5TL.

As 6th May is a local holiday (North-ern Territory only) it is intended that the station shall be staffed during the afternoon and evening; the show being a one-day fixture.

Amateurs are requested to look out for VK5AE and line up many QSOs thus showing how effective Amateur Radio can be to the public present at the Exhibition.

Arrangements are being made for a Special QSL card to be provided for all contacts.

VALVE DATA

6AL5

TWIN DIODE

The Radiotron 6AL5 is a miniature twin diode which, because of its high pervance, is suitable for use as detector in circuits utilising wide band amplifiers. It is particularly useful as a ratio detector in television receivers, where its low internal resistance makes it possible to obtain increased signal voltage from a low impedance diode load.

Each diode has its own plate and cathode base-pin connections and can, therefore, be used independently of the other or combined in a parallel or full wave arrangement.

The resonant frequency of each unit is approximately 700 Mc.
 Base: 7 pin miniature.
 Socket connections:
 Pin 1—Cathode of Diode No. 1.
 Pin 2—Plate of Diode No. 2.
 Pin 3—Heater.
 Pin 4—Heater.
 Pin 5—Cathode of Diode No. 2.
 Pin 6—Internal Shield.
 Pin 7—Plate of Diode No. 1.

Electrical Data
 Heater Voltage 6.3 volts
 Heater Current 0.3 amp.

HALF-WAVE RECTIFIER

Maximum Ratings:
 Peak inverse voltage .. 330 max. volts
 Peak plate current per plate 54 max. Ma.
 D.C. output current per plate 9 max. Ma.
Peak Heater-Cathode Voltage:
 Heater negative with respect to cathode .. 330 max. volts
 Heater positive with respect to cathode .. 330 max. volts

Typical Operation:
 A.C. plate voltage per plate (r.m.s.) 117 volts
 Min. total effective plate supply impedance 300 ohms
 D.C. output current per plate 9 Ma.

6AQ5

BEAM POWER AMPLIFIER

The Radiotron 6AQ5 is a miniature beam power pentode designed primarily for use as the output valve in a.c. operated receivers. Within its maximum ratings the performance of the 6AQ5 is equivalent to that of the larger type 6V6GT.

Base: 7 pin miniature.
 Socket connections:
 Pin 1—Grid No. 1.
 Pin 2—Cathode, Grid No. 3.
 Pin 3—Heater.
 Pin 4—Heater.
 Pin 5—Plate.
 Pin 6—Grid No. 2.
 Pin 7—Grid No. 1.

Electrical Data
 Heater Voltage 6.3 volts
 Heater Current 0.45 amp.

CLASS A1 AMPLIFIER

Maximum Ratings:
 Plate voltage 250 max. volts
 Grid No. 2 voltage 250 max. volts
 Plate dissipation 12 max. watts
 Grid No. 2 input 2 max. watts
Peak Heater-Cathode Voltage:
 Heater negative with respect to cathode .. 90 max. volts
 Heater positive with respect to cathode .. 90 max. volts

Typical Operation:
 Plate voltage 250 volts
 Grid No. 2 voltage 250 volts
 Grid No. 1 voltage -12.5 volts
 Transconductance 4100 μ mhos
 Plate resistance (approx.) 52000 ohms
 Plate current (zero signal) 45 Ma.
 Grid No. 2 current (zero signal) 4.5 Ma.
 Load Resistance 5000 ohms

Power output (max. signal) 4.5 watts
 Total harmonic distortion 8 %
Maximum Circuit Values:
Grid No. 1 Circuit Resistance:
 For fixed bias operation 0.1 max. megohm
 For cathode bias operation 0.5 max. megohm

C.D.E.N. NEWS

Your Federal Co-ordinator had a long and interesting interview with the Director of Commonwealth Civil Defence, Brigadier Wardell, M.C. During the interview the Director expressed great interest in the Institute's activities and requested full information on all Institute activities together with map showing location and call sign of all members of the C.D.E.N. He also pointed out that in order to make full use of C.D.E.N.'s potentialities it was essential for Divisional Co-ordinators to have a complete and up-to-date picture of the operational state and ability of equipment.

In order to enable your Divisional Co-ordinator to prepare the required information you are requested to immediately send the following information to him:

1. Whether you are prepared to serve as full time member of C.D.E.N., that is, take part in all activities.
2. If not able to serve as full member are you prepared to become casual member, that is, make your services and/or equipment available in an emergency.
3. Give details of equipment including power and frequencies covered. (a) fixed, (b) portable, (c) mobile, (e) power supplies.
4. Provide names of additional operators available in an emergency. Thereafter to keep him informed of any changes.

A copy of the proposed Authorisation Card for C.D.E.N. Members was submitted to the Director who promised to bring it to the attention of the State Authorities, who are responsible for implementation of Civil Defence plan, at the appropriate time. Details of the Card will be published when Federal Council has given its approval to the final draft. This we hope will be given following the Federal Convention.

The next Communications Study Period will be held at the Commonwealth Civil Defence School at Mount Macedon in May. Apart from Institute Divisional representatives who will be invited by the States, your Federal Co-ordinator will be present at the personal invitation of the Director to represent Federal Executive of the W.I.A. during the discussion period.

In order to ensure prompt publication in this column of any emergency activity members are requested to send story direct to Federal Co-ordinator with a copy to Divisional Co-ordinator for his information.

IONOSPHERIC PREDICTION CHART

Owing to circumstances beyond our control we are unable to print any predictions this month.



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RADIOTRON TELEVISION VALVE SERIES

The two most important requirements of the r-f amplifier of a TV receiver are high gain and low noise. High gain is necessary to provide good sensitivity and to ensure that at the converter grid the signal is large compared with the noise voltage. Low noise is important since under weak signal conditions the noise contributed by the stage may have the same amplitude as that of the signal.

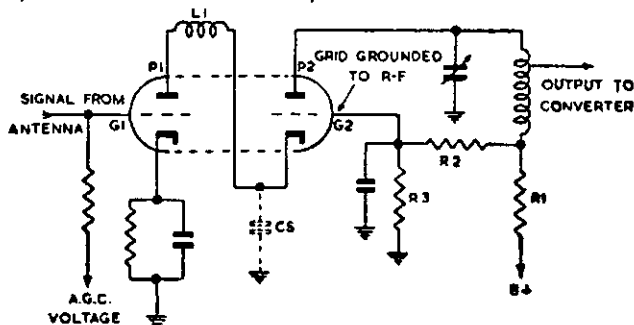
In addition the r-f amplifying valve should have:

- high input resistance to allow the antenna-to-grid matching circuit to step-up the impedance, and thus the voltage, from antenna to grid;
- low coupling between input and output circuit, to give both low oscillator radiation and good stability;
- suitability for a.g.c. application, i.e. should be capable of having its gain varied over a wide range by the a.g.c. voltage with as little disturbance as possible to input impedance or circuit tuning;
- small cross-modulation factor to avoid "sound on vision" or "vision on sound" effects and also to avoid interference by a strong adjacent carrier.

To obtain a low noise level it is not desirable to use a pentode because the random division of current between plate and screen results in a substantial increase of noise over that occurring in a triode.

A conventional triode amplifier however has the disadvantage of high coupling between input and output circuits which seriously limits the maximum stable gain and gives poor suppression of oscillator radiation.

The advantages of both triode and pentode are nevertheless obtainable in the "cascode" circuit which uses a high performance twin triode in a driven grounded-grid arrangement of which the simplified circuit below is one example.



L1 is series resonant with C1 at frequencies above 220 Mc/s to produce low impedance between plate P1 and earth and hence reduce plate-to-grid feedback.

R1, R2 and R3 are adjusted to provide appropriate variation in bias on G2 as signal input and a.g.c. to G1 vary. C2 is the stray capacity between cathode and earth.

The overall gain obtained in such a circuit is higher than that of a pentode, particularly at the 200 Mc/s end of the TV band because amplification is obtained from the two series-connected triodes and it is accompanied by the characteristically low noise of the triode. Good a.g.c. and cross-modulation are obtained with the circuit because as the a.g.c. voltage is applied to the grid of the first triode its plate voltage rises, thus increasing the bias necessary to cut-off its plate current, and at the same time, depending on the point to which the second grid is connected, increases the bias on the second triode. The overall effect of the a.g.c. voltage therefore is to make the cut-off characteristic of the 1st triode more remote and to obtain some control from the 2nd triode thus giving a smooth and effective a.g.c. action and freedom from cross-modulation effects. The circuit also allows very little oscillator radiation back through the r-f amplifier.

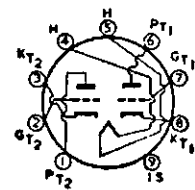
The Radiotron 6BQ7A has been designed for use in cascode circuits such as that described and has special shielding to produce low capacitive coupling between each half of the valve which this circuit requires. The valve also has a high ratio of gm to input-plus-output capacitance and to plate current, both of which are required for high gain and low noise.

† For further information on the 6BQ7A and other Radiotron Television Valves consult the Radiotron TV1 Booklet. Additional copies are available free and post free on request.



6BQ7A †

SOCKET CONNECTIONS



(bottom view)

- Pin 1 — Plate of Unit No. 2.
- Pin 2 — Grid of Unit No. 2.
- Pin 3 — Cathode of Unit No. 2.
- Pin 4 — Heater.
- Pin 5 — Heater.
- Pin 6 — Plate of Unit No. 1.
- Pin 7 — Grid of Unit No. 1.
- Pin 8 — Cathode of Unit No. 1.
- Pin 9 — Internal Shield.



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FIFTY-SIX MEGACYCLES AND ABOVE

NEW SOUTH WALES

On Sunday, 24th March, VK2WI was silent at the weekly broadcast time of 1830 hours, until about 1945 hours, due to the absence of John ZATO who had gone bush, the Group's President. Perce 2APQ, came on the air and gave the broadcast in the usual ZWI style. Heard that ZVU is putting a good signal into Sydney and has regular skeds with Roy ZHO on Tuesdays and Thursdays at 2200 hours from Singleton. Hugo ZWH, of Forbes, now has his 32 element beam re-erected. Ross ZPN, of Tumut, is endeavouring to work ZWH.

At the general meeting of the Institute on 22nd March their members were again visited by the V.h.f. and T.v. Group when Bob Z2AR lectured on the comparison of v.h.f. gear with h.f. gear on the transmitting side. Bob ZOA also presented his mobile gear for display.

A committee consisting of VKs ZER, ZANF, and Z2BD has been formed to assist the Sydney Amateur Astronomers in their work during this International Geophysical Year, particularly in regard to providing the astronomers with some sort of radio warning prior to the approach of the satellite which is to be released this year from Florida carrying a transmitter operating on a frequency of 108 Mc. At the Group's April meeting (5th) Phil ZER outlined some of the work to be done by 2 mx Hams for I.G.Y. with S.A.A. and will be pleased to hear from anyone who is interested in taking part.

2AFM was the fox for the night hidden tx hunt held on 27th March. Starters for the event were VKs ZANF, Z2BD, ZOA, ZAWZ, Z2CF, and Z2AL, who were also assisted by other Hams, garage-men, XYLs and harmonics. The excitement was held until only one and one-half minutes before time had expired when Bob ZOA located the fox; Jim Z2BD was just unlucky enough to arrive about one minute after announcement of location which was on a plateau near Deadman's Creek.

The next hidden tx hunt, which was scheduled for 24th April, has been postponed until 1st May when Bob ZOA will become the fox for that event, which will also start from Ashfield Park, west side.

Z2NU has been "thrown from his horse," but we understand Ken is now well on the way to recovery. Ted Z2XK has reported reception of Melbourne t.v. station HSV7 at his home in Sutherland on Saturday night, 9th March. Haven't heard much of Ted since.

A progressive hide and seek fox hunt will be held commencing at 1000 hours at Ashfield Park and concluding at 1900 hours on Sunday, 5th May. Be in it, it's fun!

The Autumn Field Day held on 31st March was well attended and the following stations went mobile for the day as fixed portables: VKs ZHO, ZANF, ZOA, ZYM, Z2CF, Z2CF, Z2AFM, and ZHL. It has been estimated that about 43 city, portable, and country stations were active on that day including north, south and west areas.

Visitors are always welcome to the Group's meetings which take place on the first Friday of each month. On Friday, 6th April, attendance was recorded at the following visitors: VKs ZARQ, Z2BQ, Z2CB, Z2NT and Z2AW.—73 Z2AFM.

VICTORIA

There was a very excellent attendance of approximately 40 at the March v.h.f. meeting to hear the lecture given by Les Z3CN, ex-Z2BJ, on "F.M. Equipment for the 144 Mc. Band." Les travelled down from Ballarat to give the lecture and brought with him his own home-built f.m. equipment. Other visitors at the meeting included Brian Z3BS, Ian Z3CF and Floyd Hoffman (W9VPD). Les gave a very interesting lecture amply illustrated with blackboard diagrams of circuitry, etc., which several of the members took advantage of by copying down for future reference. Les then gave a working demonstration of his equipment which proved most conclusively the superiority of f.m. reception over a.m.

A lengthy discussion took place on the running of fox hunts in the future and several good ideas were put forward, the outcome of which is that the competitors will all take turns at being fox and will each make the rules for that particular hunt, and at a future meeting in about 12 months time, a further discussion will be held to decide which ideas have proved the most successful.

Len Z3LN was the fox for April; in May the fox will be Tom Z3OG, in June Eric Z3DU, July, Jacques Z3EE, August, Roy Z3AF, and September, Norm Z3BN. The fox for each night will arrange the final location either at his own home or the home of an Amateur

friend, or if neither of these channels are available, the final location will be held at the home of Len Z3LN.

The supper arrangements will be as before, everybody bringing their own thermos of tea and small plate of eats. This has always worked out very well and saves the burden of providing supper for a large crowd by the XYLs concerned.

Ted Z3AEH, down at Geelong, has been busy during the past few months building a television rx and is starting to get satisfactory results. He only has the small 5 inch screen, but is getting a good picture. You've got to be an early bird to get the real DX on 2 mx. Ben Z3RK has a sked each morning at 7 a.m. with Z5AM, whose frequency is 144.4 Mc. and manages to make a contact with him most mornings. He also has contacts with Z5BC at that unearthly hour too and usually the signals are S9 plus both ways. Ian Z3ALZ is another one who is capturing the real DX but Ian prefers to work late into the night. Ian's conquests include Z5AM, Z5CJ, Z5ZAG and Z2RS. Ian also works quite a bit on 1 mx, his best contact for this band is with Z3DI at Edithvale, a distance of approximately 30 miles.

Melbourne Amateurs should keep a watch out for the Ballarat boys as there is someone on from Ballarat every night looking for Melbourne contacts on 2 mx. Brian Z3BS is on every night between 8 and 8:30 p.m. beaming towards Melbourne. Peter Z3DP in Sale has been working into Melbourne recently and is another one to look for. Philip Z3AW was heard working portable round the streets of Melbourne on his way through to Sydney. Tom Z3AG had a visitor of interest recently in Bill Z3LKP.

The office-bearers for the V.h.f. Group have been re-elected for another term. They are President, Herb Z3O, and Secretary, Bob Z3OJ.

An interesting item of news has been received from Mr. George Palmer, of Williamstown. He tells us that a friend of his, an electronics engineer, a Mr. A. Jackson, of Invercargill, South Island of New Zealand, has received both television stations ABN2 in Sydney, and ABV2 in Melbourne, and has been able to photograph very clearly the reception received. ABV2 was viewed under most excellent conditions and reception of both picture and sound lasted for the whole evening. Personalities were clearly recognisable. Mr. Palmer has received copies of the photographs taken by Mr. Jackson and which he states are very excellent. The air-line distance between ABV2 and Invercargill would be in the vicinity of 1,000 miles.

The March V.h.f. Field Day was very successful, on the 2 mx band there were at least 9 stations out portable and 6 portable stations operating on the 1 mx band. Many good contacts were made on the 2 mx band which included some of the VKs. David Z3AQ reports that at least 15 stations were operating on the 1 mx band counting the home stations. David has now replaced the feedline to his beam which is 5 ft. lower than originally and he is again relaying the 3WI Sunday morning broadcasts on 288.5 Mc. He is using horizontal polarisation and the beam is usually north-west, and he would appreciate reports on these transmissions.

The results of the Field Day are as follows: 1st, Reg Z3AD, with 3,086 pts., including bonus points for the three longest contacts on 2 mx (with Z5CJ 268 miles, Z5AM 285 miles, and 3NN 255 miles). Second was Ray Z3AE, with 1,648 pts., which included 121 bonus points for the three longest contacts on 1 mx.—Phyl Moncur.

SOUTH AUSTRALIA

News to hand that the matter of publishing predictions charts to incorporate frequencies higher than 28 Mc. will be considered, this information is available from the service but not in "A.R." as yet. So keep your fingers crossed, chaps, for it will be useful. (The Prediction Service has been requested to include higher frequencies on the chart. Am awaiting reply.—Ed.)

Had a wire from David Z5AM on March 20 advising temp. inversion ideal that day for contacts between him and Renmark at 9 plus, and given time he would be beaming north. Sorry Dave we listened and listened and although we identified and heard your carrier, we could not get any modulation from it. Many thanks for your enthusiasm and passing the news this way. Had you been on s.s.b. we could have made it.

Talking about s.s.b. on 2 mx, contacted W3YHI (by letter, not 2 mx!), who had given "CQ" some information on this subject and he was keen enough to write at great length and give full details of how he did it and what advantages s.s.b. provided on v.h.f. He had two identical tx's finishing with Z29B in final, both using same power supply and antenna and after getting s.s.b. going let the spiders have the a.m. job. He states that s.s.b. has provided a means of holding constant skeds over 190 miles since March 1956 right through the year.

Intend to give this a go from here some day and will pass it on, in the meantime if anyone is interested will be pleased to hand on the main points.

A couple of extra frequencies to add to last month's list: Leo Z5ZAG 144.53 Mc., Gordon Z5XU 144.128 Mc.

Leo Z5ZAG is building a new modulator to fill that envelope and then intends proceeding with a matching final to complete the issue. Dave Z5AM made the grade with Col Z5RO and with Z5AD at distance of 260 miles. Good work, pity the weather map wouldn't stay still for a week or so.

Col Z5CJ mainly on 2 mx these days and getting about. Allen Z3EL paid the Mount a visit recently and looked the boys over. A week or so ago Keith ZMT and Col Z5RO set up portable gear at Mount Lofty with great success. A 3 el. beam was used from Keith's mobile tx and by using his home converter was able to work Dave Z5AM at Penola, Max Z3CW (270 miles), Ern Z5EN, Hughie Z5BC, and Z3CS. They heard a number of other frequencies but didn't identify them. The time spent was from 1030 to 2000 hours, a really successful show.

By the time your read this Bill Z5AX will have his "xmas tree" finished, in that a Z4ZU is going to top the 60 ft. tower, thence 16 el. co-linear on 2 mx and topped by 32 el. beam on 1 mx that will be 85 ft. up. That will really look something and should be the centre of some real smart signals on 2 and 1 mx. Good luck Bill, am anxious to hear it in use.

Had a few tests from Reg with his phase mod. and by variation of audio and clipping he has got down to a balance where there is little difference between it and his former a.m. Of course certain adjustments of clipping really "pegged the nose," but he doesn't use it that way.

Ray Z5BM continues to get through the 25 miles to here 5 x 6 with a Z36 final! If he buys a QQ one of these days and gets it to work at the same frequency, it will really be worth hearing.

Eric Z5AQ, a newcomer to the band, puts out quite a hefty signal on 2 mx, haven't found out about his gear yet. John Z5BA is putting out an f.b. signal these days, using a Z52 to 12 el. beam modulated 807s p.p. and for rx a Z5GL converter into ART. His outfit includes a very smart means of relaying of other frequencies, mixing his own modulation at the same time.

It's possible you will have heard this fine outfit working as v.h.f. link to the Exhibition. At the time of writing the v.h.f. links are not in action, due to converter fault at the stand, but hope they will be in use before the first week is out, for although they are doing a very smart job on 7 Mc. direct, it will be necessary to use the links for 14 Mc. DX. The local noise level being terrific on all signals below about S7 to S8.

Haven't heard Ern Z5EN lately, presume he is busy folding "vector diagrams". Don't let it get you down Ern.—SEF.

REPORTS OF LONG-DISTANCE

T.V. RECEPTION REQUESTED

Norm Burton (T.V. DX fame) would be very pleased to receive reports of any long-distance t.v. reception in Australia, and offers to gather and correlate them over the I.G.Y. Information he requests is on reception at greater distances than 200 miles, and should state: Time, date, whether sound or vision signals (or both), details of station heard, frequency, etc.

Write to Norm Burton at 43 Beaconsfield Street, Revesby, N.S.W.

DX ACTIVITY BY VK2QL†

PROPAGATION

I do not like the principle of changing anything when doing a job as a relief. However, Hans used to gather a lot of information for a project he was on from our propagation reports and until he resumes these notes, unless you desire otherwise, I do not propose to continue the propagation report in the form he had. The prediction charts are available, and unless the DX fraternity find that there is a big variation at any particular period, no comment will be made on propagation.

But if you notice something outstanding, or off prediction in conjunction with the WWV/WWVH broadcasts, by all means let me have it for inclusion. For the WVE Contest there was quite a variation on 7 Mc. between the two week-ends. 3.5 Mc. was almost useless, which is understandable during a high m.u.f. season.

NEWS AND NOTES

VP5BH, Cayman Is., was in operation for approx. a week-end and has now closed again as the W operators have returned home.

VP8BK is on South Georgia (2ACX).

VP8BU and LU3ZM are on the Orkneys (2ACX).

SV0WD is W4WUL and located in Crete (2ACX).

SV0WO is located in Rhodes (2ACX).

VP2VG was operating from the British section of the Virgin Is., but has now closed. At the present time he is not counted as a separate country by the A.R.R.L. The W.I.A. opinion is not known, but as we follow the A.R.R.L. in general principle, the same will probably apply here.

YS10 states he has sent a QSL to all those promised, but I know many VKs who have not received a card. He has a good recording system and can tell the date of despatch, so if you are still waiting, drop him another card and one will be sent in return.

Ex-ST2NG is now VS9AG in Aden and looking for VK contacts with his old regulars (2AIR).

JA phones operating in the "cw" section of the 7 Mc. band are becoming quite a problem. They are strong from not long after dusk, and it is hard to get a clear spot for a DX c.w. QSO.

For those interested in YL QSOs, KW6CM will provide another country.

There seems to be increasing commercial activity on 21 Mc.

LX1DC is looking for VK contacts on 21 Mc.

The "nefarious art of swishing the transmitter over the band has become very prevalent of late. Much of it can be traced to the Russian stations, but it happens when the band is not open to the U.S.S.R.

QTHs of INTEREST

VP5BH—QSL via W4KVK.
 HL3AC—QSL via K.A.R.L., Box 1072, Seoul.
 HB8E—C/o U.S. Embassy, Cuidad. Trujillo.
 VU3AB—QSL via VU2AX.
 CZKAA—QSL via Box 88, Moscow.
 VP2VG—QSL via KV4BB.
 VQ3FN—Box 313, Nairobi (2AIR).
 CN2AE—Box 57, B.P.O. Tangier (BERS195).
 3A1TV—APO231, New York.
 LX1DC—Rue Batty Weber 38, Esch/Alzthl (Rod De Balfour).
 VS9AG—Aden Airways, Aden (2AIR).

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.
 * Call signs and prefixes worked.
 z—zero time—G.M.T.

ACTIVITIES

3.5 Mc.: 8GW: W*, DUTSV*. 8QL: W*, YU, JA, DU.

7 Mc.: 2AIR: VK9AD* (Norfolk, on 2 watts), OQ5RU*, ZB1CP, SPIKAA*, 2AMB, IICUV*, ZD5BX*, OQ5RU*, VK0AB*, FKAL, ZC5PM, DUTSV*. 8QL: ZE1JV*, VK0AB*, ZE4JM, ZE-2JO, ZS, UA3, YU, LUSVW, OA4FT, PY2BQM, HL2GF, JA, BERS195: DUIUP, JA, KL7, KP-4ADS, OK3AL, UA3VB, Rod de Balfour: W, VE4RO, KH6JA; all a.m. Dave Jenkin, WIA-L3039: W.

14 Mc. C.W.: 2ACX: SV0WD*, VP8BK, VP-8BU, VP2VG*, VPSBH*. 2AIR: ZL5AA*, VQ-6LQ*, FASIT*, 3W8AA*, KW6CM*, CZKAA*, OZ*, CO2SW*, KZ2AB*, H18BE*, VP6PL*, CN8LB*, VK0AS*, JZOPA*, HL2AC*, VPSBH*, ZCSAL*, CR8AA*, 2AMB: FG7XC*, CX1BC*, VR3B*, VPSBH*, OQ5RU*, F5RTT*, C80AZ*, VP2VG*, CESUC*, UR2AK*, VK0AB*, LZ, 1WD*, LUSAQ*, ZS*, OZ*, ZCSRF, ZCSAL, CR8AH, 8QL: UL7KAA*, UL7KBA*, VP8CC*, VPSBH*, VP2VG*, F5RTT*, VK0AB*, VQ2GR*, VP8Y*, CO2SW*, KW6CM*, H18BE*, KC4US*, HL2AC*, YS10*, U18AG*, UQ2AB, EA6AW, UD6DD, UQ2KAA, UG6KAA, VUSAB, KG1AA, CZKAA, UG6AB, KC4USN, 8ARI: PY1BFR*, W*, JA*, 5BY: VPSBH*, H18RE*, VP2VG*, SUR: VP2VG*, ZS2LS*, VR3B*, KR8AQ*, ZC-5RF*, 5RK: FK8AB*, VE5KG*, 7LZ: UA0FR*, UA0KFF*, VE1*, OA4FM*, LU2DO*, LU2OS*, VK0AS*, VK0AB*, BERS195: BVIUS, CR8, CR-9AH, CX1DZ, FB8ZZ, HA5BO, IS1AHK, ISRAM, JZOPC, KM6AX, OA4FM, OQ5RU, TFSAB, ZB1CA, UL7KAA, VK0AB, VQ2IE, KX2OM, ZB1CZ, ZCSRF, ZESJA, ZL5AA, WIA-L3039: PY4AO, PY2CU, VP2VG, LUBAJ, UA1, UAB, UA0 and Rod de Balfour: SM, G, AP2RH, 457MG.

11 Mc. A.M.: 2AMB: H18GE*, HK2LD*, XE-2CZ*, DJ*, OQ5FH*, ZS*, LASTE*, ZL5AA*, OA4AI*, YV5HA*, YNICA*, CO7OZ*, HC2KU, CN8AS, 5AB: KC6SP*, HZ1AB*, PJ2MC*, LA5YE*, ZD6DT*, KZ5AC*, T12RMA*, YV3EC*, HB9KU*, F5UC/FC*, 4X4BL*, XW8AC*, CO-8JK*, SP7HX*, DL1AB/M*, KG4AA*, Europe, 5WP: ZD6DT*, EA3DQ*, CN8*, 7LZ: CO7OZ*. Rod de Balfour has a large list and the pick-ups are: M1B, SV0WO, UC2KAB, 4X4DK, OD-5BK, ZAIRUN, CN8MM, SV8AS, 5A1TI, 5A-5XK, 8A7Z, ETIUS, CR5SP, ZDSAWL, FB8AF, CR8AG, ZS, VQ2DA, VQ4DT, VQ4AG, FB8ZZ, HZ1TA, HZ1AB, KX2KN, VS4JT, HL2AJ, FU-8AD, YN1CAA, YN1RA, TG8AJ, H18EZ, HF-3FL, VPIEK, VP9BU, VP5EM, FM7WP, HH3Y, YS1MS, ZL5AA and on s.s.b. KC4USV, HZ1AB. The above would make many of the transmitting gang very happy.

21 Mc. C.W.: 2AMB: VQ6LQ* (1600z), CN-8F*, 4K4FG, ET2RH, Europe, 8QL: EA*, ZC4IP*, JZ, 3W8AA, JA, KH8, 8ARI: Western Europe*, YU5DF*, YU5EU*, EA2CR*, KL7FTV*, UA0KFG, 7LZ: UA0FR*, SM*.

21 Mc. A.M.: 5AB: JZOPC*, ZC4IP*, 4X4BL*, OH2AA/O*, VS4JT*, VE8AB*, KR8QN*, ZS, 5MP*, 7LZ: JZOPB*, G*, Rod's best: VQ4DT, 4X4DT, JZOPC, JZOPB, VS4BO, VS4JT, VP-1EE, T12RC, T12AO, TG8MW, HP3FL, ZS, 4S7, KX2OM, KV4, KP4.

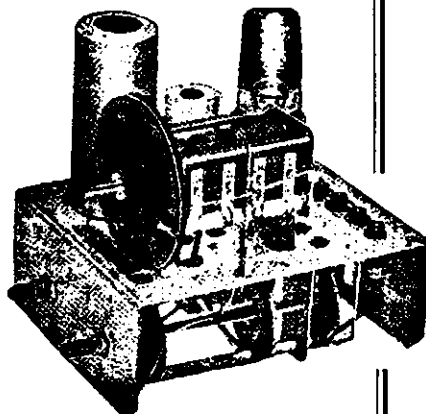
88 Mc.: 2QL: VS8, CR9AL, BVIUS, JZOPC, ZD6DT, JA, Europe, W*, VE*, 5AB: FK8AC*, 7LZ: OP*, JA*, ZS*, VE*, W*. Rod lists W, VE, YN1HF, XE1BW, CO2OS, TG9JW, ZB6JJ, VQ4ERR, T12EV, DU, JA, CN8AK.

QSLs received by the following were—2ACX: Z59P, 2AIR: KG1CA, ZCSAL, BVIUS, KW-8CM, CX2CO, 4S7PT, VQ3FN, VQ6LQ, VK-9AD, 2AMB: ZSSDE, ZSSRE, ZSSND, ZSSBF, CT3AN, 5RK: LUSAQ, VU2KL, VU2AC, 4S-7LJ, 7LZ: GM2CUV, CESDZ, CE8AJ, PY1AWL, LU2AJ, ZS2AT, GW3FSP, ZSSU, BERS195: CN2AE, CX2CO, HA5KB, H18WL, VQ5GC, VR2DA, ZD6DT, 4X4FA, 5A2FB, Rod de Balfour: JZOPA, FK8AS, XE1VW, LX1DC, ZD6DT, 2QL: KG4AN.

My thanks to VKs 2ACX, 2AIR, 2AMB, 6RK (QSP 5BY, 5UR, and 5WP), Rod de Balfour (QSP 7LZ), BERS195, and Dave Jenkins. We rarely see a contribution from VK6, VK2 or Darwin area in this column. I know, as do others who move round VK, that there is quite a difference in what each other can hear, so what about somebody dropping me a note, no matter how rough it may be, I will sort it out. If you don't feel the urge to write give me a call towards the end of each month with what you hear.

I had a ring from Hans on his way through Mascot and he hopes to be back with us again in approx. 12 months.

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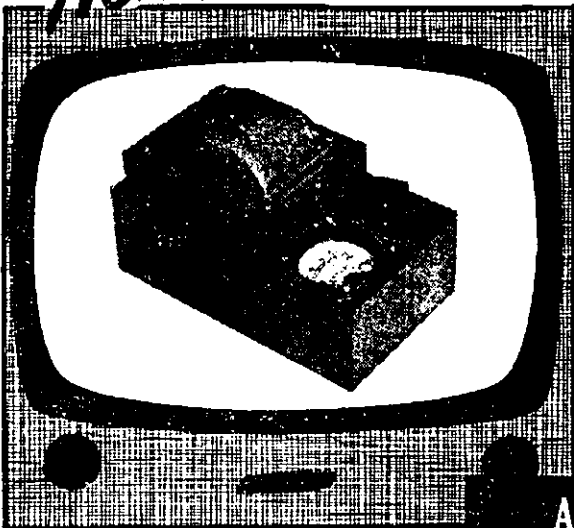
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BY PHYL MONCUE

OF MOUSE AND MEN

That last holiday week-end. Well we packed up the car and caravan with all the real necessities for a week-end vacation, such as the 5 over 5 for 2 along with its portable 15 ft. mast, in two sections, strapped on the roof of the car, and attached to the dash-board in the front seat hung the 80 mx rig, the portable rx and tx for 2 mx, a broadcast rx and then, of course, there's the steering wheel, brake and clutch, which leaves precisely just enough room for the driver and no room worth mentioning for the front seat passenger. In the back seat is the grid dipper, soldering iron, pliers, side cutters and various other odd tools, several lengths of 75 ohm twin lead, co-ax and, of course, the three harmonics. The Type 3 Mk. II, also comes along, this being placed on the floor of the caravan and forever being tripped over.

We started off Geelong way as we wanted to call on Ted SAEB re their Zone Convention. In true Ham style, we arrived there at 12:30, right at lunch time. Beryl, Ted's XYL, was stringing the beans for lunch. We declined an offer to stay and spend the afternoon with them, saying we'd only come for a minute and must get on. That minute was a real Ham minute and went on for at least an hour. Myself, I always have very strong feelings about those sort of visitors who pop in round about meal times and who won't stay and won't go. Well Beryl made us a cuppa and we were just about to go when Ted came out with that famous saying of all Hams, "Would you like to have a glance at the shack before you go."

Well you all know what a "glance" at a shack can mean and by the time we finally got away it was well into the afternoon. What Beryl did about lunch and those half-strung beans, I guess I'll never know. For our part, the OM said he didn't feel hungry and we decided to skip lunch and settle for an early tea. Meals and meal times always seem to be of the very least importance to the Ham fraternity, except of course, when the XYL is late home from golf or the mother's union meeting.

We made Ballarat that evening, had our tea and then considered what we would do for the evening. Being Saturday night I thought it would be nice to go to the pictures, but believe me, no one ever had a sillier idea. The OM decided we would go and visit some Ham shack. We called on Eric 3ZL and had a very pleasant evening, as I know his XYL Beatty and daughter Val very well and always enjoy chatting with them. Val's fiancé was also there and Val, by the way, is getting married sometime this month. After supper we rose to leave at a most respectable hour and just got to the front door, when Eric came out with it—"Come and have a glance at the shack before you go".

Well honestly, I went limp. Surely not! This just couldn't happen twice in one day. Beatty and I returned to the lounge room to wait. We waited, Val and the boy friend were waiting too. He obviously wanting to say good-night to his girl friend and here was ma-in-law-to-be and this other old duck firmly planted in what, at that time of night, could reasonably be expected to be considered as his domain. Some time later he and Val retired to the porch to say goodnight and some time later on still, Val returned. The "glance" at the shack was still in the process. Believe me, "love's young dream" can't hold a candle to this Ham Radio business.

We did eventually leave and return to the caravan, by this time a most unrespectable hour I might say. On getting the beds ready I discovered a mouse in my bed clothes, whereupon the youngest harmonic screamed and I jumped for higher ground and pulled my skirt tightly round my knees. The youngest harmonic refused to sleep in the caravan after that and I wasn't too keen myself (have you ever thought of trying to sleep with a mouse crawling round your neck), so we retired to the car and left the OM wildly brandishing a fly swat in an endeavour to catch one small inoffensive field mouse.

On getting out to the car with the blankets, I found that the wretched Type 3 Mk. II had been plonked on the back seat and what with the aforementioned gear on the dashboard there was not much room to make a bed for the two of us. I put the Type 3 on the ground

under the car, wondering if someone would pinch it and not caring very much if somebody did, tucked the youngest harmonic up on the back seat and then struggled in between the 80 mx rx, the portable 2 mx rx and tx, the broadcast rx and steering wheel, which has one of those circular metal bands for tooting the horn and which on trying to settle in I successfully managed to put my foot on and toot very loudly, and what with the OM still wildly prancing around in the caravan with the fly swat, I wondered how many of the other inhabitants in that camping area had a restful sleep that night.

We eventually got through the night although the OM didn't have any success with the fly swat, but the end of this story is that the Type 3 wasn't pinched and was again placed back on the caravan floor for the return journey home and apparently slid about on the trip because on arriving home we found that poor inoffensive little field mouse squashed flat against the wall by it and here I must write R.I.P. You know I always felt there must be some reason for taking that Type 3.

★

Many thanks to XYL Anon. for your contribution, watch for it in the column next month.

S.W.L. SECTION*

In case you don't know, you'll find there are s.w.l.s. from Alaska down to Patagonia and from Spain across to Japan, but there doesn't seem to be many from VK1 to VK9. Will some of you apparently shy s.w.l.s. come out from hiding please and let's hear about you. If it's because this column's no good, well let me know and tell me what's wrong with it. It can only be kept going and improved by your help and participation. Now having finished my usual (apparently ineffectual) monthly plug we'll get down to business.

S.W.L. OF THE MONTH

Continuing with this new feature, this month we introduce you to another member of the VK3 Group, Michael Ide, who holds the number of WIA-L3015. Michael, who is 18 years of age, is employed in the radio and electrical industry, thus making a hobby of his career, or a career of his hobby, whichever way you like it. He has been listening for almost as long as he can remember, but only seriously for about three years. In that time he has been 3rd and 4th in the 1954 and 1955 VK/ZL Contests respectively, 2nd in the Victorian S.w.l. Group Contest for 1955, 2nd in the Victorian BI-Monthly Scramble No. 1, and 1st in Scrambles Nos. 3 and 4.

His first receiver was the household 3-valve which still works well. In 1954 he obtained an AR8 and in 1955 an AR7 which he now uses in conjunction with a 14 Mc. ground plane antenna. Michael also has a converted AR301 rx operating on 144 Mc. with a 4 el. yagi antenna. Most of his listening is done during the week-ends. He has been attending the Victorian Division A.O.C.P. classes and by the time you read this should probably have received his ticket.

His chief interests on the radio side are hi-fi amplifiers and tape recorders, and listening on 20 and 2 mx phone. He has built his own amplifier and tape recorder. 30 countries confirmed is his tally with about 98 QSLs, so that SWL100 Certificate should soon be coming up. His other interests are cine-photography (with the tape recorder supplying sound tracks), cricket, collecting records, playing chess (he could challenge Geoff Morris), and for the benefit of Victorian Football League fans we might mention that he's a Richmond supporter. So there you are chaps. If you would like to be included in this feature write and tell me all about yourselves.

NEWS FROM THE GROUPS

Victoria.—At the March meeting of this Group, George 3WJ gave a talk and demonstration on the subject of panoramic reception. He capably explained to members the operation of a panadaptor and mentioned various uses for the equipment. In demonstrating the gear, which is beautifully finished as is the general rule with George's gear, he showed us various examples such as c.w., a.m., s.s.b., and frequency shift keying on the screen. Thanks very much for the interesting evening George.

Michael Ide, in the absence of the President, took the chair as Vice-President, and did a

* Compiled by Ian J. Hunt, WIA-L3007, 211 St. George's Road, Northcote, N.16, Vic.

very good job in that capacity. Eighteen members were present at the meeting and we were pleased to welcome John 3ZAI, Rex Roun, Doug Clowes and Bill Forbes to the Group. We hope to see more of you in the future.

Visits to be arranged in the near future include a visit to the Dept. of Civil Aviation's installation at Essendon and a visit to one of the D.C.A. transmitting stations. Come along and participate in these activities.

The VK3 Group meets on the last Tuesday of each month at 8 p.m. at the W.I.A. Rooms, 191 Queen St., Melbourne. Information regarding the Group can be obtained by writing to the address shown below or by ringing Ian Hunt at FB 0281, Ext. 305 during the day.

Gerry 3ZBN has dropped me a line just to show he is still in the land of the living. In his letter he makes some comments regarding s.w.l. cards and reports. It is suggested that when considering sending reports to Amateur Stations a listener should either use a report form provided by a Club or Group or else consult some local Amateur as to the form an s.w.l. card should take if you are considering having them printed. That way you should obtain best results from your reports and keep everyone happy. Alan Holmes, from Wangaratta, also wrote this month and made several enquiries regarding the Group. I'll attend to your questions as soon as I can Alan. He has not heard too much of late owing to the lack of a decent antenna but should be really going well as from now, due to the fact that a G4ZU tri-band beam has just been completed and erected. No doubt a few new countries will result from this addition to his set-up.

Len Poynter is understood to have moved his QTH to Melbourne's world-famous "Village," and Maurice Cox has now moved into the city so he can suffer QRM and not have the best noise-free country location of our local members. Bert Stubbing has been so busy he even forgot the date of the March meeting. Yours truly no longer has a beam up as it became vertically polarised during a recent severe wind storm and had to be taken down. The latest acquisition is a Persian Kitten who doesn't mind listening to phone but just hates c.w. Mac Hilliard has become a regular attendant at our meetings and has also apparently been finding time for some v.h.f. listening. Frank Nolan has been listening around the bands and is sure to come up with some more rare countries soon.

South Australia.—A short note from John Campbell keeps us informed on VK5 affairs. The last meeting of croweaters featured a talk by Gordon 5XU on shortwave and communication receiver design which kept the boys very interested. Several members were observed making notes including John himself. The Group thanks you very much for your talk Gordon.

The May meeting to be held on the 20th will take the form of a visit to the studios of broadcasting station 5DN at North Adelaide.

Stations heard by the chaps in VK5 recently are: Len Cragen WIA-L5004, CN8JW, C02CY, DLARA, EA, ET2US, FK8AC, F08AC, HH2Y, JA, K, W, KC8SF, KR8AF, LU4DMG, PY4CB, T12MS, VK0CJ, VK0RH, VR2DA, VR3G, XE-2KW and ZL5AA on 20 mx. 15 mx brought up DL1VR, DU2SV, KP4HG, VK0HO, VR2EZ, W, ZL1 and 2; whilst heard on 10 mx were FK8AC, JA, J20PC, K, W, KA3CY, KH8, KR8, OZ3TH, T12AFP, VQ5Z, VS6BE and ZL1-2-3.

A. Halliday WIA-L5007 logged CN8MM, C02CY, EA2QC, FA8CC, FUBAD, FK8AS, G6XN, HH2Y, I1GHA, KA2, 9, KW6CD, KH6, VR2DA, and VS4JT on 20 mx.

So once again that brings our monthly news to a close. Hope to receive lots more letters next month, so till then, I guess I'll say cheers, good listening and go and listen myself to those Ws who are really pounding in on 80 mx this evening.

SUBSCRIPTIONS

• Please pay your Subscriptions PROMPTLY when due. Failure to do so may result in the loss of valuable issues of "Amateur Radio." High costs of production make it necessary to limit the number of extra copies printed each month.

FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

CONFERENCES, 1958

The only official I.T.U. conference devoted to radio in 1958 was that of the C.C.I.R. in Warsaw; primarily a technical study group working on special assignments, it has no authority in allocations matters. The Administrative Council of I.T.U., after a poll of the members, has decided that the next Plenipotentiary Conference and Administrative Radio Conference should be held in 1959. Details have not yet been settled and the decision is still subject to review at the 12th session of the Council, to be held in April, 1957; however, it is reasonably certain the conference will take place in the Fall of 1959, at Geneva.

The Second Triennial Conference of I.A.R.U. members in Region I was held in Stresa, Italy, on June 12-18. H. Laeti, HB9GA, was chosen as chairman of the Executive Committee for the next three years, with Arthur Milne, G2MI, continuing as Secretary and Jaques Simonnet, F8DW, elected as Treasurer.

DX ACTIVITY REPORT FROM I.A.R.U.

DX conditions were the best in years, resulting in tremendous activity in the Amateur bands. W.A.C. issuances reached 1599 during 1958, the highest number ever issued in one year, and almost double the 1955 total of 744. Of these, 643 were for phone. There were nine endorsements for working all continents on 3.5 Mc., and 23 endorsements for two-way s.s.b. W.A.C.

I.A.R.U. TELLS OF GAMES RELAY

Under the heading of "Olympic Games Relay" the I.A.R.U. has outlined the story of the successful project of the VK7 Division. The report is as follows:

"The Tasmanian Division of the Wireless Institute of Australia and the Attica Amateur Radio Club of Athens, Greece, arranged for the relaying of a message of friendship and greeting on the occasion of the Sixteenth Olympiad. On November 17, a message was originated by SV1SV near the site of the ancient games to VK7WJ near Mount Olympus, Tasmania, and forwarded to the Games Committee in Melbourne. Amateurs in many other countries assisted, with the special approval of their governments, by keeping the frequency clear, and by providing 'fills' of missing words in the text. A return message also was successful. The whole show went off quite smoothly to the great credit of Radio Amateurs, and demonstrated the fine spirit of co-operation among members of our fraternity."

R.S.G.B. LUNCHEON CLUB

In another part of the magazine will be found details of the time and place of meeting of the very popular R.S.G.B. London Members' Luncheon Club. The Hon. Secretary, Mr. Frank Fletcher, G2FUX, has again written to the Federal Executive offering to members a cordial invitation to be present at these gatherings when they are in London. Executive is truly grateful for this offer of hospitality and hopes that when members are travelling abroad they will avail themselves of same. Frank reports that of the 30 visitors they have entertained last year, several were from VK. So far they have feasted 17 different countries and hope to feast their DX C.C.

FEDERAL QSL BUREAU

Another one for the certificate hunters. Worked Liverpool Award (W.L.A.) This award is sponsored by the Liverpool and District Amateur Radio Society and consists of four parts or grades, c.w., phone or a combination of both may be used and a minimum signal strength of 3 and tone of 8 is required. All contacts claimed must be subsequent to 31st December, 1955. The grade applicable to Australia is Grade 1 and requires proof of contact with five (5) different Liverpool stations. Any band may be used. Applications, together with the five QSL cards and six international reply coupons, must be sent to G3BHT, "Hove To," Sandy Lane, Hightown, near Liverpool, Eng. A short wave listener award will also be issued with rules similar to above.

KF4AO, Jules, who will be better remembered as VP8BM for four years, advises that any VK who missed out on a VP8BM card

may have same by writing him at Box 120, Ramey A.F.B., Puerto Rico.

Joe W0EFK is now W0EFK/KL7 on Shemya Island in the Aleutian chain and expects to be there some months, whilst Don W0KLD is now W0KLD/KL7 on the arctic coast of Alaska. Denny VE0NE said he was on the Canadian warship Bonaventure near Plymouth. Tom K6DNI is ex-TI2TG. (Thanks Austine.)

Melbourne Hams were pleased to meet W3ZMH (Alan) and W9HHL (John), both officers on the U.S.N. Dehaven which in company with three other destroyers visited Melbourne at the end of March to early April. Both visitors attended the annual meeting of the Victorian Division and were interested in the conduct of business and the wide range of subjects listed for discussion.

In a long letter to writer from Davis, Vestfold Hills, Princess Elizabeth Land, under date of 13th February, Chas VK0AB (ex-VK1AC, VK3ACI and VK3IB) gives much interesting details of the set-up down south. Says the personnel consists of only five men, mainly for meteorological work, but also undertaking a certain amount of auroral, exploratory and geological studies. Another purpose is to provide another link in the chain of stations furnishing data during the I.G.Y. They are situated 400 miles east of Mawson and 370 miles west of the Russians at Mirny. The locale is a desolate area of rocky hills about 30 miles by 15 in extent. At either end the coastline ends abruptly in icecliffs of the continental ice shelf. Chas. mentions that the view seaward is a magnificent scene of glistening bergs of all shapes and sizes and states that the total absence of any form of life or of even the lowly forms of vegetation makes Macquarie Island a paradise by comparison. The antenna erected is a horizontal vee with 350 feet per leg and an angle of 48 degrees. It averages 50 feet in height and is directed on Perth Radio. As it is unterminated its major back lobe hits Mawson fairly and squarely, thus killing two birds with one stone. It is of course cut for the commercial frequencies used, but exhibits good radiation properties on the Amateur channels.

At date of writing Chas. could only operate on Ham bands for a few hours each evening—1430-1800z—which makes it rather late for VK contacts and at this time the 14 Mc. band is open long path to U.S.A. and the W QRM is terrific. Chas. is using a Collins ART13 autotune transmitter running 90 watts. When pressure of work eases and the long Antarctic nights set in Chas. will appear at times more convenient to VK. He still uses the old Hallcrafters SX28 receiver which has given him good service over many years. He is unable to hear any signals below 5 Mc., but expects to be able to use 80 mc during the winter. He plans activity on 80-40-20-15 mx bands, but has nothing which will operate on 28 Mc. Soon after settling in there was a radio blackout—nothing heard over the entire spectrum for three days, a few weak signals only on the fourth day and a scratchy contact with Mawson on the fifth day. Chas. managed a contact with VK1GA at Mawson on 5th February and claims the honour of the 1st Antarctic VK0 to work the last Antarctic VK1!

As advised earlier, Bill VK2EG will be handling QSL activities for Chas. QSLs will be sent on a receipt basis and will go via Bureau unless accompanied by I.R.C. C.w. will be the main means of contact but Chas. will use phone if required.

Dave Davies, CN2AE (ex-EKIDS and GW-3AN) advises he has worked quite a few VK stations, mainly VKs, but up to time of writing had not received any cards. As he is QSL minded he would appreciate a response. QTH is Box 57, B.P.O., Tangier.

—Ray Jones, VK3RJ, Manager.

CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

NEW SOUTH WALES

HUNTER BRANCH

The Annual General Meeting of the Hunter Branch was held on 8th March at the University of Technology, Tighes Hill, with 13 members in attendance. The Secretary, Charlie 2ARV, read the annual report in which our lecturers for the year were shown as 2ANU, 2KG, 2VU, 2CS, 2ADS, 2MC, 2FX, 2AFX, J. McKay and W. Spencer.

The Social Secretary's report was given by Gordon Sutherland and Bill 2XT delivered the President's report. It was announced that the I.R.E. had invited any branch member interested to a lecture on "Thermostatic Control" on the following Friday night.

Ron Bishop, a visitor to the district, gave a talk on his experiences while operating his Ham station in Ghana.

State President, Jim Corbin, addressed the meeting and then took the chair to conduct the election of officers of the Hunter Branch for the ensuing 12 months. The results of the election were as follows: Branch President, Lionel 2CS; Vice-President, Stewart Fairburn; Secretary, Charles 2ARV; Treasurer, Bill 2XT; Social Secretary, Gordon Sutherland; Social Treasurer, Bob Bailey, and Zone Correspondent, Les 2AOR.

During the month quite a few of the boys have been active and one or two, due to t.v.i., fell silent. Ken 2KG has been holidaying at Port Stephens and has been sending f.b. c.w. on 40 mx from his "biscuit tin" tx. John 2XQ doing well on 15 mx as well as with the "old gentlemen on 80 mx." He has also acquired another transistor rx from W. Land. Local 15 mx champ, is Jim 2AHT. Jim finds Europeans come back by the dozen around 2100 GMT. He hopes to be on 10 mx soon as he gets his beams up on 20, 15 and 10 mx. With 10 mx opening up, that "wizard of ten," our old pal Ernie 2FP, is all set to go. Harold 2AHA has been working on 2ASJ's gear and Ron is now having fun and excellent results chasing W.A.S. on 20 mx c.w. with the 2AHA foot key. Varley 2SF on the air again on 20 and 40 mx phone; will watch the electric drill when operating near a tranny in future.

At Maitland, Vic 2AKF has been active on 40 mx, but Bill 2AMM is still QRT. Leo 2QB keeps Hamilton on the air with his 20 mx phone. Harry 2AFA has been picking up some choice DX on 20 mx. Bob 2AQR and Bill 2ZL trying to out-talk each other on 40 mx. Bob says Bill will win, t.v.i. permitting. Dave 2BZ sticks to 2 and 5 mx; he talks t.v.i. with the v.h.f. gang in Sydney. George 2AGD only on for Monday night hook-up. Charlie 2ARV seems to be chasing the W.A.J. award and is going well. ZD4DK is on holidays in Newcastle and is operating Bill 2XT's Type 3 under call sign VK2WB.

Next meeting of the Hunter Branch will be held on 10th May at 8 p.m. at the University of Technology, Newcastle.

UPPER HUNTER GROUP

During the month of March I can personally account for all members of our small group, that is having met them in person with the exception of 2GV. That is they have honoured your scribe by a visit or vice versa and not to forget a visit from Bruce 2ZAD, of Tamworth. Of interest is the fact that Roy 2RC, of Denman, is active again and will be looking for contacts. His absence has been due to a so-journ in VK3 and a hitch over his block of land which is not through yet. Tas 2GV heard on 40 mx with a good signal from the No. 11 set. You must get on 80 mx Tas and let's hear more of you. Nev. 2OS still away with the broadcasting business and assures me that he is still very keen. Geoff 2VU converting his 6 mx gear over to 5 mx and having strife neutralising the 807s. I can assure you that they have caps on and not the sort you may think they are hi! Geoff had no trouble in working Noel 2AHH on 2 mx at Point Lookout, steady signals both ways in the V.h.f. Autumn Field Day. Good contacts were had with other portable stations.

Ken 2ANU busy modifying Command tx for 80 mx and tracking down galvanised conduit and even took time off to get a spill off his horse, which put the programme back a few days, hi! Also had the pleasure of contacting Noel 2AHH at Point Lookout on 2 mx. Many stations were heard though not worked. 2VU and 2ANU both worked 2DR at Blaney on 30th March. Good signals both ways.

VICTORIA

Another Annual Meeting has come and gone, a new Council and office-bearers have been elected and a very fine President has retired after five years of sterling service to the VK3 Division. I well remember when Gordon 3TF was elected, he regarded it not so much as a job to be done, but that a very great honour had been bestowed upon him and right through his term of office he worked with that thought, giving of his very best to further the advancement of the Division. His calmness in dealing with awkward situations and sometimes terse members was a tonic to all who worked with him. A job well done Gordon, and we are glad to see you are a member of the new Council and taking an interest in the Divisional affairs still.

The new Council is as follows: Fred 3YS (President), Gordon 3TF, Jim 3NY, Bert 3HE, Jay 3JL, Alan 3AEL, David 3ADW, Ken 3AFJ, George 3WJ and Len 3ALD.

The following are the office-bearers for the coming year: President, F. Bail (3YS); Vice-Presidents, G. Dennis (3TF) and L. Robinson (3ALD); Hon. Secretary, J. Lancaster (3JL); Assistant Hon. Secretary, G. Robertson (3WJ);

Hon. Treasurer, J. Marsland (3NY); Contest Committee, H. Hodge (3HE) and D. Wardlaw (3ADW); Disposals Committee, G. Dennis (3TF) and R. Bradshaw (3SX); Qualifications Committee, H. Hodge (3HE) and K. Pincoff (3AFJ); Communications, A. Elliot (3AEL); Maintenance, G. Robertson (3WJ) and A. Elliot (3AEL); Exhibition, H. Hodge (3HE); T.V. Advisory Committee, L. Moncur (3LN).

Following the Annual Meeting a tape recording was played of an interview between a member of the VK9 Division and Danny Well of his experiences during his rescue from the yacht "Yasme".

The following visitors were welcomed to the meeting, John Strathman, W9HLL; Alan Pierce, W8ZMH; and Bob Reid, a ship's radio operator from Pasadena.

The new members admitted to the Division were: Full Members—J. R. White, 3AJW; W. G. Downing, 3GD; F. J. Dettman, Associates—W. R. Hempel, J. P. Neve, and Junior Associates—D. W. Clowes and R. B. Rosen.

Bob 3ML made fame recently in a television broadcast over ABV Channel 2, in their hobby programme. Bob with all the polish of a

antenna taken across to the opposite bank then across a paddock, hence very little signal was present at the tx location. Despite this, Alf 3IE did a fine job locating the rig in short time, followed later by Roy 3ARY and Tom 3AOG.

A newcomer noted was Evan 3AAP, who did very well to arrive at the site at about the same time as some of the more experienced hunters. We hope to see Evan with some portable gear at the next hunt, when he looks like being a real danger.

The next tx hunt will be held on Sunday, May 12, when Alf 3IE will be hiding the tx, so come along for a very interesting afternoon's entertainment.

WESTERN ZONE

Recently our new zone boundaries have been finalised, so we must welcome our new members, and to our former members who are now in the Midland Zone, wish them all the best of luck.

Paid a visit to Jim 3DP recently and had a look over his home-made workshop, which consists of a hydraulic press made out of aircraft landing gear, power hack-saw, drilling machines

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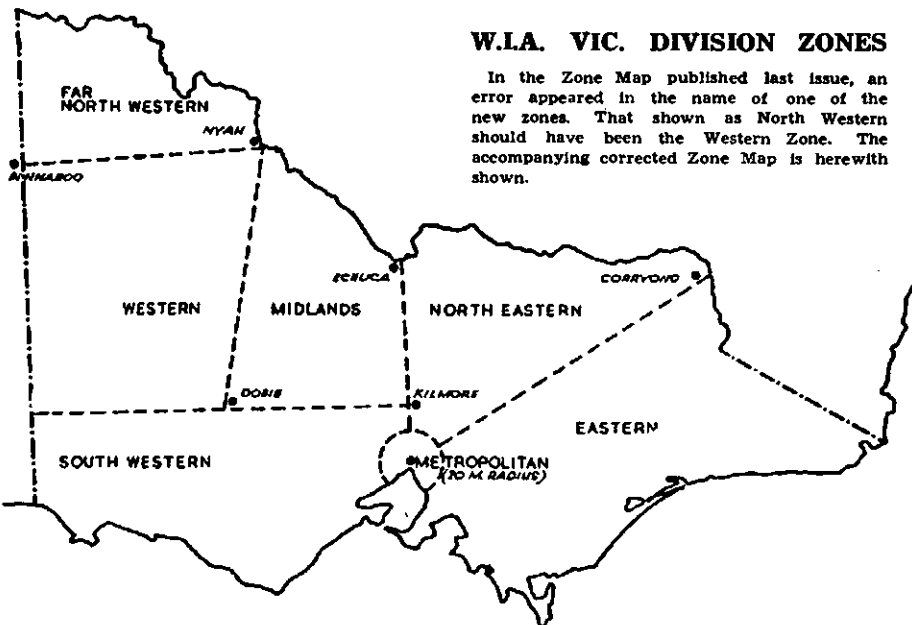
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W.L.A. VIC. DIVISION ZONES

In the Zone Map published last issue, an error appeared in the name of one of the new zones. That shown as North Western should have been the Western Zone. The accompanying corrected Zone Map is herewith shown.

veteran t.v. star, gave a short story of Amateur Radio and demonstrated the transmission and reception of signals on his own equipment. He gave a short CQ call and right back popped Bill 3ATW operating mobile at Fernree Gully, well we won't worry that but Bill sure had a terrific signal. Bob put in a few very nice plugs for Amateur Radio, the W.L.A. and the A.O.C.P. class and presented Amateur Radio to the public in a very commendable fashion.

The next general meeting will be held on May 1 and the lecturer will be Mr. Markham, of the Australian Broadcasting Commission on "Outside Broadcast Television Work." Mr. Markham was recommended to us by Mr. Kempson, of the Royal Melbourne Technical College, and his lecture should be of interest to all.

At the June general meeting the lecturer will be Mr. Alec Brown, who was VK1DA during 1936, and he will deliver a lecture illustrated with a collection of excellent slides. This lecture will cover the wild life of the Antarctic as encountered and photographed during Mr. Brown's stay on Macquarie Island.

In July the lecturer will be Squadron Leader While, of the Ground Air Section of the R.A.A.F. His lecture, illustrated with films, will cover ground to air communications and other angles of R.A.A.F. radio work.

80 METRE TRANSMITTER BUNT

Fifty-one persons had an enjoyable outing and picnic beside the Yarra at Heidelberg on Sunday, April 7, when Laurie 3ALY, ably assisted by Ray Price, hid the tx which was buried almost at the water's edge, and the

and other items to make a well set-up workshop. So besides his radio, Jim has other interests to keep his spare time well occupied.

Keith 3AKP has not been on the air much of late but is still putting finishing touches on his new rig. He has had a visit from his cobbler, Ian 4GZ from Charters Towers, so they together have been paying a visit to other Hams in the district. Alan 3HL has erected another leg to one of his vee beams and it has greatly improved his signal into the States.

Have had news of Chas, ex-3IB, 1AC, and who now is VK0AB situated on Davis in Westfold Hills, Antarctica. They had to establish this base so, until they got organised. Chas and his mates had some discomforts to put up with, however they now have comfortable quarters and he is on the air and has already worked a number of DX stations. Conditions have not been extra good, but expects things to improve during the winter months, so is looking forward to many chats to the local chaps here.—3AKW.

MIDLAND ZONE

On 2nd May a zone hook-up will be inaugurated, the key station to be initially 3FO. The proposed band will be 7 Mc. at 8 p.m. Please net with 3FO if possible.

As this will be the initial get-together for the new zone all members and non-members are invited to be there, so make it a success with a big gathering.

For information, especially of non-members, the Midland Zone has just been formed and present official activity is nil. This hook-up is to try and decide when and where the first official meeting can be held. Contact either 3ND or 3FO for further information.



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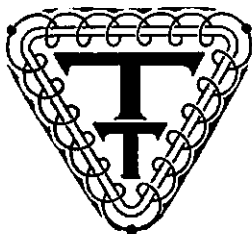
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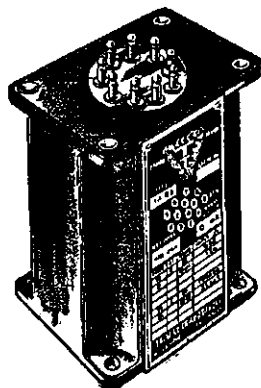
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QUEENSLAND

PRESIDENT'S ANNUAL REPORT

The following extracts are taken from the President's report of 1956-57.

Gentlemen, in presenting this report I do so with a great deal of satisfaction as you will no doubt see the Queensland Division has had a fairly successful year. Credit for this is due to support given by many of our members throughout the year, especially the willing workers on Council. The Secretary, Jim, is to be congratulated on the sterling work he has done.

Membership over the past year has shown a steady increase. Just on 50 new members, including associates, have been taken on the books, bringing the figure to a total of 207.

Finance.—Our financial position, gentlemen, is rather healthy and once again reflects great credit on Charlie, our Treasurer.

Council has met regularly on the second Friday of each month and many problems have been ironed out and important decisions made. Support from Council has been very loyal and each member has shown his willingness to assist in any way possible.

General Meetings.—The monthly meetings have been well attended throughout the year and some very interesting lectures and film shows have been presented. The average attendance has been around the 40 mark and Council and myself feel that the interest shown by the city member is quite evident by these attendances. It is hoped in the forthcoming year to present something of interest to all members.

Official Station.—The past year has seen some very important changes in VK4WI, in respect to modifications carried out by the station manager, Bert 4AO. Bert has practically re-built both tx's and the Institute purchased a new modulation transformer for the station. Slow morse transmissions can be expected in the near future. Station Manager Bert is to be congratulated for his efforts in this direction and for the Sunday morning news service provided.

Sunday Hook-ups.—The hook-ups have been regular and they have, I am sure, been a boon to the country member, for it is through this medium that the doings of Division and the needs of the country boy can be attended to speedily.

A.O.C.P. Classes for the examination were started on 12th October, 1956. Each Friday evening the classes are held from 7 to 9.30 p.m. The first hour is devoted to morse and the remainder to theory and general discussion. No charge is made for instruction, but students must become associate members of the Division before joining the class. From these classes the Institute has gained 24 associate members. The Class Manager, Stan 4SA, is to be heartily congratulated for his magnificent efforts on this behalf.

It is hoped in the forthcoming year to include correspondence courses for the country chap.

"QTC".—The monthly sheet "QTC" has been dispatched regularly and all financial members have received their copy on time. Many thanks to John 4JO for all typing work done, not only for "QTC", but for the compilation of news for the fortnightly broadcast over the official station VK4WI, also to John 4FP for his efforts in printing the paper and to Jim, our Secretary, for his thankless job of posting it out each month.

"Amateur Radio".—This magazine has been received by most members on time throughout the year, and from this publication we can see just what is going on in other States. With Divisional activity many interesting technical articles have appeared monthly, and if any member of this Division can assist with something along these lines, I can assure him it will be appreciated not only by the publishers but by all Amateurs throughout Australia. If you have any suggestions to make let us know and we will see what can be done.

Activities, Palm Beach.—Last year's Convention at Palm Beach was held on the Queen's Birthday week-end and was a great success. An excellent programme of events was held, and judging by the response it proved a very popular week-end. Thanks go out to Aussie 4TN and to all who assisted to make the show a success. A similar convention will be held this year.

Junior Chamber of Commerce Display.—The Division, in conjunction with the Junior Chamber of Commerce, staged a very interesting display of a working Amateur Station in the basement of the Brisbane City Hall. Quite a lot of outside interest was shown, so much so that the Division has recently been informed by the Junior Chamber that another such display, this time in the main vestibule of the City Hall, will be held in November, 1957.

and the whole theme of the display will centre around an Amateur Station. To all who made last year's show possible with equipment loaned, operating rosters, and v.h.f. links, I express on behalf of the Division my heartfelt thanks.

V.h.f. Hunts.—Throughout the year the Division has conducted around the city some very popular hidden tx hunts. Quite a good roll-up of v.h.f. boys have participated and as well as stimulating added interest in v.h.f., it has proved to be another way in which the boys can get together and try out new equipment. Many thanks to John 4JO for all his efforts for the group and to Mrs. Ross for the excellent suppers provided after these events.

Emergency Committee.—The opinion was formed that all networks throughout VK should be uniform and Federal Executive has been asked to give it their attention. It is expected that the forthcoming Federal Convention will iron out all problems. There have been three emergencies during the year, two in the rescue of Danny Well, whose life was undoubtedly saved by the co-operation of Amateurs, coastal radio, air-sea rescue, D.C.A., R.A.A.F. and police. Dr. I. Morrison, 4MC, handled an emergency snake bite situation in New Guinea and advised treatment effectively by radio. During cyclone Clara, the network monitored all bands and W. McDivitt, of Cairns, installed an emergency station at the Cairns Police Depot. Fortunately we were not affected by this cyclone.

To all who have co-operated in emergency situations and especially to Vince 4VJ as Chairman of the Emergency Committee for the work he has put into this service, I say many thanks for a job well done.

V.h.f. Group.—The desire for bigger and better signals has prompted the design of power amplifiers excited by the existing rig and this should prove very interesting. Excursions to Maleny for 2 mx DX contacts have been made while tests between Warwick and Maryborough have been carried out with encouraging results.

T.v. Committee.—The committee was formed by the Division for the purpose of assisting all Amateurs in VK4 with all problems associated with television interference, harmonic suppression and the elimination of all spurious radiation. Although t.v. is not yet here in VK4, we feel at all times we must be ready with our knowledge and conscious of our equipment, to be sure that when this new medium arrives in Queensland we will not be behind the times with interference problems.

The committee at all times will be willing to assist with any problems.

Inward and Outward QSL Bureaux.—The Bureau have functioned smoothly over the past twelve months. The Outward Bureau reports the number of cards handled was similar to the previous year. The Inward Bureau experienced no difficulty and approximately the same number was handled as in previous years.

Thanks go out to Jack 4JF for the Inward Bureau handling, and to Miss Claire O'Brien for her efforts once again with the Outward Bureau. To all who helped to make the QSL Service a pleasure to handle by their response to requests for stamps for postage of their QSLs many thanks from both Bureaux.

Federal Executive has secured for us, after constant representation to the authorities: T.v. licenses for Amateurs thus enabling us to branch out into a new field of electronics, and improve our knowledge. The question of t.v. interference to Amateur channels has been raised and through these negotiations by Federal Executive a well known t.v. rx manufacturer has changed the frequency of his l.f. channels. The Amateur band 50-54 Mc. was altered to 56-60 Mc. Throughout the year permission for mobile operation, full time, was granted, the only condition being that the licensee must be at his home QTH once in 24 hours. VK1 call signs for Federal Capital Territory were obtained. During the past year emergency procedure and plans were drawn up and discussed, the forthcoming International Geophysical Year has been adequately covered with knowledge to hand in "Amateur Radio" and through Divisional channels, and content rules have also been agenda items. In all, Federal Executive have been very busy with all our problems, and will, I'm sure, continue to do so for our benefit as required.

To our Federal Councillor, Arthur 4AW, many thanks for assistance and information on Federal matters throughout the year.

In conclusion, gentlemen, I would just like to say how pleased I have been to have had the honour of being your Chairman and President. I thank you one and all for your loyal support. I wish the Council for the forthcoming year every success.

—Frank B. Bond, VK4ZM.

TOWNSVILLE

Quite a large roll-up was experienced at the usual monthly meeting when John 4DD gave a very excellent lecture on antennae and feed line systems. His lecture occupied the full hour and was most informative. He has promised to answer questions at the next meeting as he had to leave to attend a farewell function, from which he had left to give his lecture as promised.

At the next A.O.C.P. examination two members are to face the barrier for Z call signs. "Good luck to you both!" Vera 4LK is beginning to hear JA stations on 5 metres and waiting to work them again after a very good performance last year. The wireless bird whispers that Norm 4NT will be leaving Mareeba and hopes to start toll again in Cairns and promises to show the local boys how easy it is to work the DK on the cubicle quad. Bob 4MF hopes to get a beam up shortly.

Joe 4JH promised the boys if they get the Z call sign he will come on 144 Mc. for them with full power to prove it. It is hoped that Graham 4BX will again take over the learners' class for A.O.C.P.; quite a few have promised to stay the full distance. Eddie 4WH, our local Secretary, will be in Brisbane by the time this appears and hopes to attend all the meetings and bring back all the news from the big smoke.

SOUTH AUSTRALIA

The monthly meeting held in March, being the first following the Annual Meeting, saw the announcement of office-bearers for 1957-8, some having been appointed at the previous Council meeting. These were: President, John 5KX; Vice-President and Secretary, Brian 5CA; Treasurer, Jim 5FO; Publicity Officer, Warwick 5PS; Technical Officer, Doc 5MD; Minute Sec., Lloyd 5OK; Membership Organizer, Les 5AX; Divisional Sub-Ed., Comps 5EF.

To bring you up-to-date the following lists the personnel of various committees, etc.:

Council: 5KX, 5CA, 5FO, 5OK, 5MD, 5XU (Federal Councillor and Immediate Past President), 5LC, 5DO, 5PS, 5AX, N. Callinan (Associates Representative), and J. Parish (S.w.I. Group Representative). It is noted that Lea 5AX was co-opted by Council to fill the vacancy following the resignation of former Councillor Harvey 5HQ.

T.v. Technical Committee: 5BT (Chairman), 5PU (Sec.), 5IW, 5GL, 5DK, 5KX, 5XU.

Technical Advisory Committee: 5MO, 5GL and 5XU.

W.I. Emergency Communications Committee: 5JK (Chairman), 5CA (Sec.), 5KX, 5MD, and 5XU.

At this point it's worthy of mention that at the Council meeting when these appointments were made and confirmed, it was necessary that prior positions or offices be declared vacant. President John did just that and then proceeded to conduct affairs according to the Constitution. On the Sunday following, when Gordon 5XU did the broadcast, he stated that John declared all officers vacant—there are a few slander cases pending!

Back to the meeting, the formal business was kept brief due to "tender" night being on, but time was taken to report on Exhibition progress and to advise that consideration will be given at an early date to the formation of an "Interference" Committee—recall VK7 prompted the idea some time back. Another committee was formed, namely "Picnic," consisting of Luke 5LL, Joe 5JO, Frank 5MZ and Norm Coltman, they being given the task of making recommendations to forthcoming assemblies re the annual social day.

New members accepted were M. J. W. Mitchell, P. A. Rowe, K. H. Phillips, J. F. Drew, as associates, and Graeme Bowen (yes ex-junior op. at 5XU) as full member. Congrats Graeme, for by making the grade for the full ticket as you have done it makes you our youngest Ham in VK5. To make this in combination with "scholastic" successes also, makes 1957 a memorable year for our new Ham. Welcome to the ranks OM and hope you find the game to your liking, one thing though, not too much QRM to "poor old pop."

Two other young members soon we hope in Allen Hutt who made the full ticket, and Colin Luke—limited.

"Buy and Sell" did not attract as much attention as usual, or the mood wasn't there, anyway Dougal and Norm worked hard and cleared the deck on time.

The emergency net is at long last taking shape, and following conferences lasting over quite a while with Police, Radio Branch, and E.F.S., a scheme and net has been established

to operate in emergency when called upon by the Authorities to augment official communications. Our net is to work as a means of "Communication" only, to receive and transmit messages from official sources and not to originate ourselves.

Equipment has been obtained through the Disposal Committee from Government sources and found that No. 122 sets were the most suited for the job. A number of such are on hand and general members will be advised in due course re their allotment and use. These units, which are for emergency net use only, are 12v. input using 6TUG m.o., v.f.o. or xtal, with 807 p.a. plate modulated. Output to antenna, battery drain 5 amps with tx in high output and for rx and tx filaments only 0.9 amp. The low drain being one of their attractive features, the other being ease of "netting" for both tx and rx are simultaneously tuned.

It is the intention to obtain sufficient of these units to provide each member who is interested in the scheme with a complete outfit, and the nominal cost will be the member's affair—so you will be hearing more about all this in due course.

Message forms have been printed and procedure adopted and a number of field trials and tests conducted to help iron out any bugs that may be there, as well as find out best antenna for such use, etc. So far tests indicate a good net should result.

Our hard working associates, who are doing the class this year, are progressing well. Two of them making the grade at the Jan. exam.

It's a bit early at the time of writing to give much indication of the running of the exhibit at the Royal Exhibition, but the gear has been set up and apart from a fault in the v.h.f. link set-up, all seems to be going according to plan. Most of the gear there is from Gordon 5XU's shack, which includes 3 tx's one on 40, another on 20 and the other on 2 mx for v.h.f. "talk back" link. The rx is an SX28 and doing very well whilst working 40 and listening at the site, for with so many noisy electrical exhibits near-by the noise limiter must be working overtime to make it possible to hear anything.

The antenna is a ZL Special on 20 mx. a long wire on 40 mx. and a 4 over 4 driven by a skeleton slot on 2 mx. A large number of ornate QSL cards supplied by Frank 6MZ and Gordon 5XU decorate the walls and give it a bit "shock" look.

Joe 5JO is going to Melbourne at Easter time—to play cricket above all things—with 15 other types—talent shows up in most unusual places! You all know 10 mx has been hot lately, but you should have heard 5WK "tearing them off" recently, 5 x 9 plus all the way. Now Doc 5MD, have you purchased a new wheel chair or crutches yet? Heard Wal 5DF say the other day he had heard "Poor old Doc working 40." What next? Watch out Wal, he will catch up to you for that.

And then there is "Wandering Chas." We never know where he will bob up next, Chas. 5ON we mean, he has recently moved to Eden Hills, so don't take the call book too seriously fellows for they can't keep up to him.

Jim 5JK was trying out a 122 last Sunday and stated was using a 132 ft. Wyndom with a 25 ft. feed line, the whole assembly 4 ft. above ground. Knowing Jim would not consider anything other than the feed line dropping vertical to the tx, can only assume he was operating from the bottom of a 21 ft. hole. Who dug it Jim?

ZSSJV, Salisbury, Southern Rhodesia, is looking for VK contacts on 10 mx. Has his beam this way from 0500 GMT, so help yourselves chaps, he packs a good signal here.

The plum of the month comes from Port Lincoln, where Alf Mack is helping Wal 5DF to re-learn Morse. It appears a schoolboy who lives next to Alf asked him "Is there anything else that could interfere with our wireless other than you?"

SOUTH EASTERN DISTRICTS

Our sympathy to Claude 5CH in his bereavement. His father passed away late in March after a short illness.

Erg 5KU has managed 10 new countries on 14 Mc. c.w. He has been fairly active so deserved them. Stewart 6MS mainly on 10 and 15 mx and also working some new ones. Tom 5TW has built himself a new modulator, so let's hear it old man. The only other news from that way mostly re v.h.f. which is reported elsewhere.

WESTERN AUSTRALIA

At the Divisional meeting for March, 6RU gave a very interesting and instructive lecture on his W3DZ beam, and Mr. Gordon lectured and showed slides of Central and Northern

Australia. He was in charge of the sound recording on the film "Vedda".

In the absence of any new nominations, the existing Council: 6RU, 6FT, 6TP, 6BE, 6MK, 6AG and 6KW, are carrying on.

Milo Lacey, ex-VK6MX, is now in U.S.A. and has the call sign W6DUP.

We were pleased to see Dave W2APF in VK6 again and hope he enjoyed his brief stay and wish him happy landings on the rest of his trip.

Sorry to have so little news this month chaps, but as usual radio takes a back seat during the summer months. The "local" bands are almost deserted temporarily, and even the DX bands have not been the best lately over this side. However, there are already signs of increased activity on 80 and 40 mx, so I hope to gather more news next month.

TASMANIA

Could be, "The Turk, that two-and-fifty kingdoms hath.

Writes not so tedious a style as this."

But, gentlemen, it is ten years since last I columnised—some will say calumnised—in this journal. And it is not true that the period was prescribed by some keen magisterial type.

Remarkable affairs, these annual dinners. Seems that TWI, with many worthy ops. on tap, got under way with a spirited QSO or two as the evening ran on. Bye and bye, pounding on the stairs was heard and someone ran in. Well dressed chap, obviously not a Ham, but labouring nevertheless under some great emotion. Boshroom? No, the manager of a nearby picture theatre. About a thousand people were, as he put it, "getting restless" while TWI provided a thunderous sound-track for the hollywoodwork out front. Consider, messieurs, the monastery, the Foreign Legion, the anode-bend detector . . .

You'll be happy to hear that more usual things were done in the course of meeting and dinner at the club rooms. President Ted 7FJ reviewed a worthwhile year which has seen the beginnings of a local search-and-rescue organisation, in connection with which a really small transceiver unit is being developed, an encouraging influx of younger members; the Olympic Relay expedition; a series of good lectures and, not least, a reasonably healthy financial position. In these and other activities, credit is due also to lively North and North-Western Zones, from which directions a small but welcome party was able to make the trip to Hobart. Col 7LZ carries his years remarkably well!

Council changes include a sort of Churchillian retirement to private membership by those indefatigable old horses 7EJ 7FJ 7AL and 7LE, who probably think they're going to have less to do. New line up: 7GA driver, 7CH and 7AB push-pull vice-presidents (7CH reflexed as finance-splitter); 7KA secretary, and one or two others of us as—er—hallast.

Many will remember 7WN's part in organising that most enjoyable tour of the Highlands on the occasion of last year's dinner. Reg. unfortunately, has been in poor health and to him go the wishes of all for a good and speedy recovery. Peter Dunne, whose kindly interest in Amateur affairs has not been restricted to VK7, says he has responded for the last time to the toast "The P.M.G.'s Department": The magic number 65 approaches. This seems to mean that the Institute can now hope to have, not only a life member, but an active one for many years to come.

Like most Hon. Secs. ours has been discovering that "virtue is its own reward." Hon. Sec. applies himself to Hon. Morse Practice for half an hour each Sunday at 0915, 3501 Kc., with no recent indication that he is sending it to aught but the wind. To any who may feel like tackling this relatively untried technique, it can be recommended as a method of transferring information at maximum writing speed with minimum demand upon power, bandwidth and fuss . . . a big claim, maybe, but that's how progress goes sometimes, if you know what I mean. In this matter of Morse proficiency, sirs, an awkward question might well be looked at while its horns are little. (a) Is there any foreseeable limit to the demand that might be made on the performance of low-powered equipment in some real emergency? (b) How good an operator does one get to be when the start of practice awaits, as it were, the whist of a fife! mis!?!—TY.

NORTH WESTERN ZONE

Judging by the reports received, a very successful Annual General Meeting was held in Hobart, followed by the Dinner.

It is with some distress that I have to report that our Secretary has been in trouble with the Police. It is not the sort of thing I like to make public, so don't go and spread it around. I saw our Secretary, Sid 7SF, standing on the steps of the Court House laughing and talking with an officer of the law, therefore, it was committed the crime of parking across a laneway. Boy! was he furious at being caught. Says he was only there about a minute.

Our President, Jim 7JO, reports that t.v. sigs are coming through well, in fact I saw the one-eyed monster myself in Burnie the other night. Fair bit of snow with it, though snow was good.

Also have a report of the second field day in the North West. Dennis 7DR had the hidden tx and had much fun as the location was on a slight rise round which the road curved, and he was able to sight the boys as they drove around the road, disappeared into the distance, and returned to dive into the scrub on the wrong side of the road.

Ted 7EJ eventually found Dennis, nearly drove his car over the top of him, I believe, and then after getting his car stuck, got the other boys to help him out, and they still didn't see Dennis.

The April meeting was a week late, so can't report on that. Heard our newcomer Lee 6LC on one Sunday morning after the broadcast. Hope you get that VK7 call Lee. Roy 7RN also heard from his home station recently too. May I have a new speaker cone, please, Roy, I need a replacement after the strength of your signal. Sighted Chas 7CF at his place of work. He was rewiring a generator on a great big hissing steam engine, which made conversation difficult. In any case, Chas said the engine had to get away in a hurry, so I took it he was busy, so I got away in a hurry too.

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

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WANTED: Comm. Receiver tuning to 30 Mc., such as AR88, HRO or comparable U.S.A. receiver. If desired will trade a BC348P as part payment (xtal osc., double conversion, 14 tubes, a.c. operated). Details and price to A. Roudie, Croydon Way, Croydon, Vic.

WANTED: Manual for 108 Mk. III, 2.5 to 3.5 Mc., on portable Transceiver. Also one for 208 C.W. Set. R. Campbell, Box 42, Sorrento, Vic.

WANTED: Metal case for BC221 Frequency Meter. F. G. Bail, 60 Shannon St., Box Hill, Vic. WX 2213.

WANTED: Xtals in 7 and 3.5 Mc. bands. A. W. Chandler, 1013 High St., Armadale, Vic. (BY 3918)

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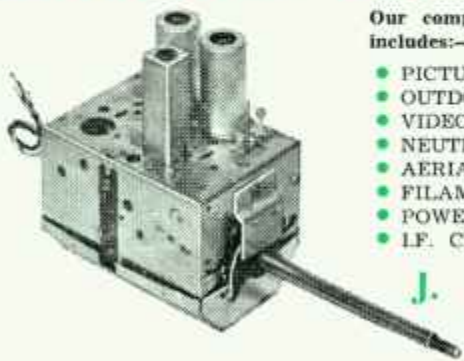
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2150 Kc.	5530 Kc.	6250 Kc.	6850 Kc.	7175 Kc.
2208.1 Kc.	5633.333 Kc.	6275 Kc.	6875 Kc.	7200 Kc.
2442.5 Kc.	5655.333 Kc.	6300 Kc.	6900 Kc.	7225 Kc.
2443 Kc.	5700 Kc.	6325 Kc.	6925 Kc.	7250 Kc.
2732 Kc.	5722.222 Kc.	6350 Kc.	6950 Kc.	7275 Kc.
2760 Kc.	5725 Kc.	6375 Kc.	6975 Kc.	7300 Kc.
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2990 Kc.	5750 Kc.	6425 Kc.	7002.5 Kc.	7350 Kc.
3380 Kc.	5775 Kc.	6450 Kc.	7003 Kc.	7375 Kc.
3500 Kc.	5825 Kc.	6475 Kc.	7005 Kc.	7400 Kc.
3533 Kc.	5850 Kc.	6497.9 Kc.	7010 Kc.	7425 Kc.
3535 Kc.	5852.5 Kc.	6500 Kc.	7011.75 Kc.	7450 Kc.
3537 Kc.	5875 Kc.	6522.9 Kc.	7012 Kc.	7475 Kc.
3892 Kc.	5900 Kc.	6525 Kc.	7018 Kc.	7500 Kc.
3925 Kc.	5925 Kc.	6547.9 Kc.	7021.7 Kc.	7525 Kc.
4096 Kc.	5950 Kc.	6550 Kc.	7025 Kc.	7550 Kc.
4172 Kc.	5975 Kc.	6561.111 Kc.	7032 Kc.	7575 Kc.
4205 Kc.	6000 Kc.	6575 Kc.	7032.6 Kc.	7600 Kc.
4285 Kc.	6025 Kc.	6600 Kc.	7050 Kc.	7625 Kc.
4445 Kc.	6050 Kc.	6625 Kc.	7075 Kc.	7650 Kc.
4600 Kc.	6075 Kc.	6650 Kc.	7100 Kc.	7675 Kc.
4815 Kc.	6100 Kc.	6675 Kc.	7125 Kc.	7700 Kc.
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All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI: Sundays, 1100 hours EST, 7146 Kc.; 2000 hours EST, 144 Mc. No frequency checks available from VK2WI. Intra-state working frequency, 7050 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 57.5 and 146.25 Mc. Intra-state working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5MD and VK5WI by arrangements on all bands to 56 Mc.

VK6WI: Sundays, 0930 hours WAST, on 7146 Kc. No frequency checks available.

VK7WI: Sundays, at 1000 hours EST, on 7146 Kc. and 3672 Kc. No frequency checks are available.

VK9WI: Sundays, 1000 hours EST, simultaneously on 3.5, 7, 14 and 144 Mc. Individual frequency checks of Amateur Stations given when VK9WI is on the air.

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Melbourne, C.I.

EDITORIAL



FIFTY AND OVER

Just three years ago Federal Executive were able to announce that the Postmaster-General's Department had approved of the issue of a new class of licence, the Technician's Licence, based on the Limited Amateur Operator's Certificate of Proficiency. The response to the new class of Certificate was most gratifying, particularly to those who had striven so hard to secure this additional privilege. Holders of the L.O.A.C.P. have been welcomed to the ranks of the Institute and have already made contributions to our literature and to our knowledge.

In Amateur circles, however, the v.h.f. region is generally assumed to start at the 50 megacycle point and it was a matter for some concern that the new class of licensees were not allowed to operate below 144 megacycles. In technique, the 56-60 Mc. band is a good starting point for v.h.f. Methods used in that band can give a helpful introduction to v.h.f. for the Amateur who has been brought up on the h.f. bands. Altogether, it is a very useful band.

Executive was particularly pleased, therefore, to be informed that the Postmaster-General's Department had accepted the representations of the Wireless Institute that the 56-60 megacycle band should be opened to holders of a license based on the L.A.O.C.P. This practical demonstration that the Administration is willing to listen to a case based on sound reasoning gives encouragement to Federal Executive in its efforts to carry out the policy of the Institute as formulated by the Federal Council.

With the participation of the full range of "fifty and over" by L.A.O.C.P.'s, as well as by A.O.C.P.'s, we can expect accelerated activity in the 56-60 Mc. band with consequent further advances in technique and experience. The urgency of thoroughly testing every band for emergency purposes in varying conditions will be helped by this welcome extension of Amateur activity.

FEDERAL EXECUTIVE.

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Modifying the AR7 Receiver

PART TWO

BY G. M. BOWEN,* VK5XU

From the brief description in Part One it should be apparent to all owners that the principles embodied in the design of this receiver are standard and shouldn't deter anyone from making the following modifications.

CATHODE BIAS AND R.F. GAIN CONTROL

In order to have a receiver which can operate under a very wide range of input voltages and which will remain stable, the last ounce of gain cannot be aimed at and a 1 watt resistor (R18) was connected between h.t. and the cathode bias bus-bar. This provided anything from 15-30 volts bias for r.f. and i.f. gain control and in my AR7 it gave a minimum of 5 volts when the potentiometer (R19) was supposedly shorted out—resulting in lack of sensitivity and poor a.v.c. characteristic. Hunt out this resistor and remove it—the range of working conditions encountered in Amateur QSOs does not require a cut-off bias.

CONVERTER

If the heater chain is still on 12 volts it is necessary to choose replacement valves with 300 Ma. heaters, hence the choice of an ECH35 for the converter stage. Remove the socket and replace with a good micanol or isolantite; discard the shield and earth No. 1 pin as usual to the chassis immediately beside the pin. Rewire the socket with the heaters above earth by-passed with good mica or ceramic capacitors—value is not critical.

The oscillator grid capacitor (C14, a 100 pF.) should be silvered mica (or ceramic with a zero drift coefficient) and the grid resistor (R12) a 1 watt, 50K ceramic of very low capacitance. Each component should be rigidly mounted to ensure mechanical stability.

The screen supply and the oscillator h.t. is obtained from a dropping resistor (R13) and is by-passed with a pair of capacitors (C18). To reduce the con-

* 73 Portrush Road, Toorak Gardens, S.A.

verter noise to a minimum, ensure that the group of four parallel 50K resistors is replaced with an equivalent 12.5K stabilised carbon resistor or group.

If the original power supply using the pair of 6X5GT valves is still intact, the h.t. supply is very stable and there is no need for a voltage regulator tube here. But it was found after the power transformer burnt out! (mainly due to failures of cathode-heater insulation of the 6X5s) and another inserted and the rectifier changed to a 5V4G, that on 21 Mc. and higher, the changes in h.t. due to a.v.c. action caused the oscillator frequency to vary unduly and a v.r. tube was necessary to stabilise the h.t. at 100 volts. A VR105 will fit under the chassis quite easily.

R.F. STAGES

The above simple straight-forward alterations should improve the signal-to-noise ratio quite a bit and the next move is to provide a good hefty signal to the converter, as free of valve and component noise as possible. The AR7 has two r.f. stages from which this ideal can be achieved, believe it or not ye cynics.

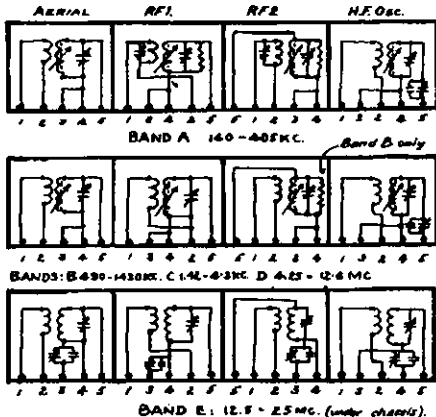
Let us discuss the function of each stage as we need it to operate. First the aerial coupler, first r.f. valve stage. Here we need all the gain that it is possible to achieve so the logical choice will be a tube with a Gm well above 7,000. The RL7 or EF54 gives this with an equivalent noise figure of 700 ohms or less. It has the disadvantage of hav-

ing a sharp cut-off, but in practice this has not been found to be a handicap, except when my two next door neighbors—VK5ZY and VK5TD—start up and modulate all the signals

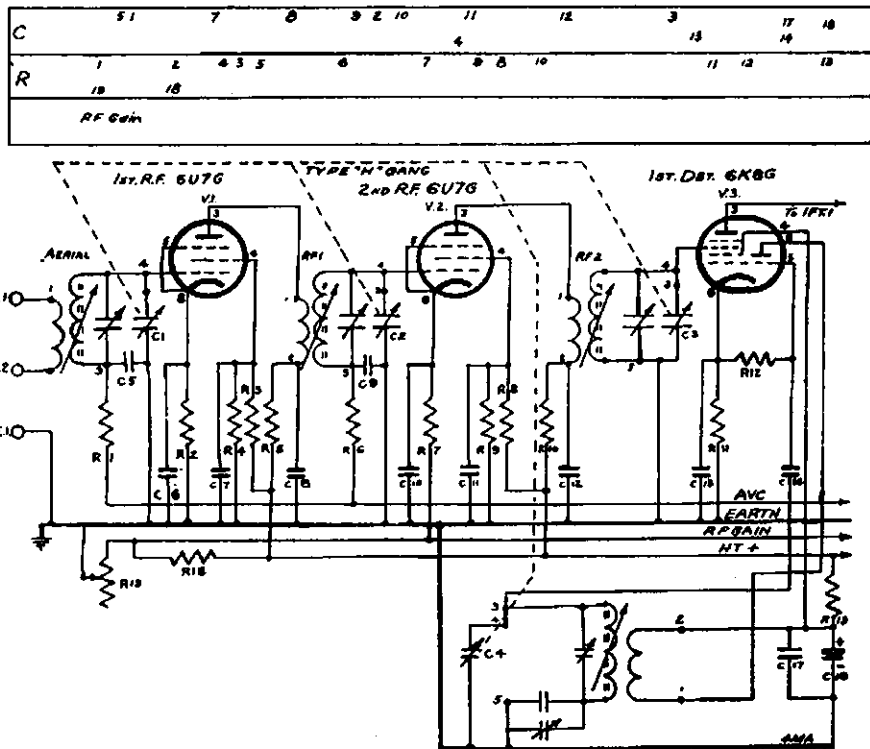
Remove the octal socket and replace with a micanol nine-pin octal located with the grid pin nearest the coil container. Rewire heaters and by-pass the outer lead to earth as for the converter. Solder a small shield across the socket to isolate the output circuit from the input grid leads. The cathode resistor of 150 ohms—carbon—1 watt—is next wired and ceramic miniature by-pass 2,200 pF. capacitors attached to cathode and screen pins. A decoupling resistor of 1 to 2K is included in the screen lead from the h.t. bus-bar. A handy feature of this tube (like the EF50) is the 250 volt screen operating voltage. The suppressor is internally connected.

Remember that to get high gain it is necessary to have very closely spaced elements and therefore any voltage which may be applied from the transmitter accidentally will damage the tube within seconds. Therefore, include a self-bias cut-off protection by including a 100 pF. capacitor between the coil connection and the grid pin, and a 1 megohm 1/2 watt to earth. This circuit is a standard connection in Service equipment and as there is no a.v.c. applied to this stage now, it is a very wise precaution to take.

Drill a hole in the front panel, at the same level as the noise limiter control but on the left hand side of the



AR7 Coil Box Connections.



tuning dial, to take a small variable capacitor for an aerial tuning control. Any type will do here, but it should have a maximum value of 100-150 pF. to be able to accommodate the change across the tuning range. Connect this across the coil—not across the tuning gang—and when re-aligning these stages set it at half value. Don't be frightened by the fact that the stage may "take off" when a high impedance aerial is used—detune slightly and still get the greatest gain possible.

Now, what about the second r.f.? Well, having obtained maximum gain from the first r.f. at the expense of some selectivity, due to the low input impedance of the RL7, we should aim to get as much selectivity as possible to reduce second channel interference. With the coil circuitry as it is, this requires a valve with a high impedance input and the 6U7G or the 6K7G will fill the socket hole very nicely here. There is no point in going for gain in this stage as the signal-to-noise ratio is going to be determined in the first r.f. stage primarily. If single ended tubes are favoured it may pay to experiment with a semi-remote cut-off tube like the 6SG7. However, the a.v.c. line would then have to be modified to limit the action to a shorter operating base.

One further modification creates operating ease rather than improved signals. A small single pole single throw toggle switch can be easily mounted in place of the "a.v.c., b.f.o." one already there, and a further one mounted immediately above provides separate controls for the a.v.c. and b.f.o. which is an added advantage in most circumstances. Since the a.v.c. is derived from a connection to the primary

of the third i.f.t. very little b.f.o. signal gets into the rectifier diode and with the r.f. gain control reduced it is hardly ever necessary to cut-off the a.v.c. when receiving c.w. The a.v.c. is obtained from a delayed action circuit anyhow.

A final word about the wiring of the first r.f. stage. Don't forget to remove the a.v.c. decoupling resistor R1 and condenser C5 and earth position 5 on the coil contactor strip.

Re-alignment of each coil box will now be necessary. Follow the instruction book or the text in Part One of this series. In order to get the antenna trimmer capacitor to resonate the coil over the range of the tuning required, it may be necessary to remove the slug from some coils or disconnect the coil trimmer in Band E.

APPENDIX

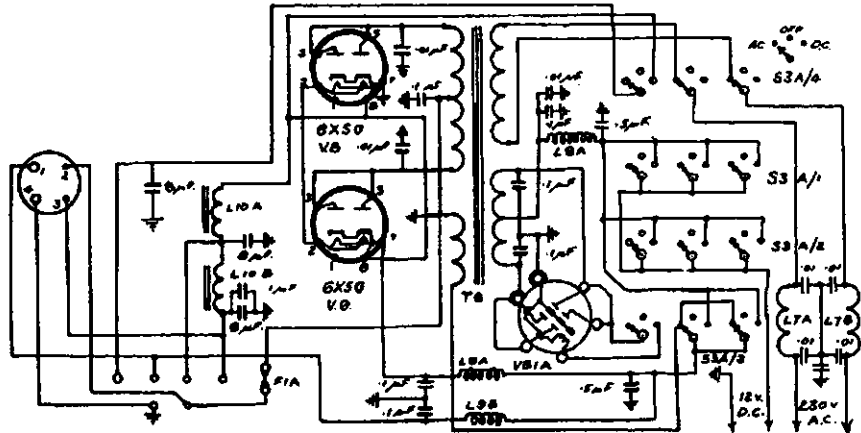
EF54-RL7 high slope r.f. pentode (VR136):

Socket: B9G octal nine-pin.
Heater: 6.3v. 0.3 amp.; Ep 250 volts;
Eg2 250 volts; Ip 10 Ma.; grid bias -1.7 volts; gm 7.7 Ma/V; Plate resistance, 500K.

Socket connections—

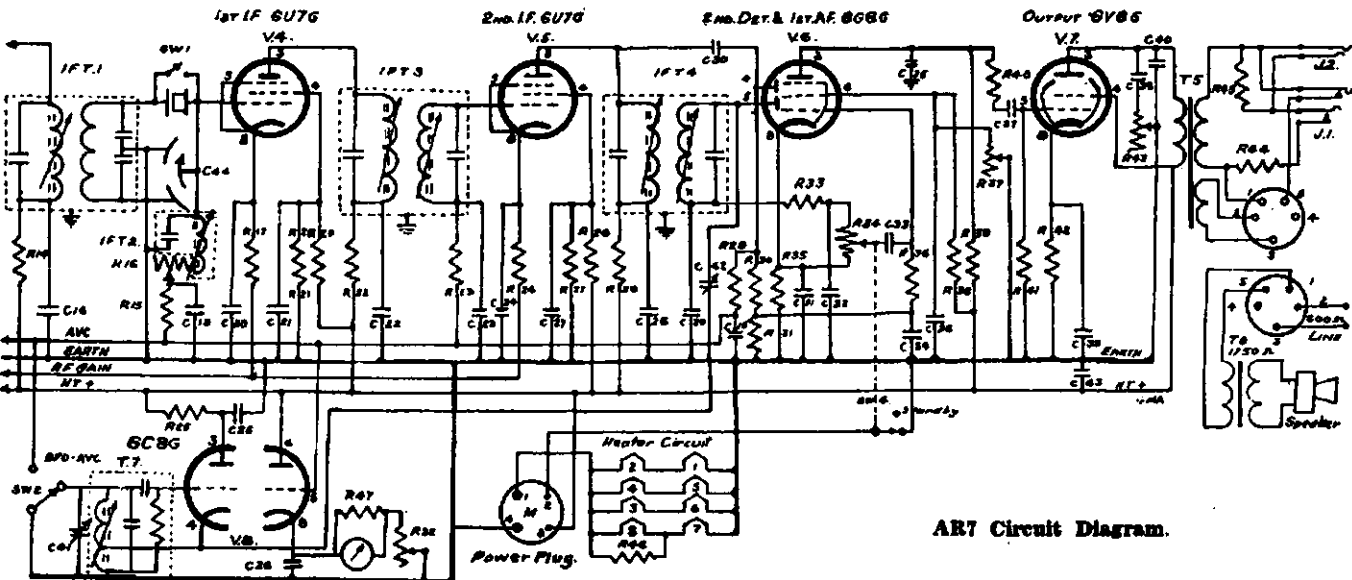
- 1—Heater.
- 2—Plate.
- 3—Screen grid.
- 4—Cathode-suppressor.
- 5—Cathode.
- 6—Control grid.
- 7—Cathode.
- 8—Cathode.
- 9—Heater.

Where by-passing is required, connect capacitors with as short leads as possible directly to the chassis at the nearest point.



AR7 Power Supply.

C	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	C
R	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	R
	BFO-AVC		Kial On-Off		"S" Meter		Audio Gain				Noise Limiter		Tone											
	Trimmer		Sensitivity		Adjust.		Stand-By																	



AR7 Circuit Diagram.



Although in principle a large number of circuits can be obtained by combining grounded emitter, grounded base or grounded collector configurations with transformer or R-C coupling, in practice transistor audio amplifiers tend to follow a simple pattern. A typical circuit can be considered to have grounded emitter stages in cascade, with R-C coupling, and with d.c. stabilisation provided by the potential divider and emitter resistor method.

The maximum power gain available with perfect matching (and transformer coupling) when the effective load resistance

in the collector circuit $R_L = \sqrt{r'_{22} \cdot r'_{out}}$ and the effective

source resistance $R_s = \sqrt{r'_{11} \cdot r'_{in}}$ is

$$\left(\frac{a'}{\sqrt{r'_{11}} + \sqrt{r'_{in}}} \right)^2 \cdot r'_{22}$$

R-C coupling is preferred generally to transformer coupling for low cost and phase shift and good response, but the power gain of each stage then arises solely from the inherently high current gain of the grounded emitter stage, and the higher gain which would be available by impedance matching with the transformer is not achieved.

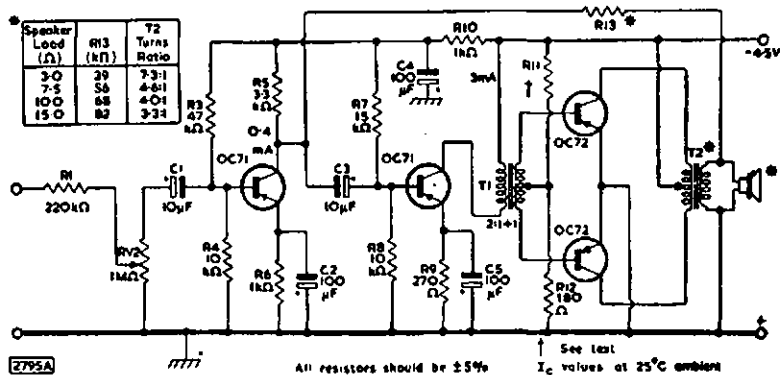
The factors entering into the design of an R-C coupled transistor cascade are not difficult to appreciate; many of them are similar to those encountered when working with valves. The collector voltage and current are limited by d.c. ratings $V_{c,max}$ and $I_{c,max}$, and by a.c. ratings $V_{c(pk),max}$ and $I_{c(pk),max}$. For high gain and output power the battery voltage should be high, but a lower voltage and hence smaller current drain is more economical. The high value of collector load resistance required for maximum gain cannot be obtained with R-C coupling, as there is no advantage in making the collector load very much greater than the effective parallel input impedance of the next stage. In addition, the load resistance and collector current determine the voltage available across the transistor, which is also reduced by the emitter resistance included for stabilising. The collector current should therefore be small so that a large collector load resistance can be used; on the other hand a large collector current swamps the variation in collector leakage current $I_{c(0)}$ with temperature.

After allowing for these various conflicting claims, the number of stages is chosen to give the required overall gain when feedback is applied. Since the signal swing in the early stages is small, the d.c. working point can be chosen for low

current drain (and noise), provided they have potential divider and emitter resistor d.c. stabilisation. The power gain in the grounded emitter R-C coupled stage can be calculated from $(a')^2 R_L / r'_{in}$, the a.c. current gain being a' and the voltage gain $a' R_L / r'_{in}$. This expression assumes that R_L is very much smaller than r'_{22} and r'_{out} .

Here, a' , r'_{in} , etc. are Small-Signal parameters given in published data and computed for the working point employed. As the load on an R-C coupled stage is formed by its collector resistance in parallel with the input resistance of the following stage, the power and voltage gain for each stage can be calculated by working backwards through the cascade.

Class AB push-pull operation in which the bias corresponds very nearly to that for true Class B operation is a natural choice for the output stage when a transistor amplifier is to be designed as a power amplifier, that is, to give the highest output power permitted by the collector dissipation $p_{c,max}$, without objectionable distortion. The quiescent power consumption is very small and the efficiency is high. The Mullard OC72 is intended for this mode of operation. An actual circuit is shown in the diagram, the output power being 200mW for 10% total harmonic distortion for an input of about 6mV at C1 or 500mV at R1. Negative feedback is applied over the driver and output stages by R13, which is matched to the loudspeaker. A small amount of bias is provided to the OC72's by the potential divider R11-R12, which is effective in reducing the



high crossover distortion inherent in a true Class B transistor output stage.

The value of R11 must be chosen from the range 6.8, 6.2, 5.6, 5.1, 4.7, and 4.3kΩ so as to adjust the total quiescent current in the output stage to 1.3mA ± 10% at 20°C or 1.6mA ± 10% at 25°C. The operating ranges with speech and music are 15°C to 45°C ambient temperature and 4.5V to 2.7V (or even 2.0V, depending on the distortion tolerated by the listener).

MULLARD ALL-TRANSISTOR AMPLIFIER - TRANSFORMER DETAILS

Interstage Transformer

"C" core, 0.004 in. strip, English Electric HWR 4.5/5.
Window length and breadth = 11/16 in. x 5/16 in.
Strip width = 5/16 in.; Build-up = 5/16 in.
Length of flux path = 2.93 in.; Net area = 0.09 in.²
Primary: 2000 turns of 38 s.w.g. enamelled copper wire. D.C. resistance = 144 ohms.
Secondary: 2 x 1000 turns of 38 s.w.g. enamelled copper wire.
D.C. resistance = 60 ohms ± 75 ohms.
Shunt inductance = 10H with primary current of 3mA d.c.

Output Transformer

"C" core, 0.004 in. strip, English Electric HWR 30/8/5.
Window length & breadth = 2 in. x 1 in.
Strip width = 3/8 in.; Build-up = 3/8 in.
Length of flux path = 6.34 in.; Net Area = 0.178 in.²
Primary: 2 x 360 turns of 23 s.w.g. enamelled copper wire.
D.C. resistance = 1.45 ohms ± 2.45 ohms.
Secondary (for 10 ohms load): 180 turns of 20 s.w.g. enamelled copper wire.
D.C. resistance = 0.57 ohms. Shunt inductance > 0.5H.



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An Effective Low-Power 144 Mc. Transmitter or Exciter

BY V. KERB,* VK4LK

IN breaking into the 144 Mc. field, one has a veritable wealth of technical material to comb for ideas and inspiration, however when it comes to actual results, these have in some of my "set-ups" not been in keeping with that claimed for them by the various writers.

While our American counterparts are very prone to the miniature twin triodes for crystal oscillator and frequency multiplying stages, I am afraid in my experience I cannot share their enthusiasm for these smaller tubes. They certainly will provide the frequency required, but not enough r.f. is available to be of much practical use for driving a tube that will generate a reasonable amount of r.f. at 144 Mc. for a final as the case may be.

The line-up in this unit is a 6AQ5 (8 Mc. xtal) and tripling to 24 Mc., a 6BJ5 tripling to 72 Mc., a 5763 doubling to 144 Mc., and a 6146 running straight on 144 Mc. Using the 6146 as per the manufacturer's recommended conditions, this unit will provide an honest 25 watts of r.f. output, and modulates well without any instability or nonsense. Naturally the r.f. feedback through the modulator is another problem and I should think one in which every case would be an individual in the matter of getting rid of it.

The unit is built on a 15" x 5" x 2½" chassis with a 5" x 4" partition to mount the 6146 horizontally. This partition is mounted 7" in from one end. With the exception of the split-stator or butterfly condenser used in the final plate tuning of the 6146, all other variable capacitors are 3-30 pF. Philips' concentric trimmer types.

All components and tuning circuits up to 72 Mc. are kept below the chassis.

The inductive coupling arrangement in the plate circuit of the 5763 is above the chassis and has the shield partition between it and the 6146. Pin 5 connection of the 6146 socket being so arranged the end of the inductance goes via a small ceramic bushing direct, giving the absolute minimum of lead length. The 1 watt resistors (1,000 ohm 5763 plate, and 22,000 ohm 6146 grid coil) come up through the chassis via ¼" holes drilled in the chassis at the appropriate points. The screen dropping resistor for the 6146 is made from four 100,000 ohm 1 watt resistors in parallel. The v.h.f. chokes used in the screen of the 6146 and plate circuit are some by Eddystone, being wound on a ¼" diameter rod with a fine gauge (approximately 28) wire, are spaced to cover about 1¼" of winding length.

The connections numbered 1-4-6-7-8 of the 6146 socket are brought out via separate pieces of 22 gauge tinned wire to a common tie point provided by a piece of copper strip ¾" wide and positively soldered to the chassis as close

and conveniently as possible to the socket of the 6146.

One would think the shield partition would provide a sufficiently low impedance path for r.f., however on initial trial misbehaviour of the 6146 suggested this line of action.

Likewise pin 8, which is the metal ring around the base of the 6146. A single connection here was not good enough and a piece of phosphor-bronze strip was soldered to the chassis so that it applied a reasonable amount of

to operate the 6146 under modulated conditions.

In my own case the unit is used as an exciter for an 829B stage. Those who have used an 829B will appreciate it wants its share of grid drive to work effectively, and with the unit used as an exciter with 300 volts common to all stages it is possible to get 18 Ma. of grid drive on the 829B grids (unloaded); the usual 12 Ma. as recommended for the 829B is easily obtained using a link line between the 6146 and the

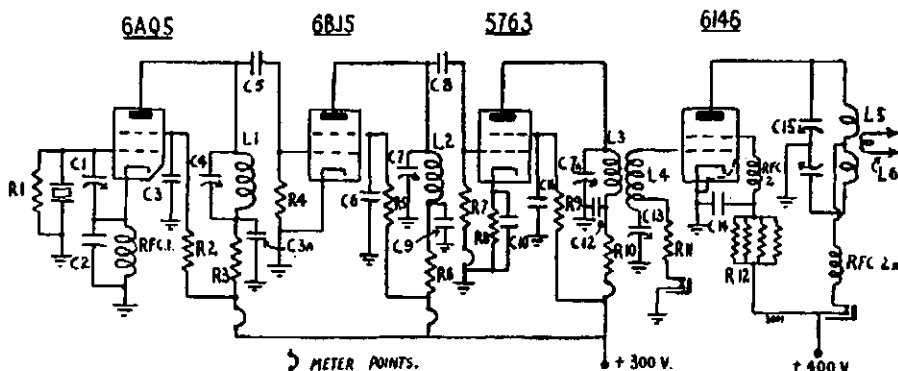


Figure 1.—144 Mc. Transmitter.

- C1, C4, C7, C13—3-30 pF. trimmers.
- C2, C5—50 pF.
- C3, C3a, C6, C9, C10, C11, C12, C14—0.001 uF.
- C8—25 pF.
- R1, R5—47,000 ohms.
- R2—10,000 ohms.
- R3—3,000 ohms.
- R4—0.1 megohm.
- R6, R10—1,000 ohms.
- R8—100 ohms.
- R9—33,000 ohms.
- R11—22,000 ohms.
- R12—Four by 0.1 megohm.
- RFC1—2.5 mH.
- RFC2, RFC2A—See text.

- L1—12 turns No. 22, ¼ inch diam., spaced over ¼ inch.
- L2—3 turns No. 18, ¼ inch diam., spaced over ½ inch.
- L3—2 turns No. 18, ½ inch diam., spaced ¼ to ½ inch.
- L4—4 turns No. 18, ½ inch diam., spaced ½ inch, tapped at centre with 22,000 ohm resistor.
- L5—4 turns No. 16, ¼ inch diam. with ½ inch gap at centre, each 2 turn section spaced ¼ inch between turns.
- L6—3 turns, ¼ inch diam. for 300 ohm line feed; 2 turns probably sufficient for 75 ohm line.

spring tension to the metal ring of the 6146. These measures were all that were required to tame the 6146.

The split-stator or butterfly condenser (15-15 pF.), as used in the plate circuit of the 6146, could well be a little wider spacing than the usual for this type, as on really applying the modulation sparking over between plates is evident. If used as an exciter normal spacings are ample.

The metering points on the circuit diagram are two lugs of an insulated lug strip, which can be bridged after metering is complete with a soldered joint. They allow the various circuits to be tuned to resonance and once adjusted need no further attention.

Using 300 volts on the 6AQ5-6BJ5-5763 stages, the maximum grid drive at the grid of the 6146 is 2½ Ma. with the 6146 unloaded. With 400 volts on the 6146 and loaded to 150 Ma. input, as measured at the jack as shown on the diagram, the grid drive falls away to round 1½ Ma. This seems to be ample

grids of the 829B (inductive coupling in all cases). The inductive coupling between the plate of the 5763 and grid of the 6146, the two coils L3 and L4 (edge turns) finish up almost touching over the greater part of the first turn in each case. These coils are mounted with their "cold" ends to one another.

POSTMASTER GENERAL'S REPLY TO QUESTION

In reply to a question by Mr. Brimblecombe (C.P., Qld.), The Postmaster General, Mr. Davidson, said in the House of Representatives on Thursday, 9th May:

"There was no serious interference by commercial operators of the frequencies allocated to amateur radio operators and there was no need for alteration of the present frequency allocation."

—Extract from the Melbourne "Herald," 9/5/57.

* Box 180, Charters Towers, Qld.

Approach to Conversion

BY N. BURTON,* BERS11494

MANY Amateurs influenced by glowing stories and accounts of converters decide to build one for use ahead of their receiver and after spending a considerable amount of time, trouble and money, are very disappointed with the results. This state of affairs occurs far oftener than is generally realised and results from the lack of complete appreciation of the problems involved.

There are a large number of pitfalls and we cannot do better than construct a mythical converter in order to find them. Let us therefore build a converter to cover the range 45 to 100 Mc. Such a range seems enormous at first sight, but a little thought will show the tuning range is only a ratio of 2:1 and quite normal. Our converter has to have an r.f. stage, a mixer and separate oscillator, employ ganged tuning and have a good dial. This latter should be regarded as a "sine qua non" in any event.

The next step is to decide the i.f. to be used. It is here that the first trouble arises. Many articles speak airily of using an i.f. of 7 Mc. This is chosen as a good compromise against images and yet preserves the good amplification needed. This being so, one plunges in recklessly whereas what one should do is to have a good listen round on the receiver to be used as the i.f. on the chosen frequency with the aerial and earth terminals strapped together to see what can be heard; in most cases it will be plenty.

Having thus found that 7 Mc. is not suitable as an i.f., it is necessary to try another; 10 Mc. is often suggested. Here again the same procedure must be followed. It is quite likely that this will be equally unsuitable.

What are we to do then? The answer is to get down to some investigation. To do this, attach a very short piece of wire, say about 12 inches long, to the aerial terminal of the receiver and starting at 7 Mc. tune slowly downwards in frequency until you come to a band of clear frequencies about 200 Kc. wide. It is suggested this be done after dark as daylight searches can lead to disappointment later.

By the time you reach such a spot you will be in the region of 3 Mc. in all probability. At this point refrain from rubbing the hands together and deciding on 3 Mc. A little reflection will show that if this frequency is chosen then it will be impossible to use a frequency standard of 100 Kc. or multiples thereof because of possible break-through. The correct thing to do is to off-set the proposed i.f. by 10 or 20 Kc. from 3 Mc. You are now in a position of having a satisfactory i.f.

It may be argued that 3 Mc. will allow images at spots. This is true, but the images are very few and in the rare event of them falling into the pass-band of a received signal, it is quite easy to shift the i.f. (that is the main receiver tuning) by a shade, when the signal will move one way and the image the other.

As far as the two Amateur bands in the compass of our converter are concerned no image troubles will occur.

A point in favour of this lower i.f. is that there is ample gain available and there is no need to run the receiver used as the i.f. flat out. This results in an improved signal-to-noise ratio.

Having satisfactorily dealt with the choice of i.f., it now remains to investigate the oscillator of the receiver to be used as i.f. Many receiver oscillators are excellent low power transmitters. They should not be but they are, and this being so, the oscillator will radiate harmonics and these harmonics, if strong enough, will get into the front end of the converter and give rise to "birdies."

It is necessary here to procure by any means possible a second receiver, preferably of the det. plus 1 i.f. type as these give excellent results and eliminate anomalies that can occur if a superhet is used. With the second receiver operational, attach again a short length of wire to the aerial terminal and switch on the receiver to be used as i.f., setting the dial to the proposed i.f. Starting at the second harmonic of the oscillator, listen progressively higher to each harmonic. The early ones will be fairly strong, but by the time you reach the 21 Mc. band they should be getting weaker and at 28 Mc. should be either inaudible or almost so. If they are not, then the i.f. receiver must have attention. This may seem hardly necessary, but I would point out that one very popular communication receiver radiates harmonics of such strength that it is almost impossible to use a converter ahead of it. The same receiver will cause, through harmonic radiation, t.v.i. at 75 yards

Should you find the i.f. receiver radiates strong harmonics steps should be taken to reduce them by reducing the plate volts on the oscillator, adding extra shielding and if necessary a trap or filter in the cathode circuit. These harmonics can be attenuated to a sufficiently low level without upsetting the operation of the receiver. Once this point is cleared the construction of the converter may be commenced.

As regards the actual construction of the converter all normal precautions should be taken and then the refinements may be included. It is advantageous to by-pass each valve at the heater pins with a 1,000 pF. condenser; excellent ceramic condensers of very small size are available. In addition, the heater leads should be by-passed at point of entry to chassis. The high voltage line should be dealt with likewise and all anodes decoupled. Inter-stage screens between all stages are recommended and injection of the heterodyne can, with electrical and mechanical advantage, be via a 1 pF. condenser bridging the stator tags of the mixer and oscillator sections of the three-gang tuning condenser.

The anode lead of the mixer should be through shielded cable to the output i.f. transformer and the shielded cable bonded to the chassis at each end.

A supply voltage of 130 volts is ample. This will drop to about 110 volts on load, assuming a valve line-up of 6AK5-6AB4-6C4. As to alignment, this presents no difficulty and can be done with no power applied by means of a g.d.o. The coils should be carefully made originally and as alike as possible with a result that tracking is easier. Tackle the oscillator first and set it to cover the range 48 to 103 Mc. or so. Next tackle the other two coils and set these to cover 45 to 100 Mc. This can be done by careful spacing of the turns. When tracking is good at both ends of the dial, check at other points. It may be found odd spots are a bit off, but if the tracking as a whole is good the broadness of the circuits, inescapable on these frequencies, will compensate.

Don't forget to resonate the i.f. output transformer to the chosen i.f. The power may now be applied, but before doing so disconnect the ground end of the oscillator grid leak and connect it to chassis via a 0-1 Ma. meter. Swing the tuning condenser through the range and observe the grid current. It should be without violent fluctuations; if it is not, adjust the plate supply, cathode tap, and feedback condenser. It is possible to get it very smooth over the range with obvious advantages.

Once this is done and the resistor resoldered, it is suggested that a close fitting bottom be fixed under the chassis, a metal dust cover over the three-gang tuning condenser, and a box shield over the valves. The final appearance is then of boxes fixed together. This airtight shielding in practice assists stability. The cabinet should likewise be as airtight as possible.

The unit can now be connected up to the i.f. receiver via a shielded cable and should perform like any simple well-built super, that is without birdies or whistles. As an aside it is wise to connect the grid of the 6AK5 to the coil via a 100 ohm grid stopper as the 6AK5 needs little encouragement to take off. This can be done in the actual construction. It is not necessary to use a stabilised power pack. The writer has a converter built on lines of the above and although the power supply is unstabilised the frequency drift from switching on cold to five hours later is within the audio passband anywhere in the range 47-103 Mc. and with speech being received.

It would be as well to clear the point levelled at tuned converters that they are too prone to deliver a note not T₉. If the converter is built as outlined, it will give a T₉ note. If it does not, the fault is generally in the receiver used as i.f. channel. It is suggested in cases where a T₉ note is not obtained that another receiver be tried as i.f., or better still, several. It will be found invariably, assuming the converter is soundly made, that it is possible to find one receiver which will give a T₉ note. As to why this happens is obscure, but the passband of the i.f. seems to have some effect. The writer gets a T₉ note with the receiver used as i.f., but by

* 130 The River Road, Revesby, N.S.W.

changing to another receiver the note drops to T7 or 8. The i.f. passband of the first receiver is slightly wider than that of the second.

It will not be out of place to mention here crystal controlled converters. These are held up as the acme for the Amateur. The writer does not agree. The crystal controlled converter is a valuable device, but for the home station of the Amateur it is completely unsuited. This may sound dogmatic, they cannot be otherwise, and being broad-band they are noisy. Noise can be reduced most effectively by reducing the bandwidth, to obtain this broad-band and keep it constant, it is usually necessary to stagger tune the various circuits and this reduces the gain. The oscillator is stable, naturally, being a crystal, but that crystal is oscillating at a lower, much lower, frequency than is needed for mixing and mixing is accomplished by using one of the many harmonics produced.

Now these harmonics, that is the unwanted ones, get into the front end of the converter and it is almost invariably the case that the receiver tuned as i.f. has birdies. This is not to be wondered at as on, say, 144 Mc., the receiver must tune 4 Mc. of its range. To eliminate this, recourse is had of picking the right crystal. This is not easy and even when a frequency has been chosen, it is usual for some birdie to appear. These arise, if not from the harmonic direct, as a product of the oscillator harmonic from the i.f. re-

ceiver and the crystal oscillator. It is quite clear that such a device is hardly satisfactory.

In addition to these worries there is the leak-through of signals at the tuning frequencies of the receiver used as i.f. Very few receivers are free from signals of this nature even when connected through shielded cable to the converter i.f. coil. The writer has not encountered many which possessed any degree of sensitivity; they were invariably lacking in gain. In many years of handling receivers the writer has only encountered one receiver of a high degree of sensitivity which brought in nothing when no aerial was connected.

There is no excuse for crystal controlled converters at the home station. These remarks regarding birdies apply especially to v.h.f. crystal converters. It is just as easy to make a fully tuned converter and far more satisfactory.

This idea of converters can be extended to wide limits if a little common sense is applied. Let us take to construction of an Amateur communications super with a high degree of selectivity. One may have an all-range receiver which has an i.f. of say, 1,600 Kc. The selectivity is not now good enough. To improve things here the valves in the back end can be removed from the second detector onwards leaving power available for other things. The i.f. is now tapped at the plate of the second or third i.f. stage by twisting a one-turn loop round a plate lead. This one-turn loop feeds into a Command receiver covering the range 1.5-3 Mc. This has an i.f. of 750 Kc. The i.f. of this receiver is similarly tapped and fed

into, say, a mantel radio, also with the valves in the back end removed. The 455 Kc. output from this is then fed into a BC453. Such a combination is easy of construction and providing the coupling in the BC453 is adjusted to maximum, by removing the knurled caps on the i.f. coils and pulling the thin square plastic bar made visible gently upwards to its maximum travel, is very selective.

If even greater selectivity is needed the i.f. coils of the mantel receiver can be removed, sawn in half and replaced in the can with the coils at right angles. This gives a very sharp skirt.

No trouble should be experienced on the i.f. Amateur bands with birdies from such an outfit. Many of the fixed tuned channels can be parked under the bench and such things as noise limiter, etc., placed in spots where maximum efficiency can be obtained. This means, of course, plenty of grid volts. Such a receiver may seem impossible, but there is one such working in Sydney. As no part of it has to run "flat out," it is very quiet in practice and its selectivity is beyond reproach. It can be stated with confidence that it will hold its own with any modern American communications receiver.

One concluding point about these double, triple and quadruple conversion receivers is to make sure the different i.f.s. used are not too closely related harmonically and also bear fully in mind the earlier remarks about the amplitude of the oscillator volts in the various frequency changers. It assumes great importance in multiple conversion.

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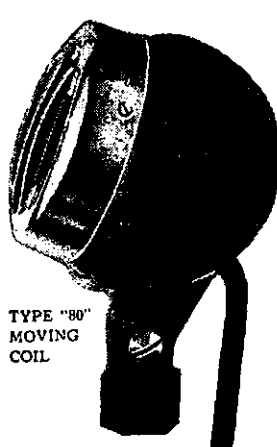


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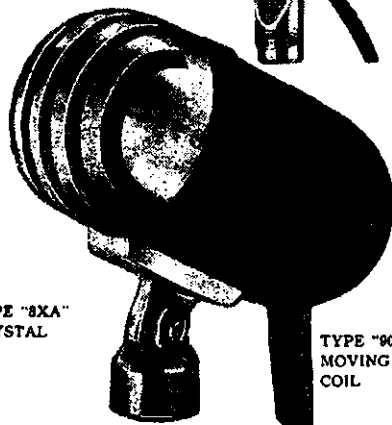
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REMEMBRANCE DAY CONTEST, 1957

The Federal Contest Committee of the Wireless Institute of Australia wishes all Australian Amateurs and Short Wave Listeners to participate in the annual contest which is held to perpetuate the memory of those Australian Amateurs who gave their lives for their country during World War II. It is held on the week-end nearest to the 15th August, the date on which hostilities ceased in the S.W.P.A.

A handsome Perpetual Trophy is awarded annually for competition between States, inscribed with the names of those who made the supreme sacrifice, and so perpetuating their memory throughout Amateur Radio in Australia. The name of the winning Division each year is also inscribed on the Trophy. In addition the winning Division will receive a suitably inscribed framed photograph of the Trophy.

Objects: Amateurs in each Call Area (this includes those in Australian Mandated Territories and Australian Antarctica) will endeavour to contact Amateurs in all other Call Areas (VK1 and VK2 are considered to be one Call Area).

Date of Contest: 17th-18th August, 1957.

Duration: From 1800 hours E.A.S.T. on 17th August, 1957, to 1759 hours E.A.S.T. on 18th August, 1957. A period of 15 minutes silence will be observed by all stations on 17th August, immediately prior to the start of the contest when an appropriate broadcast will be made from VK3WIA and relayed by the Divisional Stations.

RULES

1. There shall be four main sections to the Contest:

- Transmitting phone.
- Transmitting c.w.
- Transmitting open.
- Receiving phone and c.w.

2. All Australian Amateurs may enter for the Contest whether their stations are fixed, portable, or mobile, but only members of the W.I.A. are eligible for awards.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. Amateurs may enter for one of the above sections listed in Rule 1. An "open" log will be one containing both phone and c.w. contacts.

5. Only one contact per station per band is allowed and arranging schedules for contacts on other bands is not permitted.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign.

Contestants operating stations other than their own shall be referred to, for the purposes of these rules, as "substitute operators."

Their operating procedure will be as follows:

Phone contacts: Substitute operators will call "CJ Remembrance Day" followed by the call sign of the station they are operating, and the word "log" followed by their own call sign.

C.W. contacts: Substitute operators will call "CQ RD de" followed by the group call sign comprising the call sign of the station they are operating, an oblique stroke, and their own call sign.

Contestants receiving signals from a substitute operator will qualify for points by recording the call of the substitute operator only.

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points may be claimed for a contact serial numbers must be exchanged and acknowledged. The serial number of 5 or 6 figures will be made up of the RS (telephony) or RST (c.w.) reports plus three figures which may begin with any number between 001 and 100 for the first contact and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number must be 054, for the third 055 and so on. If any contestant reaches 999, he will start again with 001.

9. **Entries:** Entries must be set out as shown in the example, using only one side of the paper. Entries must be postmarked not later than 7th September, 1957, and addressed to the Federal Contest Committee, W.I.A., Box 1234K, G.P.O., Adelaide, South Aus.

10. **Scoring:** Scoring will be based on the table shown.

SCORING TABLE

	To							
	VK0	VK1-2	VK3	VK4	VK5	VK6	VK7	VK9
From	VK0	6	6	6	6	6	6	6
	VK1-2	6	1	2	3	5	4	6
	VK3	6	1	3	2	5	4	6
	VK4	6	1	2	3	6	5	4
	VK5	6	2	1	3	5	4	6
	VK6	6	1	2	4	3	5	6
	VK7	6	2	1	4	3	5	6
	VK9	6	1	2	3	4	5	6

Note.—Read table from left to right for points for the various call areas.

11. **Logs:** All logs shall be set out as in the example shown and in addition will carry a front sheet showing the following information:

Name..... Section.....
Address..... Call Sign.....
Claimed Score.....

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.

Signed.....
Date.....

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards:** Certificates will be awarded to the winners of the phone, c.w., open, and receiving sections in each call area (Northern Territory will count as a separate call area). There will be no outright winner for Australia. Further certificates may be awarded at the discretion of the Contest Committee.

The State to which the Perpetual Trophy will be awarded shall be determined in the following way:

To the average of the top six logs shall be added a bonus arrived at by multiplying this average by the ratio of valid logs submitted by that State to the total of Amateur Licensees in the Division at the time of the Contest.

$$\text{Example: Total points} = \text{Aver. Score} \left\{ 1 + \frac{\text{No. of Logs}}{\text{No. of Licensees in Division}} \right\}$$

Logs acceptable for the multiplier shall show at least five valid contacts in the Contest.

The Trophy shall be forwarded to the winning State in its container and will be held by that State for a period of 12 months.

RECEIVING SECTION

1. The rules are the same as for the transmitting section and is open to all Short Wave Listeners in Australia. No transmitting station may enter this section.

2. Contest times and logging of stations on each band are as for the transmitting section.

3. To count for points logs will take the same form as for the transmitting section, but will omit the serial number received. Logs must show the call sign of the station heard (instead of worked), the serial number sent by it and the call sign of the station being called.

Scoring will be on the same basis as for transmitting stations. It is not sufficient to log a station calling CQ.

4. A station heard may be logged only once for each band.

5. **Awards:** Certificates will be awarded to the highest scorer in each call area. Further certificates may be awarded.

EXAMPLE OF TRANSMITTING LOG

Date/Time E.A.S.T.	Band	Emission	Call Sign	RST/NR. Sent	RST/NR. Rcvd.	V.H.F. Bonus	Points Claim.	Blank

NOTE.—The standard W.I.A. Log Sheet can be used to follow the above form.

EXAMPLE OF RECEIVING LOG

Date/Time E.A.S.T.	Band	Call Sign Heard	RST/NR. Sent	Station Called	V.H.F. Bonus	Points Claim.	Blank

NOTE.—The standard W.I.A. Log Sheet can be used to follow the above form.

DX ACTIVITY BY VK2QL†

Two new contributors this month give a greater coverage for these notes, namely VK0AB and VK9DB, and whilst on the subject, congratulations to Doug, on his showing in the 1956 VK-ZL Contest.

NEWS AND NOTES

VK0AB is able to operate on 7 to 28 Mc. and shortly he and I plan to explore 3.5 Mc.

UA0KSI is reported to be operating from Wrangel Is. on 7 Mc. (2DI).

VK2AIR will handle QSLs for **W9LL**.

3W8AA is telling many contacts to QSL to **VK2AIR**, but as yet Alan has no cards from Phan for distribution.

W4DQA/KS4 from Swan Is. is active on Mon., Wed., and Fri. in the American phone band and is expected to be there for six months (5WO).

HH2LD is holidaying in his home land after being Haitian Ambassador to Panama. His Panama call is **HP1EH** (5WO).

VP5DS, Grand Turks is active on 14 and 21 Mc. (5WO).

CN2DM was previously **KT1DM**, but the **KT** prefix is no longer being used.

ACTIVITIES

3.5 Mc.: 2QL: 3W8AA.

7 Mc.: 2AIR: W*, 2AMB: VK9AD. 2QL: UB, LUIVV, EA1, EA6AF, BE8195: DUTSV, KP-4DH, ZS6CH. Rod de Balfour: VE5LI, KV4AA, KH8, JA, W.

14 Mc.: 0AB: UC2KAA*, LA1VC/G*, TFF5TP*, Z5TC*, FB8ZZ*, VP8AO*, SV0WR*, OY1R*, OY7ML*, VK0JP*, VK0JD*, VK0AS*, VK0ZM*, VQ5GC*, VQ2GW*, UF8AC*, UO8AA*, UI-8KAA*, E14A*, CX1BZ*, ZC4JK*, UJ8AF*, UR2AK*, VP8CS*, ZELJH*, FB8CC*, 9S1AX*, HZ1HZ*, VQ4GP*, Y0SRD*, 3W8AA*, OQ5RU*, CR7CK*, ZK2AB*, 2AIR: IIBNU/Trieste*, FG-7XC*, KC4USV*, KP4CC*, 2AMB: VP8CI* (Grahamland), CX1BO*, CX2CO*, SPIKAA*, KR6SS*, ZS6DE*, ZL5AA*, HK3TE*, FB8YY*, HH2LD*, CR6AI* (0800z), OA4AI*, CR7CI*, CR7LZ*, KZ*, LAITE*, PJ2ME*, VE3CMP/VO1*, VP6LN*, CT1JS*, ZB2I*, H18BE*, CE-8AA*, HK1KD*, HB9HZ*, OE*, EA*, VK0PK*, VK0AB*, TFSAB*, HK1KD*, FE8AH, VK0AS, PZ1AF, HL8AL, ZC5DA, CX1BZ, UL7KAA, KG8IG, FH2ACL, FB8ZZ, OQ5RU, CR10AA, KC4USA, KC4USK, FM7WP, JZ0PC, FG7XE, VQ4QK, 5A3TH, EA8BP (1000z), 2QL: IIBNU/Trieste*, CN2DM*, KC4USB*, FB8YY*, FG-7XC*, HL2AE*, ZD6DT*, UF8AC*, TFSAB*, UO8AA*, FFAAJ* (0700z), VQ5GJ, FL8AB (2315z), SUIIC, FG7XE, HH2LD, UQ2KAA, FY7YF, 8S4AC, UD6KAB, UQ2AB, 5A1FB, SV2AC, CT3AN, 2YL: PY*, VP5BH*, CR10AA*, KL7*, FG7XC*, VU2RM*, HH2LD*, HK3TH*, CE*, ZD6BX*, VQ8LQ*, CO2GR*, KC8JC*, YV*, VR3B*, KV4AA*, UA0KUA*, FB8ZZ*, EA*, BV1US*, VQ2GW*, VQ4GO*, UA0CE*, CO7NR*, VK0AB*, CO2WD*, UA0KFE*, VQ-4GQ, 8RK: W*, VE*, 5WO: VP6PL*, CX1BO*, ZC5AL*, UA8KGA*, UA0KCA*, FL8AB*, YV-5AE*, FB8ZZ*, 9DB: HL2AC, W*, BE8195: CE0AC, EAB6K, FB8BX/NB, FB8ZZ, I8RAM, HH2LD, JZ0PA, KC4USB, KZ5LB, KC4USH, VK0AB, VK0AS, VR3B, XW8AB, YV5AE, VP-5BH, 3W8AA, 4X4DK.*

21 Mc. A.M.: 2AMB: CN8BG*, FUSAD*, CRTLU, VK0AS, 5WO: OA8M*, CO2YZ*, YS-1MS*, CRTLU*, ZS, VE*, HP3FL*, HH2LD*, T19CR*, YNICAA*, ZL5AA*, CM9AA*, FM-7WQ*, KG4AA*, HH2Y*, KM6AX*, OH*, OZ*, IT1ZZW*, 4X4JZ*, VP5DS*, F*, VE3CMP/VO1*, DL*, G*, GW*, PA*, EL2F, EL5A, 9DB: VR3G*, VE*, W*, KH*, BE8188, JZ0PC, VK-0CJ, VR2DE, Rod de Balfour: VU2BK, XZ-2KN, 457YL, BV1US, HL2AJ, KW8E, KA-0IJ, KM6AX, JZ0PC, KC6UZ, YS1MS, XE, YV, TI, KG4AF, KP, CO, VP9BU, ZL5AA, G, EA, F, DJ, PA, I, CT1JM, LASG, CN8BG, CN8AK, FABRZ, and on s.s.b. KA, V8, KL7, KC4USK, W and VE.

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.
* Call signs and prefixes worked.
z—zero time—G.M.T.

21 Mc. C.W.: 2AMB: SM5*, PA*, OK*, OH*, HB*, HA5AM, CR8AL 2QL: ZE3JO*, JZ0PC*, ZE4JH*, CO2DB*, 3W8AA*, UB5*, 9S4CM*, VQ2GW*, ZS2U*, UD6DD, EL1WG, UA0, SP, G, 4X4HC, OA4BP, ZL5AA, VQ8LQ, HC1FG, GD3FXN, 2YL: OH*, LA*, SM*, VS1*, DL*, GM*, EI*, HA5AM*, F*, OZ*, VE*, W*, 8BY: JZ0PC*, PJ2AZ*, 5BR: VQ2GW*, 9DB: KV-4BQ*, KV4BI*, YAIAM, DL*, HB*, F*, OK*.

21 Mc. A.M.: 2AMB: PA*, SM*, G*, 5WO: JZ0PB*, W*, G*, I*, LX1DC*, 9DB: JZ0PB*, ZS5MP*, CM8AA*, VP2GW*, GM*, KV4BI*, G*, W*, VE*, FB8ZZ*, LASYE*, GC6FQ*, ON*, UR2AM*, KP4ADX*, Rod de Balfour: F, I, DL, EA, GM, OK, GD6IA, HB, SM, 3B1Z, 4X4HK, VU2BK, 457YL, XZ20M, VS1, VS4JT, KW8CA, ZK1AU, FUSAD, FO8AB, JZ0PC, T12RL, VP9L, VP1EE, HR2MC, CO2OS, KV4BE, ZP5CF and on s.s.b. V88BE, DL4BU, G3PKI, and W.

28 Mc. C.W.: 2QL: VU2RM*, JA*, KH6*, VS1*, 3W8AA*, VQ2GW*, K8* (0715z), ZS*, EA8AF, OQ8IE, OQ5RU, 2YL: W*, G*, OZ*, 0DB: W*.

28 Mc. A.M.: 2YL: W*, G*, OZ*, 4XJ: W*, VE*, ZS6ALZ*, ZS8AQ*, ZS8UN*, ZS5QR*, ZS6LF*, ZE2JV*, VQ5GC*, G*, DL*, VP7NF*, CR7DS, 5WO: CR9AK*, ZS8ZK*, ZE1JN*, ZS8AJ0*, ZS8OV*, ZS6LF*, CR8AU*, ON*, VU2BK*, GM*, W*, 8DW: G*, OH*, VS1*, VE*, W*, ZS8*, KR6*, 9DB: W*, VE*, G*, SM*, Rod de Balfour: HK5ER, T12EV, YN1HF, ZM-8AR, KR8AQ, 457SW, VU2BK, VQ4ERR, ZC-4IP, KM6AX, ZD6DT, CR7BB, ZE2JK, ZS.

QTHs OF INTEREST

ZD6DT—Box 89, Zombi.
CN2DM—American Legation, Tangier.
FG7XC—Airport, Guadeloupe.
UO8AA—Box 27, Stallno, Ukraine.
H18EC—Barahona, Dominican Republic (5WO).
VP5DS—Route 1, Box 112, Eau Tallie, Florida. (5WO.)
T19CR—Via T.I. QSL Bureau.
ZS3MP/VO1—R.C.A.F. Station, Tander, Newfoundland. (5WO.)

QSLs were received as listed: 2ACX: VP-8BC, 2AIR: UA0KQB, UA0KYA, UA0CD, KC-6KG, 2AMB: KP4ADS, VP3AP, VP2VG, 2DI: OX3LD, UL7CB, 2QL: KTIEXO, UA1AB, UA-1BE, UA0KJA, PJ2ME, SHI: F9YP/FC, XE-1RM, OX3LD, KZ5AC, CR7AF, ZC4GT, UA-6KVB, Y0SRF, UC2KAB, UB5WF, FO8AN, UA3DF, 9DB: VP2AD, UC2KAB, UQ2AN, VK-9TW, VP8BF, H18WL, VP3YG, UB5HE, M1PDN, BE8195: CR7CK, EA8AM, FE8AE, JZ0PC, KG1CA, KW8CB, OQ0VN, UC2KAB, U8KAA, UQ2AN, VOID, VQ2IE, ZE3JL, 8S4BS.

Adding to my comment last month on "swishing" and commercial interference on 21 Mc., there was plenty early in the month. A signal somewhat like that used by Russians for jamming was there for a few days and so rich in harmonics that a TI signal covered the band every 10 Kc. An S9 signal, both here and in the U.S., was continually going across the band.

TRADE REVIEW

AUTOPLEX SEMI-AUTOMATIC MORSE KEY

We have been given the opportunity of testing the locally made Autoplex Semi-Automatic Morse Key. The key is very well engineered, mounted on a good heavy base, and beautifully finished. There are two weights and with suitable adjustment, a wide range of speeds is available.

Those who have tried the key are very impressed with the performance, finding it compares favourably with other semi-automatic keys.

It is available in black or chrome finish, either of which is most attractive.

Models for left-hand operation will be available at a slight increase in price.

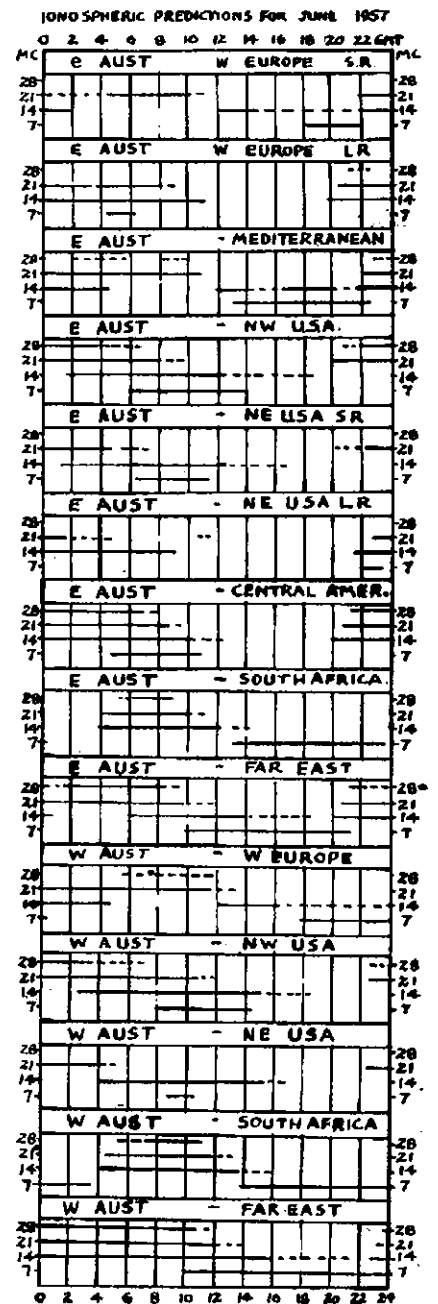
Our test model was supplied by the manufacturer, J. Vaile, 3 Leslie Court, Burwood, E.13, Victoria, to whom enquiries should be addressed.

My thanks to **VK0AB**, who will now have more time on the bands than previously; **2ACX** (QSP 2DI), who said never pass over one of those LU-Z stations; **2AIR**, who has now changed QTH and not yet back on the air; **2AMB**, 2YL, 4XJ who reports 10 mx a little quiet, 8RK (QSP 5BY, 5DW, 5HI, 5HR), 5WO who also comments how quiet 10 mx is over his way, 0DB who has the golf bug to the detriment of his DXing, BE8195 who makes time to let this page know what he hears, and finally Rod de Balfour.

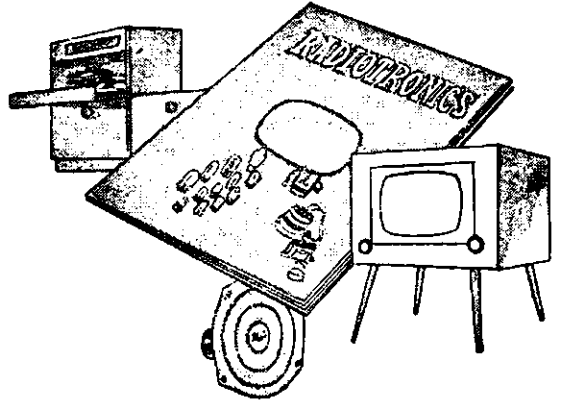
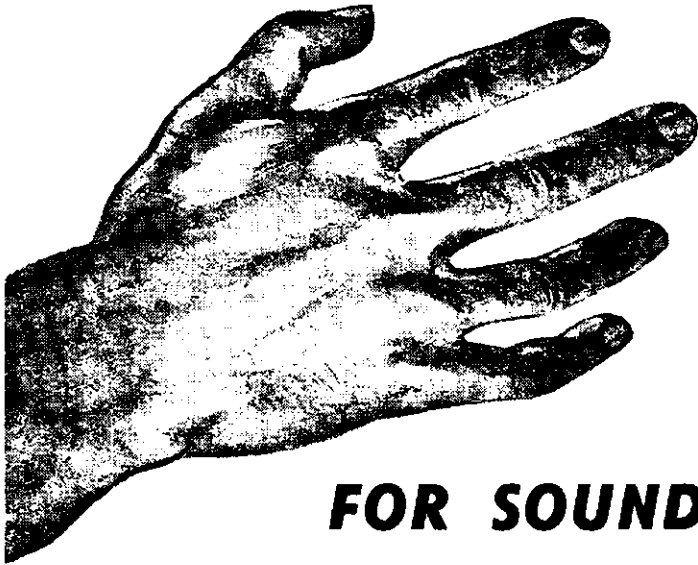
Finally, a number of our contributors only list the DX they work. What about the ones that got away boys? We are interested in them too.

PREDICTION CHART, JUNE, 1957

For the information of readers interested in predictions for the 58 Mc. band, the Prediction Service supplied a chart with 45 Mc. included. As there were no indications this month of an opening on 45 Mc., this frequency has not been included in the chart shown below.



REACH



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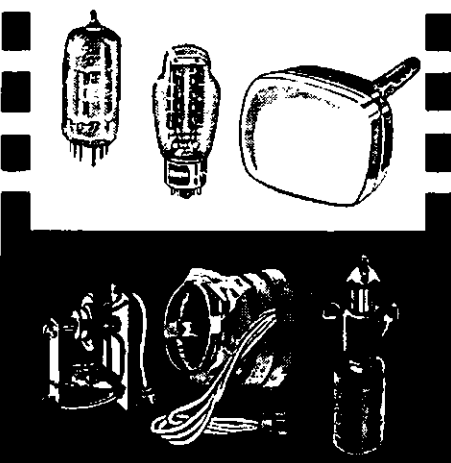
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FIFTY-SIX MEGACYCLES AND ABOVE

L.A.O.C.P. OPERATORS ON 56-60 Mc.

Federal Executive was pleased to announce towards the end of April that following representations to the Amateur Administration, holders of the Amateur Operators Limited Certificate of Proficiency would be permitted to conduct radio telephony experiments on the 56-60 Mc. band in addition to operation on authorised frequencies of 144 Mc. and above.

It is believed that the release of this band for L.A.O.C.P. operators will be most advantageous in regard to the collecting of data in a portion of the spectrum so promising with possibilities.

56 AND 144 Mc. TRANSMISSIONS FROM ANTARCTICA

Information has been received that VK0AA, of Macquarie Island, is making test transmissions on 56.64 Mc. each night at 2000 to 2030 hours E.S.T. Transmissions are automatically keyed c.w.

He is also preparing to make regular transmissions of a similar nature on the 2 mx band and hopes, within a few weeks, to be transmitting every night at 2100 to 2130 hours E.S.T. on a frequency of 144.36 Mc.

VK0AA indicates that he is not able to maintain regular listening watches, but will do so if his signals are received here. Please forward any reports of reception of these transmissions

to the Editor "Amateur Radio." Also keep a watch for the Macquarie Island boys on the 20 mx band.

TRANS-PACIFIC 50 Mc. TRANSMISSIONS

C.w. transmissions take place each Sunday morning from 50.0 to 50.1 Mc. by American stations. There are often up to six stations operating, the two main ones being K6RNQ and K6EDX. The times of transmission are:

0905 to 0810 E.A.S.T.	1005 to 1010 E.A.S.T.
0935 to 0940 "	1035 to 1040 "
0905 to 0910 "	1105 to 1110 "
0935 to 0940 "	

The Americans look for phone replies on 10 metres from:

0615 to 0820 E.A.S.T.	1015 to 1020 E.A.S.T.
0845 to 0850 "	1045 to 1050 "
0915 to 0920 "	1115 to 1120 "
0945 to 0950 "	

The following Hawaiian stations will also be operating daily from or at 1300 E.A.S.T., i.e. 0300 G.M.T., in the first 150 Kc. of the 50 Mc. band: KH6CCZ, KH6NS, KH6PP, and KH6BRS. KH6CCZ will call CQ Australia on 5 metres.

NEW SOUTH WALES

At the May meeting of the V.h.f. and T.v. Group held at the Gore Hill Technical College a most interesting and instructive lecture on "Modulation" was very well presented by Mr. A. Goldthorpe who held the audience with very close attention and his advices, particularly during question time, were extremely appreciated by all present. It is hoped that at some future date Mr. Goldthorpe will again find it convenient to place another knot in his tie to remind him to look in his coat pocket for a memo which will advise him of our meeting nights, and come along and lecture to us again. John 2ANF, on behalf of the Group, moved a vote of thanks and appreciation to the lecturer for his splendid effort which was unanimously carried in the usual way.

Results of the 2 mx Field Day were given to the meeting by Horrie 2HL, who said that

40 stations had taken part and that he had received 17 logs of which 7 were portable, 7 country, and 3 home. The outright winner for the portable section was John 2ANF with 252 points, followed by 2HO 249 points, 2ZBD 201 points. Stations 2DR, 2WH and 2VU were first, second, and third, respectively, for the country section. The home station section was won by Phil 2ER, placegetters being second 2ZAL and third 2AT. As there were only two logs returned for the D/F Field Day, the contest manager, 2HL, declared the event as "no contest."

President Perce 2APQ told of his visit to VK3 and said he was made very welcome. He gave VK2s an outline of the way the VK3s conduct their Group and how they run their contests. During his visit he worked several VK3s with the walkie-talkie 2 mx gear which he took with him.

The Canberra V.h.f. Group gave a very warm welcome to VKs 2CE, 2VL and 2AFM during the Easter holidays. Vic 2VL gave a lecture to the Group on the construction and adjustment of a xtal locked converter and a grid dip oscillator and exhibited his own equipment for inspection. Eric 2AFM demonstrated his own mobile equipment and displayed and operated a portable transmitter complete with halo and tone oscillator which was lent for the occasion by Bob 2OA. Ken 1A1L presented an excellent programme and Stan 1ASB is the only VK1 at present active on 2 mx. All club members, and there are several, are very keen to get going and most will have beams directed on Sydney.

The progressive hide and seek fox-hunt held on 5th May resulted in two firsts by Bob 2OA, two firsts by Jim 2ZBD, and one first by John 2ANF. After the event, Jim introduced the other winners and Phil 2ER, Eric 2AFM, to his good XYL who provided an excellent afternoon tea; 2OA's daughter navigator, Rosemary, was also present. After an inspection of Jim's shack the parties left for home after a very enjoyable day in excellent weather.

A Surprise Scramble, held on 28th April, was won by Phil 2ER, followed by John 2ANF and Ken 2AKK, third place being held by Bob 2OA and John 2ZAV.

2AWZ will be fox for hidden tx hunt on night of 29th May, and a Treasure Hunt is set down for 9th June (2ZBD will be the fox). - 2AFM.

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VICTORIA

From this issue of the magazine, David Rankin (3ZAZ) is the new scribe for the v.h.f. notes. Due to pressure of other work, Phyl Moncur has had to resign, hence the change. For the past few years Phyl has been doing a terrific job, writing various notes for the magazine, and I only hope that I can do as good a job as she did. I'll do my best but I need you, the reader, to help me with suitable information. No information, no notes.

58 Mc.—The allocation of this band to the Z boys caught us off guard and so the activity on the band hasn't increased yet. It soon will though if the talk going on on 144 and 288 Mc. is any indication. To my knowledge the first Z calls active on the band were Ian 3Z7P and Jock 3ZDG. They worked Lance SAHL at midnight on May 1 and Eric 3KF (ex-3BD) 10 mins. later. To get on the band they used an 8 Mc. xtal on its 7th overtone and ran about 2 watts input to a QV04/7. The rx was the main station set with the normal coils replaced with 58 Mc. ones. Well there's keenness for you and fine work, Ian and Jock. At this QTH everything went wrong—both the rx and tx developed birdies and are quite useless. Anyway, the hastily erected 3 el. yagi hasn't fallen down—yet.

144 Mc.—As mentioned over 3WI recently, the Ballarat gang are grouping themselves together in the spectrum 145.00-145.20 Mc. The idea is to keep the Ballarat signals well away from most of the Melbourne signals. All the active Ballarat stations are close together and mutual interference can become very severe. The change over will have taken place by the time these notes appear in print and so in future look on the following frequencies for the Ballarat gang (5EF please note):

145.00 Mc. 3SE	145.12 Mc. 3GM
145.02 " 3ZCF	145.14 " 3ZDM
145.04 " 3ZBS	145.16 " 3PO
145.08 " 3ZCN	145.18 " *
145.08 " 3AMH/HW	145.20 " *
145.10 " 3ZL	* Reserved for new calls.

The Melbourne gang are asked to co-operate by keeping the above frequencies clear and also when working on the band to tune up to the new frequencies and give the Ballarat boys some contacts.

From Ian 3ALZ comes the information that there will be a meteor scatter peak in August. Ian is quite interested in meteor scatter propagation and would like to hear from anybody, particularly in VK2, who would be interested enough to carry out some tests. The best way to contact Ian would be either on the air or by mail.

288 Mc.—Bert 3AAF has been heard back on the band. Welcome back Bert, hope to work you soon and get a report from someone with a xtal locked converter. There are a number of s.w.'s on this band now and one of them, Garth Jenkinson, of Brighton, sat for the last L.A.O.C.P. exam. He has high hopes of passing and is getting some gear ready in anticipation.

Geoff 3AUX has moved to a new QTH at Eisternwick, but the change seems to have had an adverse effect on the radio gear. He cannot work anybody on 578 or 288 Mc. and has had to come down to 144 Mc. However, Geoff promises that this state of affairs won't last long.

578 Mc.—Mac 3QO and Bert 3AAF are known to have been active on this band lately. Ivan 3ZDI has a rush-box going on the band but complains of the complete absence of signals. He is trying to persuade Les 3ZCN to get some gear together and so this band may get some use soon although proposed 58 Mc. operation may usurp any good intentions held for 578 Mc.

V.h.f. Meeting.—The April meeting was the annual city-country get-together and judging from the turn up this event seems quite popular. Of the 41 present, about 10 were from the country and of these 10 most had come down from Ballarat. Bill 3AMH came down from Bendigo. However the best DX was Perc 3APQ from some place called Sydney—I believe it is some 500 miles N.W. of Melbourne.

Some equipment on display was described by the owners. Graeme 3ZAA had a capacity measuring bridge. Evan 3AAP a home-brew t.v. set with a 17 inch screen, Ian 3ALZ a hoise generator and trough line front end with cascade 6AJs, and Perc 3APQ a nice 2 mx rig operated entirely from dry batteries. It uses a pair of 3As in the tx and on transmit the whole device only sucks 0.2w. from the batteries—some QRP. A 5 inch t.v. set by Ray Price was also on display.

Weather conditions were cool for the Field Day and fewer stations than usual were out. However some good scores were made by the portables. Results: 1st, 3ZCN, portable Mt. Bunllyong, 2172 points, including 279 bonus points for first and second longest distances on 144 Mc. (3ZAM and 3ZCG); 2nd, 3ZAI, portable Mt. Macedon, 1815 pts., including 218 bonus pts. for first, second and third longest distances on 288 Mc. and for third longest distance on 144 Mc. (288—3ZAQ, 3ZAF, 3ALZ; 144—3AJK); 3rd, 3ZAD, portable Mt. Donna Buang, 1350 points.

The No. 2 Fox Hunt for 1957 proved to be most entertaining for all participants. Even the fox, Tom 3AOG, found the antics of the hound cars most amusing, especially at the sixth location which was in wooded parklands close to the Maribyrnong River. Ray Price passed the fox car at high speed and failed to notice that it was only 10 ft. to starboard. The route traversed North Melbourne, Footscray, Maribyrnong, Essendon and finally Moonee Ponds. At one stage 3YR thought the fox car was about to enter his shack door. The final location was at George 3ZEH's where he and his XYL, Kath, made all seventeen participants most welcome. After a ragchew with our visitors, which included Lee Buse, W7WFS (U.S. Navy); Bob 3IC (Geelong), and Stuart 2ZDF (Newcastle), the results were announced as follows: 1st, Ray Price; 2nd, Roy Ary; 3rd, Len 3LN. A very convincing win, Ray, congratulations.

Don't forget the next hunt chaps. Our old friend, Eric 3ADU, is to be the fox and judging from his efforts in hiding the 80 mx tx in the past we can be sure that he will pull something good out of the hat.

QUEENSLAND

Lou Hill and Jack 4JO picked the salubrious slopes of Boggy Creek, so aptly named, to set up the gear for the April 2 mx D.F. Hunt. What with the mosquitoes and several inquisitive small boys, the gear was set up in rather a hurry and did not perform as well as it should have done. As time went by fears were held that next month's hunt would again be by courtesy of Lou and Jack, so it was with great relief that they took time off from killing mosquitoes and chasing small boys to pat each other on the back as the sound of tone coming from a car came drifting up the road. John 4FP with second op. Alan 4ZAE was the arrival—time 55 mins. A hasty retreat was made back to 4J1's for supper.

With the reported prospective rise in the m.u.f., hopes of working on 144 Mc. across the Iron Curtain between VK2 and VK4 have once again risen. Don 4ZAF at Warwick is very active and would welcome any test with Northern N.S.W. stations. He expects to have a tower up in the near future which will raise his 16 el. phased array quite a bit higher. Our rare DX station, Arch 4CB, at Maryborough, has not been very active since he had to take his phased array down from the tower to make room for the massive t.v. aerial. The 4 el. yagi at present doing duty on 2 mx makes the going very tough.

Several major operations in shack construction are under way. Mick 4ZAA, at Sandgate, is at last moving from his temporary shack in his bedroom, down to his new quarters built in the garage. Alan 4ZAE is building in a console type of arrangement with all sorts of gadgets to make operating easier and easier. Plans everywhere are for bigger and better equipment, particularly now that the 5 mx band has been made available to the limited license holders. Rash statements on the air, however, must be made with due caution, as suggestions have been made to record such statements. Thus when progress on a stated project is lagging, such as Lionel 4ZAS and his grid dip after all, it's only 18 months—and some 25T's we heard about some time back, the threat of re-play should create great activity.

The May Tx Hunt proved that John 4FP and Alan 4ZAE are just as good at hiding the gear as finding it. The location was a honey, only slightly over half a mile airline from the favoured starting point, but across the river, which meant a long trip around to get at it. Over on that side of the river the beam was snuggled down close to the river bank, and the signal from the back of the beam, reflected and shielded by the large iron roofs of the Navy Stores, made the signal appear to come back from where we had started. However, Jim 4OB and Bill 4ZAU found the gear in 35 minutes, which was a good effort. Second crew in were Cross 4ZAO with Jim 4PR. Supper at 4FP's shack concluded another enjoyable night—4JO.

SOUTH AUSTRALIA

Now that the 56-60 Mc. band has been released to the Z boys, those of us who have 58 Mc. gear and have not used it because of "no sigs." can now expect a reply to a "CQ 5 mx" call, in somewhat the same way that a "CQ 2" is now mostly answered.

Neil SZAW and John SZBA have both done a sterling job for the Division on the 2 mx link for the Exhibition, and perhaps only those who have sat beside a rx for hours on end can appreciate what it means. The running around those two did to set gear up and make best use of the site available and so on, was no small task.

There has been further work by those enthusiasts, Keith 5MT, Col 5RO and Bill 5ZAX, from Mount Lofty, where they spent two nights in the last month, with some success into VK3 on 2 mx, just how much and who, I cannot report for the whole of my gear including rx's is in moth balls for at least a month due to house renovations. But they are still hard at it and getting some results for their efforts.

Col 5RO has a yagi 50 ft. high on 2 mx and it put his signal up among the tops at 25 miles, demonstrating again that clear get-away is essential for distant (?) v.h.f. Keith 5MT is going ahead with his t.v. rx, more details some day Keith please. George 5GB continues to do fancy tricks, for instance heard him and Reg 5QR with Reg transmitting on c.w. 20 George receiving on 30 and relaying on 2 to Reg with the latter using a 1 mx talk-back to Geo. It worked well, too. Presume they were trying out something for a v.h.f. link, but apparently it did not get used for the Exhibition for heard nothing like that being used there. George has re-amped his tx too late and now puts in an f.b. sig here.

Neil SZAW spent an evening with Claude 5CH recently, so let's hope the seeds were sown for greater attempts to break through to Adelaide from Mt. Gambier. Claude has completed his new final with an 829B. Wally 5FB is becoming enthusiastic on 2, David 5ZAM has 100w. to the final, and Leo 5ZAG also active and with a new modulator, all make a good team to fire to the North and surely break through some time. Claude is using a new long yagi which he prides very much, that may help bridge the gap.

Get on to 56 Mc. fellows, and make the appointments, then who knows, for if you can work VK3s and VK7s on suitable occasions, surely this far is not impossible.—5EF.

WESTERN AUSTRALIA

Owing to a misunderstanding VK6 notes have been missing from "A.R."—this will be remedied from now on. Phil 6ZAW has worked Perth from Northam (68 miles) using a pair of CV6s in the final, but alas, Phil has now departed east, so we have lost a good country station.

Fox hunts have been a monthly feature of V.h.f. Group activities. The last one foxing was 6BO. Rolo's idea was to pick a spot that would allow all cars to find the tx. Seven out of nine cars made it so he nearly succeeded. 6ZAV was first home for a change, but what did we find—the tx hidden near the powerhouse ash dump, along side the Swan River and feeding into a revolving beam, no wonder the sigs were up and down—the fox! Supper was held at Rolo's QTH, after which the foxy-one, B.O., came to light with another idea in order to pick the winner. Points were allotted for order of finding tx, passengers carried, miles travelled and valves in rx's, etc., some being plus and some minus. Frank 6CC was the outright winner, mainly because of his 3 valve super-regner, as against 10 valve rx's.

Tests by 6BO, 6ZAV and 6BE with 6WG in Albany over 250 miles, since early January, have been carried out every morning and sigs have been out only on two occasions. Jack 6CB has been active again on two after a long absence, also Roger 6RK.

A V.h.f. Group meeting was held at Rolo's (6BO) QTH on Saturday evening, 13th April, the attendance was good considering a few members have contracted YL trouble—must be hard to get leave passes, hi! Those present enjoyed a nice film evening after all the Group business had been disposed of. Supper followed and all members departed for home after a very late but enjoyable night.

6AF, the Pearce Air Force Club station, has hit the breeze with quite a nice signal from a 523 and has worked 6BO, 6ZAV and 6RK. Cecil 6ZAZ, at Wagin, came to life on 27th April at 0730 hours to work Rolo 6BO and Don 6ZAV, 5/9 over the 150 mile path.

In order to encourage activity on 288 Mc., it has been decided to hold a fox hunt on that frequency so get cracking chaps on those receivers.—6ZAV.

BOOK REVIEW

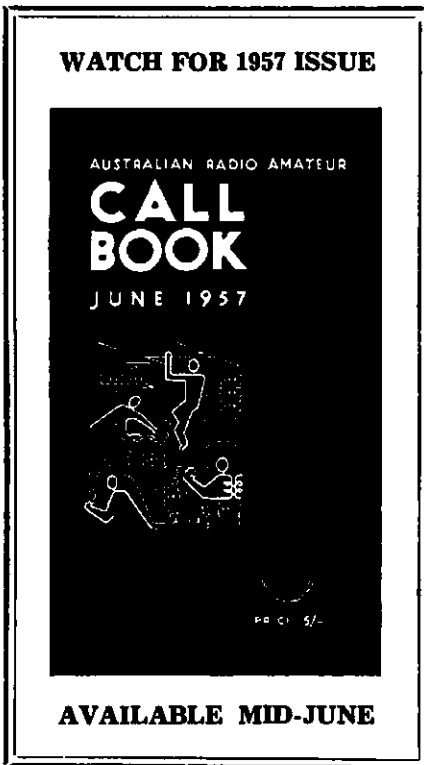
THE RADIO AMATEUR'S HANDBOOK

The 1957 issue of the Radio Amateur's Handbook has just come to hand. For many years now this book has been recognised as the standard handbook of Amateur practice. This book follows the usual A.R.R.L. practice of yearly revision to keep it to the forefront of Amateur practice.

Numerous changes have been made, but one of the most striking is the change of layout of tube data. The receiving tube section has been revised to enable quicker reference to operating data. The transmitting tube section has also been revised, many of the older types having been eliminated. All other sections have been enlarged and revised

so that equipment described is the most modern and efficient of its type. The most comprehensive catalogue section again provides most interesting reading.

All in all, this is a book we can thoroughly recommend to all interested in radio and electronics. Price in Australia—44/3.



TAHITI-NUI CERTIFICATE

The Tahiti-Nui is really the Kon Tiki in reverse in so far as the expedition is on a raft and intends sailing from Tahiti to Chile (following the southern route) and then back to Tahiti by the northern route. The raft is constructed of bamboo and is approximately 50 feet by 18 feet in size. Among the crew is FOBAF who will operate FOBAF/MM during the trip.

Special certificates in several colours have been prepared to enable those interested to follow the course of the raft, to plot positions when QSOs were made or when the station was heard. These certificates will also serve as confirmation of QSO or report as when the raft reaches South America, holders will be advised by world-wide advertising, to post their certificates to the address indicated. The signatures, etc., of the raft crew will be appended.

To the Amateur making the most QSOs (allowing one per day only) there will be presented an autographed copy of the book to be written by Eric de Bleschep, the leader of the expedition. Each certificate issued will be numbered according to the country of origin. These may be obtained from Jack White, ZL2GX at a cost of ten shillings each (N.Z.).

Operating schedule of FOBAF/MM—
1850 and 1930 G.M.T., 7015 and 14103 Kc., c.w.
0150 till 0200 G.M.T., 14103 and 21042 Kc., c.w.
0630 till 0715 G.M.T., 14103 and 21042 Kc., c.w.
Other frequencies: 7070, 7030, 14333, 14042, and 21152 Kc. Power: 1½ watts. Operator Michel Brun.

The route already traversed by the raft has already confounded some of the critics by drifting from west to east on the west wind drift.

These certificates are not restricted to Amateurs and are of such a nature that any interested persons may procure them. Already some have gone out to schools who are using them as a basis for a project.

—Jack White, ZL2GX.

ERRATA

The author has advised of a mistake which appeared in his article, "Type 3 Mk. II. Receiver," p. 6 of last issue. The condenser C6C is wired to tag 3, not to tag 4 as stated. The condenser wired to tag 4 is an 0.0001 µF. by-pass. This oversight was pointed out by Alan VK3AMD, who said that the Ducon miniature potentiometer used for the volume control will fit below the chassis deck to the right of the phone tags. In the author's set a hole had already been drilled to install a stand-by switch in the h.t. plus lead.

In the paragraph headed "Reports of Long-Distance T.V. Reception Requested" on page 12 of the May issue, the address to which reports are requested is incorrect. Correct address is as follows: Mr. Norman Burton, 130 The River Road, Revesby, N.S.W.

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Federal Councillors:

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Victoria—Dave Wardlaw, VK3ADW.
Queensland—Paul Dubois, VK4UJ.
South Australia—Gordon Bowen, VK5XU.
Western Australia—Ron Hugo, VK6KW.
Tasmania—Doug. Fisher, VK7AB.
Papua-New Guinea—Doug. Lloyd, VK9OQ.

Fed. Contest Committee: Reg. Harris, VK5RR, Secretary, Box 1234K, G.P.O., Adelaide, S.A.
QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.I.I. Vic.

Awards Manager: A. G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Jim Corbin, VK2YC.
Correspondence Secretary: H. King, VK2ASU, 19 St. Pauls Road, Balgowlah, N.S.W.
Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
QSL Bureau: J. B. Corbin, VK2YC, Box 1734, G.P.O., Sydney (Inwards and Outwards).
Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Newcastle: Les Sparke, VK2AOR, 16 Kahibah Rd., Highfields, via Adamstown; Coalfields and Lakes: H. Hawkins, VK2YL, 9 Comfort Av., Cessnock; Western: W. Silt, VK2ZWH, "Cabinflow", Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxide St., Warragong; Sth. Western: J. W. S. Edge, VK2AJQ, Wallace St., Coolamon; Tamworth: F. W. Fowler, VK2APF, 4 Thompson Cres., Tamworth.

VICTORIA

President: F. G. Ball, VK3YS.
Secretary: J. R. Lancaster, VK3JLL.
Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.

Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.

Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.

QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.I. Vic.
Zone Correspondents: Western: W. J. Kinsella, VK3AKW, Magdala, Lubeck; South Western: W. Wines, 48 Cranley St., Warranbroom, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; Far North Western: M. Folie, VK3GZ, 101 Lemon Ave., Mildura; Midlands: R. Jonasson, VK3ND, Farnsworth St., Castlemaine; North Eastern: L. Eliason, VK3ALE, 72 Orr St., Shepparton; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe.

QUEENSLAND

President: Frank Bond, VK4ZM.
Secretary: W. J. Rafter, VK4FPR, Box 638J, G.P.O., Brisbane.

Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.

Divisional Sub-Editor: A. Simpson, VK4ZAE, Cr. Baden Powell and White Sts., Everton Park.

QSL Bureau: Inwards—J. Files, VK4JF, Vanda St., Buranda; Outwards—Miss Clair O'Brien, 93 Jardine St., Stafford.

Zone Correspondents: Maryborough: R. J. Glassop, VK4BG, 60 North St., Maryborough; Townsville: R. K. Wilson, VK4RW, Hogan St., Stuart, Townsville.

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President: W. J. Bulling, VK5KX.
Secretary: E. W. Austin, VK5CA, Box 1234K, G.P.O., Adelaide. Telephone: UX 2621.

Meeting Night: Second Tuesday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor: E. C. Daw, VK5EF, P.O. Box 44, Gawler, S.A.

QSL Bureau: G. Luxton, VK5RX, 27 Belair Rd., West Mitcham, S.A. (Inwards & Outwards).

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President: J. E. Rumble, VK6RU.
Secretary: J. R. Elms, VK6BE, Box N1002, G.P.O., Perth, W.A.

Meeting Night: Third Wednesday of month at Perth Tech College Annex, Mounts Bay Rd.
Divisional Sub-Editor: E. J. R. Cowles, VK6EJ, P.O. Box 11, Bencubbin, W.A.

QSL Bureau: Jim Rumble, VK6RU, Box F319, G.P.O., Perth, W.A. (Inwards and Outwards).

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Secretary: M. Hurburgh, VK7MH, Box 371B, G.P.O., Hobart.

Meeting Night: First Wednesday of each month at W.I.A. Clubroom, 147 Liverpool St., Hobart.

Divisional Sub-Editor: W. W. Watson, VK7YY, 58 Brooker Ave., Moonah.

QSL Bureau: K. A. Johnson, VK7RX, 34 Tower Rd., Newtown.

Zone Correspondents: Northern: K. J. Briggs, VK7LK, 18 Melbourne St., Launceston; North Western: L. S. Eddington, VK7LS, 3 Jenner St., Wynyard.

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Secretary: H. S. Young, VK9AMZ, C/o P. & T. Dept., Port Moresby.

QSL Bureau: R. Lloyd, VK9ZAL, C/o Commonwealth Dept. Works, Port Moresby.

FEDERAL

SUCCESSFUL AMATEUR CANDIDATES

The following is a list of candidates who were successful at the examination for the Amateur Operator's Certificate and Amateur Operator's Limited Certificate held on 8th January, 1957:

New South Wales

S. Fairbairn, 9 Lemnos Pde., Newcastle.
G. Pez, 9 Farmsworth St., Thornton.
L. W. Burgess, C/o. Telephone Exchange, Macksville.
M. S. Latham, 1688 Hunter St., Glen Innes.
E. J. Smyth, 41 Ordinance Ave., Lithgow.
B. Dooland, 419 Smith St., Albury.
D. K. Sidey, Monoval, Mullumbidgee.
K. L. King, Mornington Falls Rd., Wentworth Falls.
J. G. Virtue, Danger St., Pilliga. 6W.
W. O. Hill, 15 Morgan St., Petersham.
R. B. Chorley, 136 Atchison St., Crows Nest.
J. F. Dalstead, 14 Barbara St., Fairfield.
M. T. Morell, "Araluen", Nyngan.

Victoria

P. J. Dettmann, 45 Hutton St., Kyneton.
B. S. Baulich, "Murraba", Hawkesdale.
M. F. Spiller, 46 Mailing Rd., Canterbury.
W. D. Gordon, 14 Weeroona Rd., Murrumbidgee.
J. H. Ely, 15 Sharp St., Northcote.
G. W. Baty, 79 Bealiba Rd., Caulfield.

Queensland

A. M. Miers, 9 Bellvue St., West Bundaberg.
B. Varnes, 3 Leeson St., Bundaberg.
M. T. K. Power, 101 Wils Regt., Cabarlah Barracks, Cabarlah.
C. T. Amore, 45 Minimine St., Stafford.
R. A. Collins, 150 Ashgrove Ave., Ashgrove.
D. R. Morgan, Park Rd., Yeerongpilly.

South Australia

G. P. Bowen, 73 Portrush Rd., Toorak Gardens.
A. L. Hudd, 6 Livingstone Ave., Prospect.
F. R. Lashmar, 72 Fletcher Rd., Largs Bay.
R. C. Grivell, 18 Silver St., Clearview.
M. R. Haskard, 3 Te Anau Ave., Prospect.
J. H. Johnston, 63 Ninth Ave., Joslin.
G. G. Luke, 16 Kennaway St., Tusmore.
G. E. Stallard, 27 White Ave., Lockleys.

Western Australia

D. R. Hopper, 64a Railway Terrace, Mt. Lawley.
G. R. K. Webster, 119 Wellington St., Mosman Park.
L. S. Potts, 21 Alvan St., Mt. Lawley.

The above list does not include candidates who, although they failed in the examination for a full certificate, qualified in the subjects for a limited certificate. Such candidates are issued with a limited certificate on application.

NEW SOUTH WALES

1057 URUNGA CONVENTION

The above Convention is now over and no doubt many have heard of the grand time had by those who attended. A few of our regulars were absent due to other commitments, but this was offset by the appearance of quite a few new faces. For the third year in succession Don 3ALQ made the journey to be at Urunga, so it seems to me that our Convention has "something."

The total attendance, in addition to many harmonics, was 54 and consisted of 29 Amateurs, 8 Associates, 14 XYLs and 3 visitors. Just look over the list of those who were there and see how many of the fellows you've often wanted to meet were present. Perhaps next year you could tee up a "sked" to meet your mates at Urunga and find out whether they are big or little blokes.

The fellows you missed meeting were: Sid 2APS and family, John 4FP, Jas. 4PR, Ossie 4TN, Paul 4VS, Fred Reid (Assoc.), Brian Clarke (Assoc.), Dave 2AYE, Ron 1PM, Alan 2FH and family, Ray James (Assoc.), Bob Bailey (Assoc.) and Mrs. Bailey, Webb 2AQI and Mrs. Cooper, Bill 2AEY and family, Major 2RU and Mrs. Collett, Terry 2JS, George 4GG, Jack 2ADT and family, Chas. 2ARV and Kevin, Joe Ponetsmueller, Ken 2PY, Bill 2AWG, Rod 2ACU and family, Harold 2AHA, Bill 2XT, Noel 2AHH and family, Norm Dash (Assoc.), Norm Moody (Assoc.) and Mrs. Moody, Ed. Tooby, Creiff 2XO and family, Hart 2JC, Jack 2JK, Harry Miller (Assoc.) and Mrs. Miller, Don 3ALQ and Don Lewis, Geoff 2SR and family, Jack 2ADN and Mrs. Gerard, Leith 2EA, Snow MacAuley (Assoc.).

The competition programme was enlarged by two contests to cater for v.h.f. enthusiasts. An additional hidden 144 Mc. tx hunt and a fox hunt were staged and proved popular.

To really appreciate the enjoyment and entertainment provided by the various competitions, you should have been there, but ask any who were there about Norm Moody's epic drive across country where no car had ever been before to find the hidden tx or the enjoyment the boys get from chasing the fox (2AHH). Ask them about Creiff's (2XO) coloured transparencies complete with taped commentary and background music, or about the delight of swapping experiences over a bowl of jacaranda juice!

There were three major competitions, all won by Noel 2AHH—for the second time in succession!

Competition results were as follows:
No. 2 Bidden 144 Mc. Tx Hunt; 1st, 2AHA; 2nd, Norm Moody (Assoc.); 3rd, 4FP.

Gerry Challenger Memorial Contest: 1st, 2AHH, 79 points; 2nd, 2AHA, 55 points; 3rd, 3ALQ, 54 points.

Fox Hunt: 1st, 4FP; 2nd, Fred Reid (Assoc.). No. 1 Bidden Tx Hunt: 1st, 2AHH (45 mins.); 2nd, 2XT (90 mins.).

Urunga Scramble: 1st, 2AHH, 37 contacts; 2nd, 2FH, 35 contacts; 3rd, 2XT, 32 contacts.

Best miles per watt, 4FP, who worked G on 15 metres using 38 watts.

Ladies' Blindfold 144 Mc. Tx Hunt: 1st, Mrs. Rod Pike (XYL 2ACU); 2nd, Mrs. Bailey (XYL Bailey, Assoc.).

Gents' Blindfold 144 Mc. Tx Hunt: 1st, 4FP; 2nd, Harry Miller (Assoc.).

Lucky Draw Prizes: Ladies: Mrs. Rod Pike (XYL 2ACU), Gents: 2XT.

Furtherest distance travelled: 3ALQ.
Ladies' Guess the "Magnified Object": Mrs. Noel Hanson (XYL 2AHH).

The Gerry Challenger Contest and Urunga Scramble would not be possible without the co-operation of the various home stations and we do thank them for the help.

No Convention, of course, can be successful without a great deal of organising and "back room" workers. Creiff and Jean Retailick did a magnificent job in entertaining the ladies and throwing open their "Do Me" shack for the Saturday night get-together, where we were thrilled by Creiff's slides, views of past Urunga Conventions by Ken 2PY, a film of the last VK4 Convention at Palm Beach produced by John 4FP and finished by completely exhausting an 809! Brian Clarke and Fred Reid did a splendid job in "planting the tx for the 144 Mc. hunt". In the main hunt they even brushed the road clear of their tyre tracks, put logs across the road and completely camouflaged their vehicle; a job well done. Bill 2AWG gave excellent help along with Rod 2ACU, Alan 2FH, whilst Assoc. member Norm Dash did a sterling job as Convention Secretary/Treasurer.

Due acknowledgment must be given to various donors who enhanced our prize list. These included Varley 2SF, United Radio Distributors, Amalgamated Wireless A/sia, Phillips Electrical Industries, Mullard-Australia Pty. Ltd., Australian Electrical Industries, the W.I.A., Urunga businessman Nev. Westcott, Radio Television and Hobbies, and two others who desire to remain anonymous, whilst Bill 2AWG provided a case of bananas for the company.

The Urunga Progress Association provided an excellent supper following our usual Sunday night prize-giving concert.

Now is the time to think about Urunga for 1958. This will give you a whole twelve months in which to knock up 40 metre portable or mobile gear, and a 2 metre "sniffer." Rod

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ELIGIBILITY: Adult male British subjects under 45 years.

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LOCATION: Appointees are required to serve anywhere in the Territory.

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SEPARATION ALLOWANCE: Payable at discretion of Territory Administration; designed to compensate for added expense of married appointees obliged to maintain family outside Territory.

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TAXATION: Income derived by residents of Territory from sources within Territory is not at present taxable under Commonwealth legislation.

FURTHER INFORMATION: An information Handbook on the Public Service of the Territory is available from the Department of Territories, Canberra or Sydney, or from any Commonwealth Public Service Inspector, District Employment Office or official country Post Office. Other enquiries to Department of Territories, Canberra (Phone U 0411, Ext. 28A).

APPLICATIONS: SUBMIT on prescribed form available from offices mentioned under "Further Information".

TO The Secretary, Department of Territories, Canberra, by 22nd June, 1957.

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ZACU will be the organiser so you can look forward to a really good Convention.

The Committee wishes to thank all those who attended and looks forward to seeing each one of you again in 1958.

HUNTER BRANCH

The April meeting of the Hunter Branch was held on 12th April at the University of Technology, Tighes Hill, with Lionel 2CS in the chair. Charles 2ARV read the minutes and after dealing with the correspondence, general discussion followed on such diverse subjects as 2 mx rx circuits, treatment of radio masts, 20 mx beam design, t.v. antennae and slave antennae.

It was made known that our Vice-President Stewart had been allotted the call sign of 2ZDF. All members wish the XYL of Varley 2SF a speedy recovery from her illness. Roy 2RC, from the Upper Hunter, called on Ron 2ASJ and met Ron's 2nd operators, Jack Hamilton and Syd Daniels. Roy is at present "rock-bound" on 7050 and 7110 Kc., but is building a v.f.o. and is on the lookout for local boys on 40 mx. Good to hear Bill 2PJ come on to work Urunga boys; he should be on more often now that winter is coming on, less Fire Brigade work. Jim 2AHT spent most of Easter building harmonic proof fences, but he also managed to work Urunga Contest boys.

The f.b. weather seems to have lured most of the local Ham's out of doors as activity is practically nil. Harold 2AHA has set an example with his mobile/portable gear which quite a number of the locals could follow. Joe 2ANL has been doing some airborne v.h.f. but not on Ham bands. Well known 7 Mc. man 2ADZ from Griffith passed through recently and called on Bill 2ZL. Bill showed George how to play trains. Ernie 2FP has got his 10 mx rig perking and is now fixing up modulator. Bob 2AQR has acquired a Harvey Wells' v.f.o., but for the present is still using the Geloso. Jim 2ZC has been fishing at Forster, but did not take portable. Norm 2ANA, who has been in mothballs, has made a welcome re-appearance on 20 mx to work the 2AWX net.

The June meeting of the Hunter Branch will be held at the University of Technology, Tighes Hill, at 8 p.m. on 14th June.

SOUTH WESTERN ZONE

My spies have not given me much information this month for the notes. Your scribe, Stan Abbey and Jock Ashley made the trip to Griffith over Easter. An enjoyable time was had by all. We visited Stewart 2PL who, with brother Evan, was engaged in the business of winemaking. Of course we had to sample some. We next visited Darcy McMahon, with Roland Griveous, who was kept busy watching the boys. Darcy is an electrician, and winding wire is scarce at Coolamon, or should I say was! Hi!

Your scribe also had a visit over Easter from Eric and Peg, the 2DY's, who arrived in their new pink and black Spacemaster, very f.b. Eric made the remark that he now has to come to Coolamon to talk to 2AJO, as that elusive bloke is chasing DX on 21 Mc. Cheer up, Eric, now we have passed the 100 countries we will probably come back to the Old Man's band, occasionally. Have seen Alf 2BW, at Wagga, a few times lately; Alf is a very busy man. How about relaxing on the bands sometimes?

Zone members will be advised of the date for the preliminary meeting at Coolamon for this year's Convention.—2AJO.

COALFIELDS AND LAKES

Old timer, Ernie 2AEZ, is active quite regularly on 14 Mc. and getting his share of the good DX too; using a new rig, t.v.l. proofed. Major 2RU is a regular from Gosford. Len 2AMU is re-building a new rig—t.v.l. proofed—and will be going again before long.

The Upper Hunter boys have not been contacted, but they seem to be sending in their notes and hope they continue to do so.

Harry 2YL is only Coalfields station active, working mainly 14 and 21 Mc. where conditions have been quite good and has managed to get post-war DX up to 204 countries.

VICTORIA

The general meeting held at the Royal Melbourne Technical College on 1st May was the first to be presided over by our new President, Fred Ball (3VS). Fred was introduced to the meeting by the retiring President, Gordon Dennis (3TF) and the meeting then placed on record its appreciation of the sterling service which Gordon (aided and abetted by his XYL) has given the Division during his five years as President of the Division. It is a tribute to his ability and popularity that it was at his own request he relinquished the post, not ours,

and it is hoped that we have made it abundantly clear to him that the Division, and for that matter the Institute as a whole, is very appreciative of a job well done. Fred admits that he has a very high standard to live up to following Gordon, but he has already proved himself to be a worthy successor.

The lecture for the evening was given by Mr. Markham, of the Australian Broadcasting Commission, his subject being "Outside Broadcast Television Work". (OB's to the initiated.) Mr. Markham is principally concerned with the production side of OB's, and has had considerable experience, both here and overseas, in this particular field. His description of the various projects he has been associated with was most entertaining and at the same time very enlightening, particularly if one has ever tried to visualise what goes on behind the scenes on OB's. OB's are, of course, covered by field units consisting of, say, three cameras and a control van, and as these units are limited in scope by the length of their connecting cables, etc., it can be seen that many units are required on the larger projects. In locating a unit, cameras and control van have first to be sited at the required position, and then a power supply, telephone circuits and microwave links to base must follow. When a number of units are covering a project, such as a golf match, to quote an example, where distances to be covered are rather great, the complexities of the over all set-up can be quite considerable. At the present time relays are carried out by means of co-ax cable and microwave links, and where these are not available, by means of aircraft equipped with receiving and transmitting gear. As techniques develop it should be possible to achieve worldwide relays of t.v. programmes. However, colour t.v. is still around the corner.

The rapt attention given to the speaker by his audience, and the number and quality of questions fired at him at the conclusion of the lecture would, I am sure, be just reward for his efforts in providing such a well planned and extremely interesting address.

If I am any judge the 55 members who attended the meeting were very pleased they had decided to venture forth on such a cold and miserable night.

The only visitor to the meeting was Bob 3IC, who is President of the South Western Zone. Bob, at the invitation of the President, gave a resume of the recent Zone Convention at Geelong.

Federal Councillor, David Wardlaw (3ADW), our representative at the Easter Federal Council Convention, also gave a brief report on that meeting, and a vote of thanks was passed to him for his efforts on our behalf. As the meeting lasted from the Friday until Monday, some

appreciation can be gauged of what is involved in these all important conferences.

A meeting which will concern us all even more vitally is the Telecommunications Conference to be held at Geneva in 1959. In the past we have relied on a proxy to put the VK case, but for obvious reasons it would be far more satisfactory if we could send our own representative. As the Conference lasts for some months and is on the other side of the world from us, this matter is no mean task for an organisation such as ours. Perhaps someone has an idea tucked away in his mind as to how this can be done—now is the time to give forth.

The Victorian group of the s.w.l. reports that it has had no response as yet to its repeated requests for opportunities to visit Ham shacks. How about it chaps? Ian Hunt, Secretary of the group, is attending to offers.

It was reported to the meeting by 3ZEE that a group of Victorian Amateurs will be participating, as Amateurs, in the tracking of the world satellites to be launched during the Geophysical Year. This shows promise of being most interesting to the participants and should be a very practical contribution from the Amateur fraternity. This group would be very pleased to hear from others interested in this work.

Pirates have been out of the news of late, so if anyone is keen to study this form of insect life one is to be found on 14 Mc. using the call of 3OO. Eric, the rightful owner, would be pleased to meet this gentleman? and compare notes.

The following were admitted as full members of the Division: George Baty (3AOM) and B. P. Everett (3ADE).

WESTERN ZONE

George 3GN, whom we have not heard for some time, will soon be on the air again. He has built a new shack with a new rig to go with it. Rig consists of a Geloso driving a separate final on all bands. Bob 3ARM has recently installed an a.c. power supply, so I guess in the future he will find operating much easier than having to rely on batteries. Herb 3NN made a trip to Adelaide and while there paid a visit to the Ham section of an Exhibition which was held last month.

Trev. 3ATR has been chasing that rare DX with plenty of success, so we have not been hearing much of him on the lower frequencies. Merv. 3AFO has been busy re-painting his home, both inside and out, using a modern colour scheme; he has made an extra good job. This rig, in which he is using a type S power supply, is built in the rack and panel layout with a pair of 807's in the final for DX bands, and a single one for lower frequencies.

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GEELONG AMATEUR RADIO CLUB

Most of our attention has been concentrated on the South Western Zone Convention, held in this city recently. It was one of the most successful yet and much of this success was due in part to the ladies who attended to the catering arrangements. A comprehensive programme was arranged. The dinner in the evening was well attended and the turkey went round and down without any complaints.

The election of officers was quickly despatched, and Bob JIC became President and Ted 3AEH Secretary.

The evening was devoted to films by Len 3LN and Jock 3ASC, while Bill 3BU entertained wives and others at his QTH with t.v. This was extremely popular.

On Sunday a 2 mx and 80 mx tx hunt was held at Mont Pelber and first on the scene was 3ARY and Len Moncur Jnr. In the afternoon the V.h.f. Group, from Melbourne, demonstrated the technique of fox hunting and to this active band we offer our thanks for generosity. While this was in progress Alf 3AJF brought his amplifier and Bill 3AWZ and Jim 3ABT got the afternoon picnic events under way. Ladies showed their skill by stepping the chain, throwing the rolling pin, and hammering nails. Kids blew balloons and played games, while the sedate Hams yarned, or scrambled, or guessed the L.C. circuit, etc.

The old man of 2 mx, Ed 3AKE, came out of hibernation and gave us a most enlightening talk on t.v. aeriels adapted from Ham practice. Thanks to all helpers and visitors to the Convention and we will see you later oscillator, in a white carbon pile.

QUEENSLAND

After reading the President's report in last month's "A.R." I felt that I couldn't possibly emulate such a classical style of writing. In fact even with much practice I doubt if my particular pen could even justify the hackneyed "mightier than the sword" phrase.

So, as do all in similar circumstances, I kindly request my other fan to bear with me a while, while I find my bearings. Incidentally, as I was reading May's "A.R." I noticed the new call sign of 4RP. Ten minutes later up bobs 4RP on 40 mc. Brother! Are the boys keen these days.

Doubtless fellas, you have noticed that the new Council has been elected and apart from the usual vices, it consists of an active body of reasonable Hams. Briefly, the positions they fill during their waking hours, as far as the W.I.A. is concerned, are:—President, F. Bond, 42M; Vice-Presidents, J. Pickles, 4FP, and P. Dubois, 4UJ; Secretary, J. Rafter, 4PR; Treasurer, J. Baker, 4OB; Station Manager, B. Hinkler, 4AO; Librarian, P. Green, 4VS; Fed. Councillor, P. Dubois, 4UJ; Inward QSL Bureau, J. Files, 4JF; Outward QSL Bureau, Miss C. O'Brien; V.h.f. Representatives, J. Ross, 4JO, and L. Hill; Divisional Sub-Editor, A. Simpson, 4ZAE.

We welcome Paul 4UJ, Jim 4OB, and Lou Hill as Council members and we wish them every joy in finding out just what they let themselves in for!

Another thing men, if you don't receive this copy of "A.R."—YOU ARE NOT FINANCIAL—and that's telling you!

Of immediate interest, resulting from Federal action, is the allocation of the 56-80 Mc. band to the Z boys. In fact, when I tuned the 2 mx band the night after the news broke, I thought "40 mc was never like this!"

Quite a few VK4 Hams attended the Urunga Convention considering the distance, and heard tell that the VK2 boys' hospitality was as usual warm and spontaneous. One Ham said if he accepted all the invitations to "drop in" he wouldn't be home yet! However, the good time, if I may say so, that our boys anticipated, certainly was!

Everyone, according to the d.c. boys, now knows of the 20 f.m. high frequency transceivers purchased by the W.I.A. These will go to ballot and only financial members, reasonably enough, are eligible! These units tune 70-85 Mc. Applications for same must be submitted in writing to the Secretary (together with your over-due sub.—sorry old man) before the fourth Thursday in June. These units use all current miniature tubes and the Institute is giving them away for 12½ db.

At the last general meeting (if you weren't there you missed an excellent film show and lecture on atomic explosions by Mr. Evan Fell, 4EF. It was a very commendable and interesting evening. We were all surprised at the effort Evan had evidently put into his well illustrated charts.

A Call Book is to be raffled at the next meeting, so boys, be in it to win it!

One of our "Z" boys recently acquired the new call sign of 4TA. Good work, Cec! For the 2 mx boys, poor 4PT, languishing up in

Toowoomba, is picking up terrific signals from Brisbane, but can't make himself heard! So what about it boys. Really give 4PT something to remember!

On Friday night, 3rd May, the usual tx hunt was conducted and, all in all, a very good time was had by everybody. Jim 4OB, with the aid of several hundredweight of d.f. gear, found the tx in 35 minutes. John 4FP selected a very cunning site to hide the gear which just goes to show that with a little forethought some seemingly simple spots really have what it takes!

TOWNSVILLE

The usual monthly meeting was held on Thursday night, 25th April, and although the attendance was small, it was one of the most enthusiastic held for many a long time. After disposing of the usual minutes and correspondence, the general business quickly got into stride in discussing the 144 Mc. project, which has been held in abeyance for some time. It was decided to go ahead with the previous plans, after getting Ted 4EJ as a driving force. The President 4RW and Act. Sec. 4FS are to meet at the shack of 4EJ and get things under way.

After closure of the meeting, 4EJ and 4RW discussed their pet hobby horse—the G4ZU beam, including method of tuning and cutting stubs to desired frequency. They were ably assisted by 4JH. 4FS and 4MF are contemplating erection of same. The gang had to be chased out as the hour was very late, this speaking for the success of the meeting.

Eric 4EL wonders why he has not appeared in the notes—only reason not heard; now volunteers information of working 160 countries on 21 Mc. of which 80 has confirmed; looking for DXCC on phone. Frank 4PF, our new licensee, is having great trouble in getting on the air—no r.f. and little modulation. Bob 4MF sat up to 2 a.m. to work his first W. Allan 4BE showing little activity on band, due to feedback. Bob 4RW very pleased now, worked all VK territories by getting 8AJ on Cocos to complete the score, plus six new countries (choicest being VP5 on the Grand Turks). Also paid a visit to 4DK at Ayr and shown new tower topped with cubic quad on 20 mc. Collin 4CE was surprised when I popped in, but not on the air due to rebuilding. Visitors to my shack included 4LK, 4MF, 4PF, 4EJ, 4LR and 4BE; needless to say all gear was carefully watched.

SOUTH AUSTRALIA

About the wildest and woolliest night for the year, with wind and rain at gale force, was the atmosphere condition surrounding our last meeting, and in spite of that a good attendance saw Brian 5CA take the chair to relieve John 5KX who gave the lecture for the night. A very fine lecture, too, on disposal equipment recently purchased by the Division for ultimate sale to members undertaking the emergency net, namely the 122 transceiver and the 3BZ transmitter. We were lucky in our lecturer, in that John had quite a deal to do with the design and testing of the 122 set, so naturally knew all the answers. It operates

v.f.o. from 2 to 8 megs. from 12v. battery supply with a vibrator power pack drawing less than 1 amp. on receive and up to 6 amps. on high power transmit. Press-to-talk control available on phone and break-in on c.w. with receive on key-up.

V.f.o. and receiver tuning is simultaneous, thus providing ideal "netting," and for those of you who have heard any of the field tests with these units will have gathered the convenience so provided by this feature.

The 3BZ tx is a xtal controlled unit with six xtals giving 12 frequencies in the 3.5 and 7 mc. ranges. John also gave us a run through on the reception set No. 4 which is used as a comparison to the 3BZ. All very interesting and instructive and really created some thoughts amongst most who want to go portable, and no doubt will add to the number of fellows who will become interested in the emergency net. Thanks, John, for a fine evening.

QSL distribution, and smoko followed, then the assembly went all formal to conclude the usual monthly business.

The Royal Adelaide Exhibition has been and gone and this Division's experience has been added to as a result of our exhibit there. Many thanks are due to those who contributed in any way to its working and establishment and although it's not intended to name everyone, we cannot overlook Gordon 5XU who denuded his shack to provide the equipment, tx's 40-20 mc. and the rx; it is regretted that varying line voltage played such havoc with the tubes which partly resolved itself when John 5ZBA came to light with a variac to control things. Carl 5SS, Frank 5MZ, John 5KX, Graeme 5XV, for their work on the tower and antenna generally, and the rest of you for wiring, operating, loan of cards, etc., etc. Then lastly, but not the least, the v.h.f. boys who sat by their rx's and 2 mx tx's by the hour to provide the links. Neil 5ZAW, John 5ZBA, George 5GB did a mighty fine job in this section and were the means of making DX contacts possible.

We welcome two new full members in Geo. Ramsey (5GD) and K. Laurie (5AK), as well as associates, M. J. W. Mitchell and B. G. Booth.

The T.v.I. Committee has a new Secretary in Bob 5PU.

Heard Graham 5GE making a contact with 5WI recently in which he stated it to be his first QSO in two years; use that gear more often my friend, you were sending out a beautiful signal, well modulated and using about 5 Kc. only, something quite a few could copy to advantage and to the general benefit. Frank 5MZ is no longer to be called OM, no Sir, Grandpop from now on, for on 5th May, so I'm told (and not by the VK3 spy-ess either), a fine bouncing junior op. entered the Bentley family circle. Frank has already made up a transistored practice code set, and obtained a junior copy of the "handbook," so what a life that young fellow is to have. Talking of Frank, this is also from his neck of the woods, he heard 5WI call CQ on 20, Frank replied on 40, 5ZBA heard him on a teeny-weeny 20 mc harmonic, relayed to 5WI on 2 mx and enabled a contact to be made—only 5MZ could do a thing like that.

Keith 5KH has been heard portable at Fort Lincoln with 6 watts and an aerial slung out

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the hotel window 5 x 7 in Adelaide, so not bad Keith. Chas 50N had the bad luck to lose his antenna feed lines and supports during the storm mentioned earlier, but has since replaced with a new structure designed to make a repeat performance impossible. Bob 5RI during a QSO has been heard to query Lea 5AX's claim to working an OZ3; Bob reckons that is not a call area but a transitor. Anyway, if anyone could make a QSO with a transitor I'm sure Lea would be the one to do it!!!

Don 2AMN complains of lack of spare time—why? He works (?) at a certain very d.c. band tx from 0600 to 1800 hours (or thereabouts), movie operating 2000 to 2300 hours, Hams from 2300 to 0400 hours, and has the rest of the day to himself. Anyway, that's how it sounded when he was describing his activities the other day. Col 5RO heard again on 40, deserted 15 for a while Col? 84 countries in six months not bad. Athol 5LQ booked four new countries on 20 recently, but has not as yet consolidated his ideas for G4ZU beam, have a look in on Les 5AX, Athol, and see the radical ideas he is incorporating, an f.b. job, too. Reg 5QR really finding his way around on 10 with the G4ZU, whilst Bill 5ZAX hasn't raised his beyond the XYL's clothes line yet.

Heard a strange voice from 3LM's QTH over Easter, sounded like Joe 5JO to whom the Preston boys were extending the usual hospitality Warwick 5PS and yours truly had our annual QSO whilst he was at Oakbank, an event of note because it proves he has paid his licence fee, has not been banned from the air, and that he can operate Ham gear as well. (You note the "as well"—and not just plain well.) Frank 5LK heard portable-mobile marine M.V. "Para" over Easter, sounded good Frank so also did the ship itself, automatic pilot, deep freeze, 100 h.p. engines and so on. Leith 5LG advises a new G4ZU which he planned and erected entirely on formula and complains cannot get below 5.9 on DX. Bad luck Leith!!

SOUTHERN ZONE

Col 5CJ now in new shack and Claude 5CH had honour of first contact on 144 whilst 5RK had that privilege on 7 megs, fine Col. let's hear about the move some day. Erg 5KU very quiet these days, but in spite of that works a new country or two on 20, listening at the right time pays divs. for that work and Erg seems to know the right times. Tom 5TW back on 40, at last, with a new modulator too, nice to hear you Tom. Television still keeps John 5JA quiet, or at least keeps him off the Ham bands. Stewart 5MS still zephering about but is heard on 15 (and 40) occasionally. Bram 6AB heard now and again on 80, but does not appear as active lately, the grapevine tells me he is re-building so perhaps that's where the allotted hours go. Wally 5PB is switching interest to 144, with Claude 5CH also contributing to that band.

NORTHWEST ZONE

5WC had (yes, past tense) a 40 mx beer can vertical, or at least they had it whilst horizontal and until it was raised 40 degrees, then lo and behold they had two 20 mx verticals, but this time not vertical either. Yes, the "durn thing busted in the middle," and them with all the soldering experts. Maybe there was too much frog left in the tins prior to joining them up or Burnie 5QW may have given a heave when he should have just held. All the same, they have "had" beer can verticals.

Funny thing up there, they do hear the 5WI session each Sunday, but figure that they get it the "long way round"!! Whilst all other VK5 signals come on the short path.

My Port Lincoln spy reports all quiet over there with one exception, guess who? That character P—5PS, yes, he has bobbed up again and he has got the fishing spots in a tangle, it is said that no fish family is complete now, the reported missing presumed dead percentage has gone up a lot.

In fact it is even said Warwick admitted to throwing the little ones back, it is presumed they would be from his line, with the big ones that fed the family being lined in by XYL.

The next bit is quoted as received, poor Wally 5DF. We never suspected it before, but this is what we heard of you: "The other Sunday morn I heard my OM make some strong comments about the wind, and signals getting into Adelaide at poor strength, then lo and behold he dashes outside and grabs my copper stick. I became alarmed as though this radio business has really gone to his head, when next I see him making frantic slashes at his xmitter feeders to the half wave something or other, and then return inside with a satisfied expression on his face, and later I hear him say sigs now 5 x 9. I still wonder what the copper stick had to do with it.—From XYL of 5DF."

WESTERN AUSTRALIA

The Annual General Meeting was poorly attended (15th April). The main business was the election of officers. Last year's Council and officers were re-elected, and the President, 6RU, thanked them for their support during the past year. Membership figures remained about static, but the financial affairs of the Division were in a healthy state.

It was decided to give publicity to the fact that Council meetings are open to visitors provided that prior notice is given, as the meetings are held at private homes.

During one of his infrequent visits to the metropolitan area, the writer was able to attend a Council meeting early in April, and met many members for the first time. Interest was centred in the impending visit of our delegate, Ron Hugo (6KW), to the Federal Convention, and great disappointment was expressed that VK2 was not to be represented as it was the first meeting of the Convention to be held since 1953 (before the advent of t.v.!) and provided such an excellent opportunity to discuss Amateur Radio problems—so essential these days if we are to enjoy our hobby to the full.

In VK5 the bands are being well occupied at present. Ten and fifteen have been very good, 6BE, 6BS, 6DW, 6GU, 6EJ, 6LL, 6MU, 6MK, 6NF, 6RK and 6TB have all been heard working Africa and Europe. Jim 6RU has reverted to his xmas tree of separate beams for 10, 15, and 20 metres.

There is much activity on the l.f. bands also, those on 40 mx recently included 6AG, 6AV, 6BE, 6CL, 6CP, 6DJ, 6DX, 6EJ, 6EW, 6HR, 6JG, 6KJ, 6LG, 6MO, 6MU, 6RW, 6TH, 6UF, 6VK, 6WU and 6WZ.

On 80 mx, activity is increasing and the following have been heard: 6AF, 6AG, 6BE, 6BR, 6BO, 6BS, 6CL, 6DJ, 6DW, 6EJ, 6GU, 6JG, 6JR, 6LG, 6MO, 6RW, 6TH, 6TK, 6WG and 6WU.

Much interest has been centred in portable activities, some No. 11s and 108s and 208s doing very well; 6AG, 6BO, 6EJ, 6HT, 6JG, 6JP, 6KJ, 6WU and 6WZ having all gone portable at times.

On the QRP side, over Easter week-end, 6EJ had a solid phone QSO with 6HT/P (near Albany) using 0.54 watt from a 108 set on 40 mx. Approx. path 300 miles, and also to 6DX over about 200 miles. How's that for miles per watt?

On 20 mx VK0ZM at Mawson was contacted on phone S8 signal at 1800 hours on 22nd April.

On 80 mx DU7SV, VS1GX, some ZLs and several Ws have been worked during the evening, whilst later CESAG was heard coming in well, and an early morning session disclosed many Europeans coming through in good strength.

On 40 mx South Africa and Europe are heard late at night and early in the morning.

Limited licensees in VK6 welcomed news that they are permitted to work 5 metres from 1st May. Several set to work on gear and vowed they would start working the band at one minute past midnight on the morning of 1st May, hi! They are now looking east for 5 mx contacts. What about it VK6?

Congrats to Jim 6JR on his recent success with the C.O.C.P. examination.

To close the notes for this month here is an appeal, and an invitation to any VK6 Amateur reading this to join the Institute if you are not already a member. Bearing in mind the fact that the greater part of your subscription goes to provide you with "Amateur Radio," and the local Divisional Bulletin each month, surely the balance left is a small amount to pay for Federal and world-wide representation. A country member who cannot attend meetings can still act through the Institute by exercise of his voting power on matters vitally affecting himself and Amateur Radio.

TASMANIA

"A horse would be more careful, and a pup would,

But Hams is born to trouble, as the arcs fly upward."

This month's happy thought is selected from Soliloquy on a dropped 815, one of the deeper works of one of our lesser bards. One, Rattle-pike. And 7AB has returned safely from the Federal Convention despite minute instructions to our agents in Victoria. The same Doug, by the way, mentions that four Hobart stations currently appear on 144 Mc. at 8 p.m. each Sunday: 7AB, 7AJ, 7LE and 7JD plus two listeners, Barney Watson and David Thorne.

An old-timer, Hubert Lovett, was the May lecturer, ATHL, that indeed was his call, opened a few youthful eyes by mentioning that W.A.C. was usual enough thirty years ago, when the rig's only ready-made item was valves, one in number. Then he opened a few more with his anything but old-time dis-

sertation on doing more and more with less and less, with transistors.

For something newer, congratulations to Vac Tohrman who has acquired a daughter. The position may be stationary, however, for the trout population; 7CK puts them in up north, and 7BR hooks them out in the south.

There should be a Brack bashing the brook at Waystinah by the time these notes appear, by which time also your scribe may be able to change his address. Deep water, on the other hand, has been traversed by both 7OM and 7CH recently, mobile-manning around the eastern seaboard. "Snow" stirred up ZLs with the little Type A Mark III. on 40 and 80 mx, and reports the new craft all that she promised to be. And talking of craft, gentlemen, some news of your doings will put you in the magazine. Who knows? No news might, too.

NORTH WESTERN ZONE

I heard a VK6 on the air recently who announced his age as being 83. I hope I have a voice as youthful, carrying still the vibrant tones of a Ham making his first contact, when I approach that age.

A welcome is extended to a VK5 who has seen fit to make his abode at Rosebery, of all places. He is John 5WY who, having recently passed his B.E. for Mining, now has to go underground to find out what the E.Z. Co. does mine. How about some underground tests?

By the way, if you pay five bob from your first pay to our Hon. Sec., Sid 7SF, he will give you a receipt and you will officially be a member of our N.W. Zone. Simple isn't it!

I'm afraid what with Easter and Anzac Day, I haven't been able to get around to our Associates, although I have heard that some of the full members as well as the Associates had quite a good input to the final on Anzac Day.

Flash! Latest news on Field Day. Associate Gamble gambles with a loop and gets there! Believe Ted 7EJ had the 3 milliwatts of r.f. hooked up to his fishing line by mistake (or was it!) and Associate Max Ives, Sid 7SF and Mr. Gamble eventually found him in a sand pit on Wilmot Road by the Forth River.

Jim 7JO, our President, finished up at Commercial station 7AD, which means that either 7AD has a harmonic on 3.5 Mc. or Jim thought we were working on the b.c. band. George Graves finished up on the wrong side of the river and had to travel back about 3 miles, while Dennis 7DR got a late start because his rx wouldn't work. Took him an hour to find a loose earphone connection. Shame! You are to enrol your Dad as an Associate too, Dennis. He appears to enjoy himself too much for an outsider.

I find we have another welcome to make to Allan Baptist, a newcomer from G land, who brought some disposals gear out with him. Arrangements are being made to charter the Queen Mary if anybody is interested. What a hope! Am paying a visit to the Wild Wet Coast again. Leon 7JP doing the honours. Hope the XYL is OK again soon Leon. I will be going to Macquarie Heads whilst here to inspect the cable there, too. Wish they'd put radio in.

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JULY, 1957

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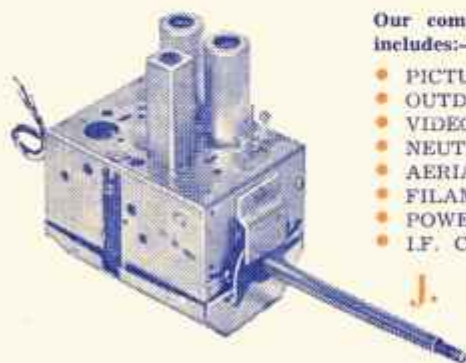
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3925 Kc.	5925 Kc.	6547.9 Kc.	7021.7 Kc.	7525 Kc.
4096 Kc.	5950 Kc.	6550 Kc.	7025 Kc.	7550 Kc.
4172 Kc.	5975 Kc.	6561.111 Kc.	7032 Kc.	7575 Kc.
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VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 57.5 and 146.25 Mc. Intra-state working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5MD and VK5WI by arrangements on all bands to 56 Mc.

VK6WI: Sundays, 0930 hours WAST, on 7146 Kc. No frequency checks available.

VK7WI: Sundays, at 1000 hours EST, on 7146 Kc. and 3672 Kc. No frequency checks are available.

VK8WI: Sundays, 1000 hours EST, simultaneously on 3.5, 7, 14 and 144 Mc. Individual frequency checks of Amateur Stations given when VK8WI is on the air.

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EDITORIAL



LEARNING

"Cease not to learn until thou cease to live;
Think that day lost wherein thou draw'st no letter
To make thyself more learned, wiser, better."

—Guy de Faur Pibrac.

When at the outset of his career, the newly licensed Amateur constructs his first transmitter, it often happens that he comes in contact with problems of a new genius. The lecturers and books have explained the theory but these difficulties are of a different ilk.

However, with the enthusiasm that is his, and possibly the help of the fellow in the next street, all is finally resolved and his equipment "works." With the progress of time, improvements in construction, design, and technique finally produce the efficient modern rig and the old newcomer proudly displays his success. He has mastered his problems.

But has he? Every second that passes brings a new thought, circuit, or method. Unless he is willing to use the very latest he is failing to keep up with the subject his hobby is dependent upon.

The Amateur of today cannot be expected to compete with the research laboratories of vast combines, but he can familiarise himself with their findings by applying in a practical manner the ideas which they so liberally dispense.

This is his part. Not only must he keep abreast with developments by reading about them—he must, in his own modest way, try them out; judging for himself whether they are of value to that world of communications where he represents the Amateur service.

And where must this testing take place? On the Amateur bands. Let's hear those call signs testing out some new antenna, some keying method or type of modulation. DX may paralyse the receiver or may be not; but the joy of learning is worth the effort.

What experiment did you say you were going to try next?

FEDERAL EXECUTIVE.

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Single Sideband: Is It Better Than Amplitude Modulation?*

BY J. P. COSTAS, W2CRR

A WORD OF WARNING

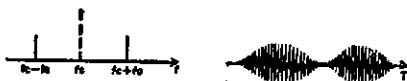
● Before going any further it is only fair to warn the reader of the intent of this article. What I shall attempt to show is that a.m. as a basic modulation process is every bit as good as single sideband. Furthermore, the performance advantages claimed for s.s.b. come about not due to any fundamental fault of a.m., but rather due to the faulty use we are making of this modulation process. Assuming that there are still a few readers left we shall continue.

WHAT IS A.M.?

This question on the surface may seem to be a very simple one to answer but there are some points involved which are not too obvious. For example, if we have a modulating frequency f_m and a carrier frequency f_c , conventional a.m. may be represented as shown in Fig. 1 (a) by a carrier and a pair of sidebands each of half the carrier amplitude. Now as is well known, the carrier wave conveys no intelligence and its removal from the a.m. signal would not affect the information bearing components or sidebands. Thus if we remove the carrier from the conventional a.m. signal of Fig. 1 (a) we shall have the suppressed carrier, double-sideband a.m. signal of Fig. 1 (b). Note that the sideband (intelligence) powers in (a) and (b) are the same but that the total signal power in (b) is considerably less than in (a).



(a) This is AM as we now know it.



(b) This is AM as it should be.

Fig. 1. Two Types of AM Signals.

Although the signal shown in 1 (b) does not look like an a.m. signal it is simply a conventional a.m. signal with the carrier removed. As we shall see the carrier component of an a.m. signal need not and should not be transmitted. Once we realize that the carrier component of an a.m. signal is not basic to the modulation process, it becomes clear that the signal of Fig. 1 (b) represents "amplitude modulation" just as much as that of Fig. 1 (a) and that

1 (b) represents the more efficient way of getting the message across.

Questions immediately arise as to how we are to generate and receive double sideband suppressed carrier (d.s.b.) a.m. signals and some of the possibilities will be discussed later in this article.

9 DB. S.S.B. POWER ADVANTAGE—IT DOES NOT REALLY EXIST

We are now in a position to examine the signal-to-noise properties of a d.s.b. a.m. system as compared to an s.s.b. system with the aid of Fig. 2. Note that the sideband amplitude for the s.s.b. signal is E volts while the sidebands in the d.s.b. signal are each $E/\sqrt{2}$ volts in amplitude. This makes the average signal power in the two cases the same. If we assume a noise power P_n to exist in the small bandwidth required to receive the various sidebands the signal-to-noise ratio (on a power basis) will be for s.s.b.

$$\left(\frac{S}{N}\right)_{SSB} = \frac{E^2}{P_n}$$

Now in the d.s.b. case if we demodulate each of the sidebands properly and combine them, the signal components will add voltage-wise and the two noise components will add on a power basis. Thus we will have a signal voltage of $\sqrt{2}E$ and a total noise power of $2P_n$. The signal-to-noise ratio for the d.s.b. signal will then be (again on a power basis)

$$\left(\frac{S}{N}\right)_{DSB} = \frac{2E^2}{2P_n} = \frac{E^2}{P_n}$$

which is the same as for s.s.b. Thus we have one important result: when both are properly received, d.s.b. and s.s.b. require the same average signal power for a given signal-to-noise ratio at the receiver. The 9 db. figure we hear quoted so often comes from a comparison based on peak power with full carrier assumed in the a.m. signal.

THE BANDWIDTH SAVING OF SSB—IT WON'T REDUCE INTERFERENCE

This last statement must have convinced even the most broad-minded reader that the author has gone nonlinear, but bear with me a while longer. In a given bandwidth it is quite true that twice as many s.s.b. clear channels may be assigned as d.s.b. clear channels, which would initially lead one to believe that universal use of s.s.b. would result in less interference than universal use of d.s.b. This sort of argument is misleading because we do not use the Amateur bands on a channel assignment basis. Within the band edges we operate wherever and whenever we wish. So we must discard the "double the number of channels" picture and start with a new and more meaningful approach.

The correct approach to the interference problem on the Amateur bands

involves the mathematical theory of probability. Probability theory enters the picture because within the band edges signals appear at random frequencies and at any receiver location with random signal strengths. Thus if we consider this "jumble" of signals on the bands as constituting the interference, we are interested in how the average interference level would be affected if all signals were d.s.b. or s.s.b. This idea of judging performance on an average basis is very important and to illustrate my point let me give an example which has nothing to do with s.s.b. or d.s.b.

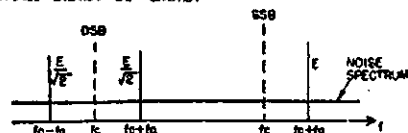


Fig. 2. DSB and SSB Signals in Noise

We all know that at times we can do very well with low power and a poor antenna. In spite of this we don't laugh at the fellow who goes to a kilowatt and puts up a rhombic. Why? Well, because we know that on the average the kw. and rhombic will give better performance than our 6L6-rain gutter combination. In other words we don't judge the performance of a new antenna or a new transmitter on the basis of the one or two hours of operation, but rather we compare the average performance of the new system over a considerable period of time before we come to any conclusion as to whether or not we have made an improvement. This idea of judging performance on an average basis is so simple that it is almost obvious, but don't let this fool you. This way of looking at the situation makes a lot of sense—keep it in mind.

Now let's get back to the s.s.b.-d.s.b. interference question. With the "jumble of signals" picture in mind (if someone questions this concept let him tune some of the crowded phone bands on a busy week-end) what would be the effect on the average interference level if every signal were s.s.b. instead of d.s.b.? Put another way, if each operator instead of splitting his radiated power equally between two sidebands (d.s.b.) confined all his power to one sideband (s.s.b.), would the average interference level in the band be reduced? The answer is no, the average interference level would remain unchanged! In other words on the average the amount of interference which we would get in our receivers would be the same if everyone were transmitting s.s.b. or if everyone were transmitting d.s.b. The reduced bandwidth of s.s.b. will not reduce interference. (Heterodyne interference, which is such a serious problem now, would be eliminated in either the s.s.b. or d.s.b. case since both are suppressed carrier systems.)

* Reprinted from "CQ," January, 1957.

DSB RECEPTION— SEVERAL POSSIBILITIES

Let's go back a bit and review what has been said so far. To begin with we have shown that if the carrier component of a conventional a.m. signal is removed we have a more basic form of the a.m. signal which we have called d.s.b. Secondly, when d.s.b. and s.s.b. were compared on an average power basis the 9 db. power advantage of s.s.b. vanished. Finally, we showed that due to the random frequency location of signals within a band the reduced transmission bandwidth of s.s.b. did not result in reduced interference. So far s.s.b. and d.s.b. performance has been very much the same. The big advantage of d.s.b. over s.s.b. will show up at the transmitter, but first let us consider the reception of d.s.b.

RECEIVING DSB SIGNALS

An ideal d.s.b. receiver demodulates both sidebands and combines them so that all the transmitted power is used. To get the two sidebands to add in-phase, however, requires the receiver local oscillator to be phase-locked to the carrier which isn't transmitted. This sounds difficult, if not impossible, but such is not the case. Phase control under such conditions can (and has) been very simply obtained since carrier frequency and phase can easily be established from the received sidebands. Let's forget about the "ideal" d.s.b. receiver for the moment and consider a more familiar reception method which although it does not give the best results its use will prove entirely satisfactory.

If one thinks of the d.s.b. signal as two s.s.b. signals back-to-back, the use of s.s.b. receiving techniques immediately suggest itself. Of course if we receive only one sideband we are apparently losing 3 db. since one-half the transmitted power lies in the other or unused sideband. This other sideband is not being wasted, however, since it is available for use by the receiver when needed. In other words, we may switch from one sideband to the other as the interference situation at the receiver changes, always picking the sideband with the lesser interference.

The ability of the receiver operator to choose between two sidebands and pick the one with a minimum of interference buys back a good part of the 3 db. loss, so much in fact that the difference on the average is not worth considering.

Thus even if a non-ideal reception method such as s.s.b. is employed, d.s.b. transmissions can be received through interference just as effectively as s.s.b. transmissions.

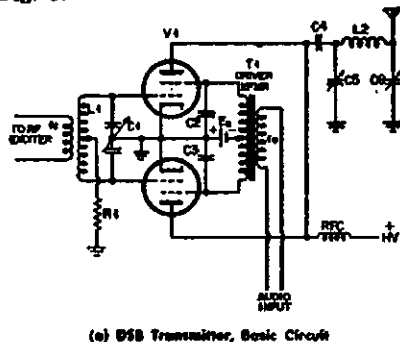
It is quite true that the upper and lower sidebands of an a.m. signal contain the same information but this isn't bad and if properly used, this feature (redundancy, as the communications engineer would call it) will pay handsome dividends. As a matter of fact in modern communications systems we sometimes go to a lot of trouble to put in redundancy by repeating the message in one form or another. This causes the transmitted signal to occupy more bandwidth but this repetition gives the receiver a much better chance of getting the message through in spite

of interference. The point to be made here is that a.m. has an inherent "diversity" advantage over s.s.b.; let's not complain about it but rather we should try to make more good use of it.

D.s.b. transmissions may be received on a standard a.m. receiver by the same methods which permit such a receiver to detect s.s.b. signals. The process requires some skill but it certainly can be done. A better solution involves the use of s.s.b. adaptors of the types Norgaard and others have proposed. These units simplify reception considerably and they make sideband switching a quick and simple matter. The best solution is of course a receiver or adaptor designed specifically for d.s.b. but this matter is beyond the scope of our present discussion.

DSB TRANSMITTERS— THE PAYOFF

The d.s.b. transmitter is far simpler to build and operate than a s.s.b. transmitter. The d.s.b. transmitter is simpler even than a conventional a.m. transmitter. Special tricks or gimmicks? No, just the proper combination of some old and well known techniques. No linear amplifiers, no filters, no phasing network, no frequency translators; you can do it yourself. How is all this possible? Well, it's mostly due to the simple fact that we no longer have to generate a carrier. To see how all these nice things come about take a look at Fig. 3.



(a) DSB Transmitter, Basic Circuit

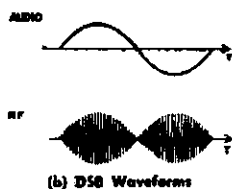


Fig. 3—DSB Transmitter Circuit and Waveform.

The final tubes V1 and V2 are beam tetrodes and are operated as screen-modulated class C amplifiers. The plates are paralleled and are connected to the antenna load by means of a pi matching network. The control grids are driven push-pull from a normal r.f. exciter at the operating frequency. The screen grids are by-passed to r.f. by C2 and C3 and are connected to the audio transformer T1. (A normal driver transformer will handle more audio power than will ever normally be required for Amateur service.) The centre-tap of T1 is either grounded or connected to a negative bias supply depending on the tube type and plate

voltage used. Blocking capacitor C4 is used to isolate d.c. from the pi coupler as is usual. Now for the operation.

With no audio both tubes are nearly cut-off by virtue of the fact that the screens are either grounded or biased negatively, thus no output. If we assume a sinusoidal audio tone as the modulating signal as shown in (b), one screen is driven positive during the first half-cycle and the other is driven negative. The tube with the positive screen conducts and r.f. is supplied to the load by that tube. During the next half of the audio cycle the other tube supplies the power and the first tube rests. Note that only one tube is working at any one time, except when there is no audio then both tubes loaf.

Fig. 3 (b) shows the audio and r.f. waveforms. Only one audio cycle is shown. Note further that the r.f. during the first half of the audio cycle is phased 180° to the r.f. during the second half of the audio cycle. This is typical of a suppressed-carrier a.m. signal. Suppose we add a carrier wave to the r.f. wave of Fig. 3 (b). If the carrier wave has the same phase as the r.f. in the first audio half-cycle and an amplitude equal to the maximum amplitude of Fig. 3 (b) the two voltages will add during the first audio half-cycle and subtract during the second half-cycle resulting in the old 100% modulation picture. So the circuit of Fig. 3 (a) produces a.m. without carrier or a d.s.b. signal.

A word or two about circuit efficiency is now in order. Since we are screen modulating, the efficiency will vary from zero at no audio drive to normal Class C efficiency at audio peaks. If an analysis is made the efficiency based on average r.f. power out to d.c. power in will be

$$\frac{\pi}{4} n_m \times 100\%$$

for sine-wave audio where n_m is the efficiency at the audio peaks which runs about 0.8. The overall efficiency is theoretically about 60% with 50% the value usually obtained in practice. This may not sound too impressive but let's look a bit further. Note that the efficiency expression involves $\pi/4$ and the normal class C efficiency as a product. In a normal a.m. transmitter $\pi/4$ is the theoretical efficiency of the Class B modulators and n_m of course is the efficiency of the class C final. Thus the circuit of Fig. 3 (a) will produce r.f. sidebands with the same efficiency as a conventional high-level modulated a.m. transmitter. The reason Fig. 3 (a) is so much simpler than a normal a.m. rig is that in Fig. 3 (a) we are not bothering to generate the carrier.

The peak power outputs which can be obtained from a given pair of tubes in this service may be estimated by taking the carrier output given in the handbook for one tube in class C telephony service and multiplying by four. You can do at least this good and probably better. For example, if a pair of 6146 tubes is to be used we find in the handbook that one tube will give 52 watts of carrier output in class C telephony service at 600 plate volts and 150 screen volts. If we set the high voltage at 1200 volts and run the screens to 300 volts on audio peaks we will get 4 × 52 or 208 peak watts

(Continued on Page 11)

ZEPHYR MICROPHONES

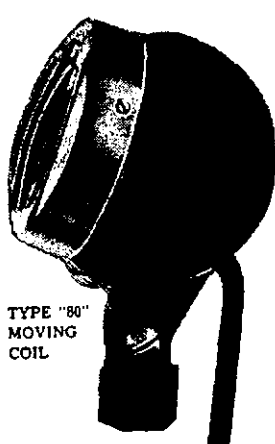


"THE MICROPHONE THAT SPEAKS FOR ITSELF"

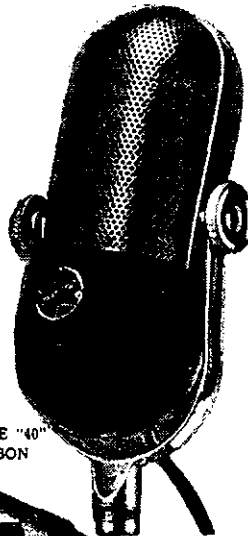
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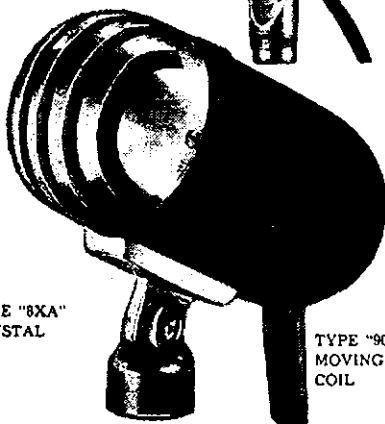
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Modifying the AR7 Receiver

PART THREE

BY G. M. BOWEN,* VK5XU

It is proposed to discuss the installation of two types of noise limiters in this section of the modification scheme. Each circuit has its advantages and its limitations. The choice that you may make will probably be decided by the amount of time—and equipment of course—that you have at your disposal.

The shunt limiter using a crystal diode 1N34 in the circuit found in the A.R.R.L. Handbook is probably the simpler of the two to instal, but is not as efficient in its operation as the double series limiter using a 6H6 or 12H6. The use of the 12H6 is not advised unless you have inbuilt 100 c.p.s. filters in your ears since the cathode is well above earth potential and results in quite a fair amount of a.c. hum feeding through. This can be improved and the contact potential of the plate-cathode circuit reduced considerably by operating either the 6H6 or the 12H6 on about 4.5 volts and 9 volts respectively.

Experiments with the 6H6 have shown that cathode emission ceases where the heater voltage falls below 4 volts approximately. The cathode at this lower temperature doesn't follow the a.c. maxima quite so readily and a little experimentation with a series resistor in the heater lead will pay dividends.

Along with others, it was found that the 6H6 or its glass equivalent was better than the later miniature types of double diodes.

the decoupling capacitor C34 portion of the a.v.c. voltage is applied to the first audio stage. Anyone wishing to retain the a.v.c. on this stage, and there are advantages in so doing, will simply bring the "earth" end of the volume control potentiometer to the same junction.

The first modification is to rewire R34 and include it into the grid circuit return and replace it with a diode load of 1 megohm. The lead from the decoupling resistor R33 and by-pass condenser C32 is a shielded one passing along the floor of the chassis from the

diode 6G8G. Since the shielded leads AX and YZ are already installed the end at X needs only to be lifted and transferred to the input of the limiter.

As all the components of the limiter circuit have been mounted on the solder lug strip attached to the end of the chassis it is an easy move. The audio coupling capacitor, C33, is mounted close to the potentiometer on a stand-off pillar and short leads can be used. The output lead from the limiter goes to C33, the earth lead to the nearest point on the chassis, and the two leads to the on-off switch as direct as possible and clear of C33.

It all makes for a very neat and tidy installation with a minimum of physical alteration.

One word of warning is required. Note the polarity of the circuit and connect the 1N34 into it correctly. If you are not sure and the circuit appears to not be working, try reversing the diode.

If a 1N34 is not available use a diode with a very low forward resistance and as high a back voltage as possible. This is necessary because signals will feed both ways if the diode has "had it."

This installation made operation on 28 Mc. a possibility in spite of almost continuous auto QRM.

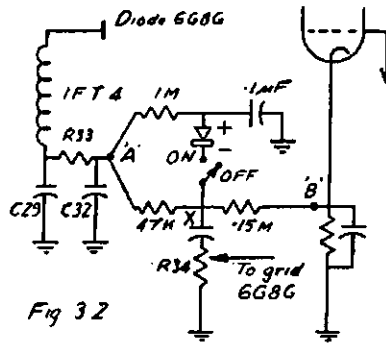


Fig 3.2

second i.f. stage to the front panel where the volume control is located. C33, the audio coupling capacitor, is placed on solder lugs close to the potentiometer and the return lead to the grid circuit, a shielded one, runs parallel to the other one. By transposing these leads on R34 they can still be used.

At the same time lay another screened lead so that an n.b.f.m. adaptor can be included if required. It is easier to do it at this stage than later on when components are replaced and new ones added.

For the 1N34 shunt circuit, use a double solder lug strip to mount the components. This can then be fixed on small stand-off pillars to the end of the chassis nearest to the audio control potentiometer. Remove the second phone jack and insert a s.p.s.t. toggle switch for "limiter-in," "limiter-out" control.

Although some Amateurs prefer to leave the limiter in all the time, there are occasions (like listening to the b.c. band!) when well modulated signals are severely distorted unless the limiter is taken out.

With the shunt limiter, screening the input and output circuits from each other doesn't present quite the problems that the double series limiter does. It is also less sensitive to parallel circuit capacitance than the series circuit and so far it has been found slightly better for the long shielded leads required in the AR7.

Without adding the limiter the circuit becomes the one in Fig. 3.1.

With the 1N34 limiter "A" and "B" become the points into which the limiter is included and the 1 megohm re-

DOUBLE SERIES LIMITER

Eventually curiosity got the better of me and it was decided to pull out the shunt limiter and instal the latest thing in full wave series limiters complete with threshold control, etc. The components were reeved out and a 6H6 installed on a small bracket attached to the end of the chassis with the socket connections facing the front panel. Since the heater supply was still 12.6 volts and a dropping resistor was needed anyhow to reduce the heater voltage to about 4½v., this was attached to a solder lug bracket clear of the components so that the heat could be dissipated without any sad results.

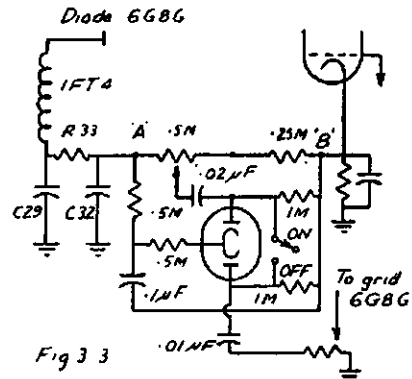


Fig 3.3

Another hole was drilled in the front panel immediately above the "off" etching to take the limiter on-off switch. The threshold control potentiometer went into the hole marked "phones."

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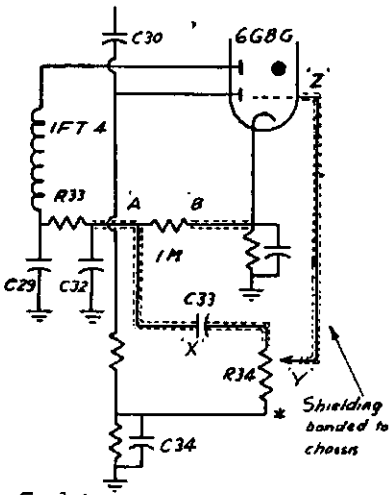


Fig 3.1

* This point is disconnected and grounded if a.v.c. is not required on the 6G8G.

INSTALLING A SHUNT LIMITER

Installing the 1N34 means rewiring the diode detector section so that a fixed resistor becomes the diode load instead of the volume control R34. Looking at the original circuit, it will be seen that R36, the grid resistor for the 8G8G, is returned to the junction of R30 and R31. These two form the a.v.c. diode load network; hence with

* 73 Portrush Road, Toorak Gardens, S.A.

THE "SNOOP-LOOP"

EVERYTHING ELSE IS TRANSISTORISED—WHY NOT A PORTABLE D.F. LOOP?

BY CLAUDE M. MAER, JR., W0IC

HAVE you ever been up a creek without a paddle? To get to the point, have you ever been hidden transmitter hunting on a night as dark as the inside of a potted power transformer? If you have, brush the tar out of your eyes and nose and continue reading.

Picture yourself, after taking off at the start of the hunt, heading in the right direction, signal getting stronger and stronger, excitement increasing with each additional S unit on the meter. You're following your loop closely—it's working just as good as a ten-element beam on 20 fed by a water-cooled kilowatt—and now you're getting out of town into the country—

can't see ten feet forward or backward. You stumble on in hopes of running into the hidden transmitter—you're probably not more than 500 feet from it—but away from your car with its sensitive receiver and amazingly sharp loop it really becomes a hunt for the needle in the haystack. Now do you see what I mean about the lack of a paddle?

After this happened to me a few times, I decided that something had to be done. I had an old loop left over from the early days of transmitter hunting, and it was a simple trick to wire in a germanium diode, capacitor and headphone jack. I was all set—I could leave my car on the nearest main travelled road, walk in to the hidden transmitter, find out how he managed to get in there with his car and—if a helicopter was not necessary—drive right in in jig time.

Well, I tried it at the very next transmitter hunt after bragging quite a bit about my new secret weapon. I reached a very close spot in the car (at least, I thought it was close) and started out on foot. Alas, no signal in my phones. I knew it was tuned to frequency because I had checked it earlier in the evening on a nearby mobile. My "weapon" was a dud. Later checking showed that it was good for only about 25 to 35 feet. Not good enough. What to do?

THE SOLUTION?

All sorts of thoughts came to mind, but the one that kept recurring was the use of a transistor, one of those supposedly magic devices which will some day replace the trusty old UV-201-A and require only a fraction of the power and voltage. But the trouble was that I didn't know anything about transistors. Also, what do transistors cost? Probably several bucks, which was more than I wanted to put into a device used once or twice a month at most. I was very pleasantly surprised to find at my next visit to the radio store that modern production-run transistors cost only about one buck, instead of several. So in I jumped, picked up two of the little devils and headed for the Handbook.¹

Without going into the details, I found that transistors are not at all difficult to understand if you can keep the names of the connections straight in your mind. I also found that the one-buck transistors were only good for audio and i.f. service, and that the most gain could be realised from the so-called common or grounded emitter connection.

Although some experts frown on comparing transistors with vacuum tubes, it was very easy for me to visualise the grounded-emitter circuit as being the same as the customary grounded-cathode circuit of the vacuum tube. (My goodness, it wasn't too long

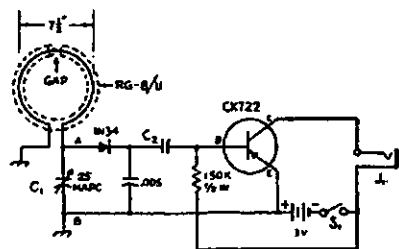


Fig. 1—"Snoop-Loop" circuit for 28 Mc. operation.

The loop is a single turn of RG-8/U inner conductor, the outer conductor being used as a shield. Note the gap in the shielding; about a 1 inch section of the outer conductor should be cut out.

C1—25 pF. midget air padder.
C2—0.1 uF. or more (paper).
J1—Open-circuit phone jack.
S1—S.p.a.t. toggle.

"A" and "B" (chassis ground) refer to designated input circuits shown in Fig. 2.

ago that, as far as I knew, the grounded-cathode circuit was the only way to connect up a tube.) It seems that the base acts like a grid, and the collector acts like the plate. In order to obtain any appreciable plate—oops, collector—current flow, the base has to be biased with a very small voltage of the same polarity as that applied to the collector. Generally speaking, the audio sensitivity and gain of a transistor stage is dependent upon the amount of base bias—within limits, the greater the base bias, the greater the audio sensitivity of the stage. So far so good.

HOW ABOUT THE LITTLE GEM?

About this stage in my mental gyrations, I recalled an article in "QST" about the use of a transistor in a field strength meter.² This struck a familiar note—wasn't a field strength meter just what I wanted for tracking down these wily boys hiding in the bulrushes? I hurriedly located the Little Gem in the measurements chapter of the Handbook,³ and looked at the diagram. It

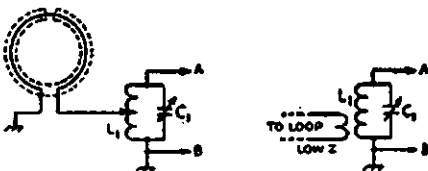


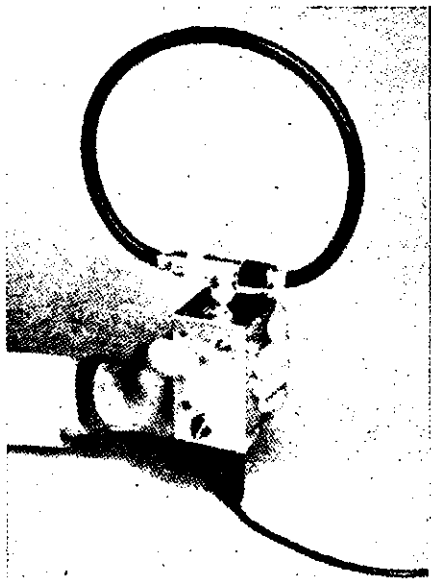
Fig. 2—Input circuits for lower frequency bands.

L1-C1 should cover the desired Amateur band, but the L/C ratio is not critical in the circuit at the left, adjust the position of the tap on L1 for maximum signal strength. The circuit at the right is for use with a length of low impedance line between the loop and tuned circuit L1-C1. As an alternative to the inductive coupling shown, the line could be tapped on L1.

"A" and "B" connect to correspondingly designated points in the circuit of Fig. 1, substituting for the loop and C1 in that circuit.

² Campbell, "The Transistorised 'Little Gem,'" "QST," August, 1955.

³ "The Radio Amateur's Handbook," 33rd edition, 1956, page 503.



The box containing the detector and amplifier is also the "handle" for W0IC's "Snoop-Loop." The loop mounting, using a co-ax tee as a support, is a convenience but is not an essential part of the loop assembly. The loop tuning capacitor is screw-driver adjusted. An on-off switch and headphone pack (on the bottom in this view) are the operating controls.

side. The roads are unfamiliar, and the null is beginning to swing rather rapidly, showing that you are getting in close. Whoops—it shifts to give a direction at right angles to the car. You look carefully across the deep ditch beside the road into the dark field where you know your cagey buddy is hiding. No roads into the field as far as you can see in either direction. You dare not waste miles driving up and down the road looking for an entrance, for each tenth of a mile counts.

You park beside the road, grab your flashlight, and plunge into the veldt in the direction your loop null clearly indicates. But after taking a few steps you're up to your armpits in brush and

* Reprinted from "QST," February, 1957.

¹ "The Radio Amateur's Handbook," 33rd edition, 1956, pages 77-81.

took me a while to catch on to the metering balancing circuit, but I really got baffled when I looked at the base circuit. Look, Ma, no bias. How come?

This puzzle took a few days of sneaking in a thought now and then during lulls at the office, and then a cryptic note in the Handbook description began to sink in: "The transistor is used in the common-emitter arrangement connected so that the rectified d.c. from the crystal flows in the base-emitter circuit." I got a hot flash—that's where the bias comes from. A little more thought showed me that this was the correct connection for the transistor if the meter were to read relative signal strength, because when a fixed bias is applied to the base circuit the average collector current remains more or less constant for all signal levels. Of course, the instantaneous current will vary with a.c. input so that an audio signal will come through and be amplified.

Right there I had to make a decision. Did I want to use a meter or headphones? For a number of reasons I chose the headphones. In the first place, the trouble I was trying to overcome was lack of sensitivity in my portable loop. I reasoned that the time you need the most sensitivity is when the signal is weak, and with the Little Gem circuit there is less bias on the base with weak signals (remember the Little Gem gets its bias from rectifying the incoming signal) and thus the least sensitivity at that time. Thus, it seemed to me that the signal-biased circuit was not what I was looking for. In addition,

cause there is modulation on the signal at all times and the modulated signal comes through fine.

After doing the thinking for a week or so, it took about a half hour to connect in my transistor audio stage, and I had a real secret weapon, the "Snoop-Loop." It works, too. On the ten metre band I can read signals up to one mile under good transmitting conditions, but even in the thick woods a quarter of a mile is duck soup. I believe that a half mile can be said to be the working range of the device.

It's a good idea to check out these distances carefully, before you make the mistake I made one night. When first testing it out on a hunt, I stepped out of the car to see if I could hear the hidden transmitter. Sure enough, there was a weak signal in the phones. I had become used to using the loop with only the diode detector, and in the excitement of getting in close forgot about the greatly increased sensitivity I had built in. I rushed off down the road on foot, following my Snoop-Loop, and about one mile later at the top of a high hill I stumbled onto the hidden site. Boy, I still have scars from the blisters on my feet! As it turned out, we could have driven on the main road to within 500 or 600 feet of the site and then my little loop would have led us into the location, which could not be seen from the road. In that case a meter might have been helpful, but you can learn the relation of audio strength to distance fairly accurately with a little practice.

I chose a medium-sized aluminum case, 4 x 2½ x 2½ inches. Any equivalent box will suffice and leave plenty of soldering room.

The loop is constructed of RG-8/U co-ax. Since a co-ax "tee" connector is used for convenience and ease of mounting, one end of the co-ax loop is connected to a male plug in the conventional way, but the centre conductor of the other end is shorted to the shield so that the male connector at that end has no connection to the centre prong. This results in an unbalanced circuit, but seems to give good bidirectional null readings as well as an easily detectable maximum reading when the grounded end of the loop is pointed in the direction of the transmitter. Careful tuning will improve this maximum reading as described in an earlier article.⁴

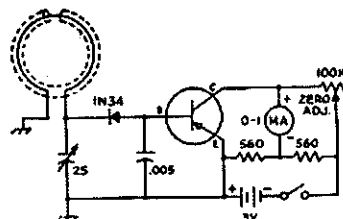


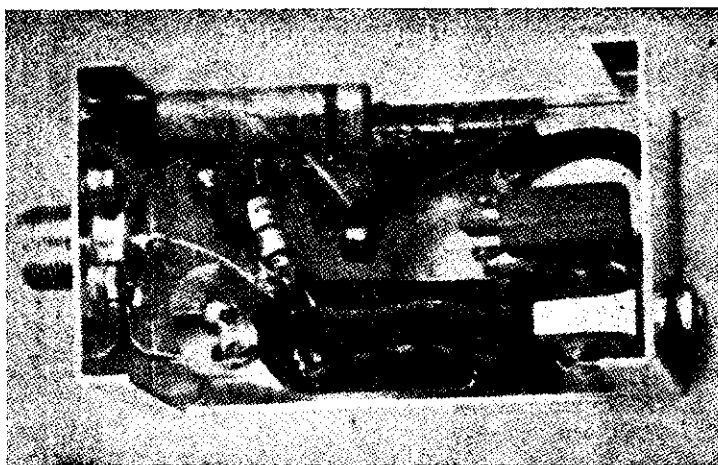
Fig. 3.—The "Little Gem" metering circuit, for use with unmodulated signals. Other components same as Fig. 1.

Placement of parts can be seen in the photographs. Be sure to insulate the headphone jack from the case because both connections are above ground—three volts worth (no danger of any serious shock!). Also, don't forget to remove one inch of shielding from the top of the loop. You won't get much signal unless you do.

The Snoop-Loop is not limited to the ten metre band or to a built-in loop. Fig. 2 shows alternative circuits for other bands and for plugging in a separate loop connected by a low impedance transmission line.⁵ Select coil and capacitor combinations that will tune to the desired frequencies. Plug-in coils could be used. It is a good idea to have the r.f. end of the unit fairly well shielded, to eliminate signal pick-up except through the loop. Incidentally, sensitive high impedance phones really improve the performance of the Snoop-Loop. I use a single hearing aid button type with 8,000 ohms impedance and 2,000 ohms d.c. resistance.

Fig. 3 shows the Little Gem connection for using a meter in place of the headphones.

I don't know if this little loop will be as helpful to you as the paddle we originally talked about, but it sure helps on a dark night in the country. (Tip to the hidden transmitter operator: If you want to foul up some of your pals using these loops, just hide near the transmitting antenna of a 50,000 watt broadcasting station. But that's another story!)



Interior construction is very simple, a lag strip providing wiring terminals for most of the parts. The two penlite cells are wrapped with tape and supported by leads soldered to the terminals.

In localities where the signal from the hidden transmitter is unmodulated the meter circuit will have to be used. The Little Gem should work quite well, but some means should be included for reducing sensitivity to keep that meter pointer straight. Sometimes, detuning the input circuit will do the trick, but if the only tuning is in the loop circuit itself, detuning may cause some strange directional effects.

CONSTRUCTION

Fig. 1 shows how simple the unit really is. Almost any size box can be used, but I happen to be one who does not like to burn his fingers trying to solder connections in small places, so

⁴ Amphar, "Unidirectional Loops for Transmitter Hunting," "QST," March, 1955.
⁵ Duncan, "Transmitter Hunting—Seattle Style," "QST," March, 1955; Norberg, "Transmitter Hunting with the D.F. Loop," "QST," April, 1954.

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VK-ZL DX CONTEST, 1957

Phone—1000 GMT, Saturday, 5th October, to 1000 GMT, Sunday, 6th October
 CW— " " " 12th " " " 13th "

N.Z.A.R.T. and W.I.A., the National Amateur Organisations in New Zealand and Australia, invite world-wide participation in this year's VK-ZL DX Contest.

Objects: For the world to contact VK and ZL Stations and vice-versa.

When?: Phone—24 hours from 1000 G.M.T., Saturday, 5th October, to 1000 G.M.T., Sunday, 6th October.

C.W.—24 hours from 1000 G.M.T., Saturday, 12th October, to 1000 G.M.T., Sunday, 13th October.

Duration for all contestants is 24 hours.

RULES

1. There shall be three main sections to the Contest—

- (a) Transmitting Phone.
- (b) Transmitting C.W.
- (c) Receiving—Phone and C.W.

2. The Contest is open to all licensed Amateur transmitting stations in any part of the world. No prior entry need be made. Mobile Marine or other non-land based stations are not permitted to enter the Contest.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. C.W. will be used for the second week-end and Phone for the first week-end. Stations entering for both Phone and C.W. must submit entirely separate logs for each.

5. Only one contact per band is permitted with any one station for Contest purposes.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor, and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) reports plus three figures which may begin with any number between 001 and 100 for the first contact, and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number must be 054, for the third 055, and so on. If any contestant reaches 999, he will start again with 001.

9. Entries must be set out as shown in the example below, using one side of the paper only. Entries must be post-marked not later than the 31st October, 1957, and addressed to the Federal Contest Committee, W.I.A., Box 1234K, G.P.O., Adelaide, South Australia.

10. **Scoring:** For VK-ZL Stations only—Five points will be scored for each contact on a specific band with an overseas station, and in addition for each new country worked on that band a bonus of 20 points will be added. For the purpose of this rule the official countries list will apply with the exception that each VE, W, and ZS call area will count as a separate country.

For Overseas Stations—Five points will be scored for each contact on a specific band with a VK or ZL call area (ZL1, 2, 3, and 4; VK0 (zero), 1, 2, 3, 4, 5, 6, 7, and 9), and in addition for each new call area worked on that band a bonus of 50 points will be added.

11. Logs submitted by overseas contestants should be set out as shown in this example. (VK and ZL entrants will modify their logs accordingly.)

VK-ZL DX Contest, 1957

Page 1

Name.....Section.....
 Address.....Call Sign.....

Claimed Scores: Total.....
 Band Scores: 80 Metres.....
 40 ".....
 20 ".....
 15 ".....
 11 ".....
 10 ".....

Tx Input Power.....Aerial(s).....

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.

Signed.....
 Date.....

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. Awards—

(a) **VK-ZL Stations.**—The W.I.A. will award certificates to the top scorer on each band and the top scorer in each VK and ZL district. Additional certificates may be awarded depending on the number of logs received.

(b) **Overseas Stations.**—Certificates will be awarded to the highest scorer in each country (each call area in VE, W and ZS). Additional certificates will be awarded depending on the number of logs received, e.g. to the high scorers on different bands and to place winners where scores are exceptionally high.

RECEIVING SECTION

1. The rules are the same as for the transmitting section, but it is open to all members of any Short Wave Listeners' Society in the world. No transmitting station is permitted to enter this section.

2. The Contest times and logging of stations on each band per week-end are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section but will omit the serial number received. Logs must show the call sign of the station heard (instead of "worked"), the serial number sent by it, and the call sign of the station being called.

Scoring will be on the same basis as for transmitting stations. It is not sufficient to log a CQ.

4. VK receiving stations may log overseas and ZL stations, while ZL receiving stations may log overseas and VK stations.

5. Certificates will be awarded to the highest scorers on the same basis as for the transmitting stations.

VK-ZL DX Contest, 1957

Page 2

Date Oct.	Band Mc.	Time G.M.T.	Station Worked	Serial Sent	Serial Received	Points Claim.	Bonus Points	(Leave Blank)
5th	14	1054	VK2XYZ	57001	54027	5	50	
	14	1100	VK3ABC	54002	44131	5	50	
	14	1110	VK3AXQ	46003	57008	5	—	
	21	1220	VK3AZX	58004	56045	5	50	
	21	1230	ZL2XYZ	56005	57152	5	50	
	21	1257	ZL2ABC	55006	45013	5	—	
	21	1315	VK9XY	57007	58141	5	50	
	21	1405	VK9AB	59008	59016	5	—	
	TOTAL (Points Claimed + Bonus Points)						40	+ 250

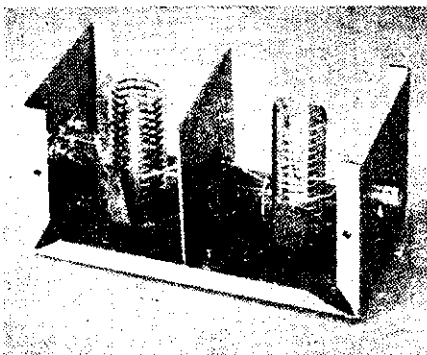
[Contestants are requested to maintain "sent" serial numbers in the correct sequence and not to divide their logs into bands.]

The Evils of Multiband Antenna Systems —And the Cure*

BY LEWIS G. McCOY, WIICP

A LOOK through "The Radio Amateur's Handbook" of ten years ago will show that there was only one commercial transmitter using the pi-network output circuit. However, the 1957 edition of the Handbook shows that pi networks are the rule rather than the exception. It would be safe to say that over 90 per cent of store-bought transmitters use this type of output circuit.

Why the trend to pi networks? The answer is simple. The pi network lends itself readily to compact band-switching transmitter design. It means the elimination of plug-in coils, and this is exactly what the average Joe Ham wants. He may never operate anything but 40 c.w., but he still likes to know that all it takes is a flip of the switch to put him on another band. He also has heard that a pi network is an ex-



This unit is the 40 metre band-pass filter. The shield between the two filter sections is a piece of aluminium, slightly narrower than the width of the box.

cellent circuit to prevent harmonic radiation and is just what he needs to keep from getting t.v.i. This last is not completely true. A pi network is no better than the "old-fashioned" parallel tuned, link coupled circuit. In fact, an improperly tuned pi network can give very poor harmonic suppression.

About now the Novice is going to ask, "What has all this to do with multiband antenna systems?" Bear with us and we'll show you. Most transmitters using a pi are designed to work into a 50 or 75 ohm load, which of course suggests the use of co-ax feed line of that impedance. If you have a multiband transmitter it naturally follows that you want a multiband antenna that is coax fed. This desire has led to the development of trap antennae and multiple dipoles¹ fed with a single co-ax line. No one wants an antenna coupler between the transmitter and the feed line because this will mean additional adjustments. Right here is where we run into troubles.

* Reprinted from "QST," March, 1957.
¹ Berg, "Multiband Operation with Paralleled Dipoles," "QST," July, 1956; Greenberg, "Simple Trap Construction for the Multiband Antenna," "QST," October, 1956.

● Just when you're happy as a lark with your multiband antenna, some guy will come along and tell you what's wrong with it, as WIICP does in this article. But he doesn't stop there; he shows how easy it is to correct the situation.

A multiband antenna is exactly what the term implies; it is good for more than one band. If we put an 80 metre signal into the antenna the signal will be radiated. If that 80 metre signal has a 40 metre harmonic our multiband antenna is going to accept and radiate the harmonic as well as the fundamental. (Have you heard from the P.M.G. lately?) If the antenna were an 80 metre job only it would be resonant at 80, but it would still be capable of accepting and radiating any odd-harmonic (3rd, 5th, 7th) energy.

This leads up to another question: How much harmonic signal can we tolerate? The P.M.G. is quite specific in its definition of our rules on this point. All spurious signals must be attenuated to a point where they will not cause interference to other services. It is extremely difficult to apply exact figures on harmonic content in a transmitter—there are too many factors that get into the act to foul up our calculations. However, let's make a few assumptions to illustrate what one can expect in harmonic attenuation.

THE DECIBEL

In discussing attenuation of harmonics we use the relative power unit called the decibel (abbreviated "db." and pronounced "dee bee"). You'll hear the term db. a lot in your Amateur career, so it would be well to become familiar with it. To familiarise yourself with power gains and losses expressed in db., look at Table 1. You

can see from the table that if you had a power increase of "10 db.," it would be the same as a power increase of 10 times. If we had a harmonic reduction of 20 db., the harmonic power would be decreased to 0.01 of its original or comparison value.

Getting back to our discussion of tank circuits and multiband antennae, let's assume for the moment that our amplifier is properly tuned, and our second harmonic is down 30 db. from the fundamental. This is a reasonable figure and about what we can expect in the average tank circuit. It does not take into consideration any stray harmonic coupling that might be present in the transmitter. A glance at Table 1 indicates that 30 db. reduction means a power ratio of 0.001. With a 100 watt signal, the second harmonic would be 0.1 watt if the harmonic reduction was 30 db. Many Amateurs would say a 0.1 watt signal isn't worth discussing—it just wouldn't cause you any trouble. Well, let's look at the record.

Db.	Power Gain	Power Reduction
10	10	0.1
20	100	0.01
30	1,000	0.001
40	10,000	0.0001

Table 1.

Power gain and reduction factors.

Recently, Amateurs have been experimenting with transistor rigs using powers on the order of a fiftieth of a watt. One Ham has worked over 10,000 miles with such a rig. It doesn't take a mathematical wizard to figure out that a tenth of a watt is considerably stronger than a fiftieth.

One of the better methods for finding out if you are radiating unwanted signals is to have a nearby Ham listen for harmonics. Don't pick out someone next door to you; his receiver will be overloaded by your signal and he is likely to hear all kinds of spurious signals (which will be generated in his receiver—not your rig). Find someone who is at least four or five hundred yards away. A careful check on his part will soon show whether or not your rig is clean. If there are unwanted signals present, then obviously you must eliminate them if you're going to avoid notices from the P.M.G. If the signal several hundred yards away is barely detectable above the noise level it isn't worth worrying about, but a solid S5 or S6 signal is just cause for concern.

THE HALF-WAVE FILTER

A simple way to obtain the necessary attenuation is with a half-wave filter. A filter of this type installed in the feed line will permit any signal within the

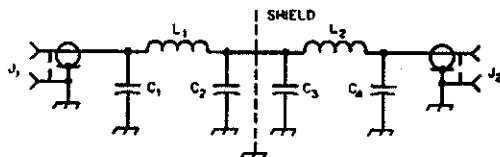


Fig. 1.—Schematic diagram of the band-pass filter.
C1, C2, C3, C4—3.5 Mc.—820 pF., 500 volts, mica.
7 Mc.—470 pF., " " "
14 Mc.—220 pF., " " "
21 Mc.—150 pF., " " "
28 Mc.—110 pF., " " "
J1, J2—R.C.A. type phono jacks.
L1, L2—3.5 Mc.—12 turns No. 18, 1 inch diam., 8 t.p.i.
7 Mc.—13 turns No. 18, 3/4 inch diam., 8 t.p.i.
14 Mc.—10 turns No. 18, 1/2 inch diam., 8 t.p.i.
21 Mc.—7 turns No. 16, 3/8 inch diam., 4 t.p.i.
28 Mc.—7 turns No. 18, 1/2 inch diam., 4 t.p.i.

(Eight lengths of coil stock are required for each filter.)

band to reach the antenna, but signals above and below the band are attenuated. Thus this type of filter protects against both harmonics and undesired low frequency signals. The protection against harmonics is always good; the protection against undesired low frequency signals is something of a variable with different transmitters and antennae.

Harmonic attenuation with this filter is approximately 30 db. for the second, 50 db. for the third, and 60 db. for the fourth, increasing with each harmonic. The filter will eliminate the need for the customary low-pass t.v.i. filter, and thus the band-pass filter does double duty for us. The drawback, and it is not a serious one, is that a separate filter is needed for each Amateur band. The simplest way to operate with the filters is to build one for each band and equip the filters with phono type jacks. Then the feed line can be quickly plugged into the proper filter.

It is impractical to switch filters for each band for one very good reason. The purpose of the filters is to stop unwanted signals from reaching the antenna. A switching arrangement would necessitate switching the input and output leads to the filters and it would be very difficult to prevent harmonic leakage around the switch. That is why we suggest plug-in filters. It only takes a second to change the feed line to the correct filter. Incidentally, the filters described here will work with either 50 or 75 ohm co-axial cable.

CONSTRUCTION

Before starting construction study the photograph and Fig. 1. Each filter consists of two coils and four mica capacitors mounted in a 2½ x 5 x 2½ inch aluminium box. However, if one wishes to save on chassis costs, the filters can be enclosed in coffee cans or any other metal enclosure that will provide good shielding.

The coils are self-supporting, and a rubber grommet should be used in the shield wall to prevent the coil wire from shorting to the chassis. A solder lug should be mounted each side of the shield wall immediately below the grommet hole. All the ground leads from C1, C2, C3 and C4 should be soldered to these lugs. The leads from C2 and C3 to the coil wire should be kept as short as possible and connected to the wire close to the shield wall.

OPERATION

There are a few important points to remember when using the filters. The co-ax feed line should have a low standing wave ratio, not much more than 2 to 1. A high s.w.r. may cause excessive voltages to develop across the components in the filter, and in such a case the filter might be ruined. When changing bands, remember to change the filter first. Otherwise, you'll be almost sure to burn out the filter. With the component values listed in Fig. 1, the filter is capable of handling a 250 watt transmitter. One can readily see that this type of filter is the simple answer to harmonic attenuation and protection when using a multiband antenna system.

SINGLE SIDEBAND:

IS IT REALLY BETTER THAN AMPLITUDE MODULATION?

(Continued from Page 3)

output. This you know you can do because the voltages and powers quoted are those which exist in class C telephony service during modulation peaks.

Without getting into too much circuit detail or d.s.b.-linear amplifier power comparisons this much is clear: the class C amplifier with its ability to put out large amounts of peak power is ideally suited for voice service in the circuit of Fig. 3 (a). The average voice sideband power produced by a pair of tubes in d.s.b. service will easily match the average voice sideband power produced by the same tubes in s.s.b.-linear amplifier service.

The above power discussion actually underplays an important advantage of d.s.b. over s.s.b. In d.s.b. or standard a.m. systems voice clipping and filtering, if properly done, can increase significantly the average sideband power output of a given transmitter. Such tricks cannot be used in s.s.b. since a flat-topped wave is deadly to an s.s.b. system. (Such a waveform results in a very high peak-to-average power ratio for the s.s.b. signal.) Do not confuse peak clipping with the peak limiting or audio a.g.c. tricks that are sometimes used in s.s.b. designs. These are defensive measures which in effect permit the audio peaks to fully load but not overload the linear r.f. amplifier. The average power gain of d.s.b. using a good clipper-filter over s.s.b.

can be considerable but for the moment I'm willing to settle for a draw.

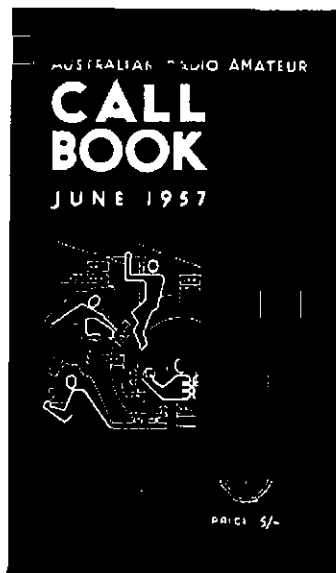
A few final comments: The r.f. excitation in d.s.b. service is not at all critical. Adjust for normal phone drive and you've got it made. That is one reason why screen modulation of tetrodes is to be preferred over control-grid modulation of triodes. You can use triodes but you have to watch the ratio of audio voltage to r.f. voltage. With the tetrodes you just read the grid mills. The r.f. exciter of course is normal—use the one you've got. One more thing—we said that only one tube works at a time. This is true except that the "off" tube acts as a neutralising capacitor for the "on" tube. The circuit is self neutralising since the grid-plate capacitance of the "off" tube is in just the right spot for grid neutralisation.

CONCLUDING REMARKS

I would not like to oversell d.s.b.; it won't perform miracles. However, when compared with s.s.b. we may draw the following conclusions:

1. S.s.b. has no power advantage.
2. S.s.b. will not reduce interference.
3. S.s.b. is much harder to generate.

That's the end of my story, which is a good thing because I can see them coming for me now.



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- Over one thousand additions, alterations and deletions since the last edition, making more than three thousand amendments since the 1954 edition.
- DX Countries, Prefixes and their Zones.

EASY WAY TO GET DX CERTIFICATES*

BY "CANDIDUS"

Gone are the days when it took hard work to get real DX. There is now a system so radically different, so wonderfully simple, that the Amateur transmitter finds himself asking, "Why hasn't somebody thought of it before?" But, then, it's been the same with every invention which has been of benefit to humanity. The bright boy who thought of putting a crinkle in hairpins, the unknown genius who invented the water closet—humanity owes them something. And now, radio owes a debt of gratitude to those who have evolved this simple method of getting DX.

This new system works. It has been tried out on the 20 metre band with results that have staggered, indeed rocked, those privileged to hear the system in operation. It has a formula which is even simpler than that of Ohms Law, which, as some radio enthusiasts know, is a very easy formula to master.

The simplified DX Formula is:—

$$\frac{A + B}{C} = \text{DXCC} + \text{QSL}$$

where A = an Amateur Radio Station in Indo China (or anywhere else).

B = an Amateur Radio Station in Algeria (or anywhere else).

C = An Amateur Radio Station in Australia.

The formula is worked this way—A hears B but very faintly and, an optimist to the last, gives him a call. B does not hear A at all well, but obviously suspects that someone is calling him. C, down under in Australia, hears both the boys and, being a big-hearted Aussie, he steps into the breach. He calls them both. A then calls C who, in turn, calls B, who goes back to C plus A. C then calls A and gives him all the gen from B. And so it went on.

A couldn't hear B. Neither could B hear A. But they could both hear the enterprising C, who fed each with details about the other.

The naive part of this infernal triangle was that A and B promised not only to QSL C, but to QSL each other! A and B both got cards; but neither had heard a peep out of the other. It opens up a pretty problem which only a legal gentleman could solve, and that could become expensive.

Yet this is a good system. It gets results. I now have a working arrangement with a big-hearted Amateur who lives not far away, and whose transmitter has a kick like two tons of coal

dropped from a great height. When I hear some choice DX, all I have to do is to give him a call and he does the rest. I get the cards and he gets the fun. You can't lose!

If this system grows, we might see a special certificate for "VERIFIED IMAGINARY CONTACTS VIA A THIRD STATION." Such an award will be eagerly sought by those who have faith in this new system. There will, of course, be difficulties, especially in the telephony band, but difficulties are but a challenge to the Amateur who has the right spirit.

C.D.E.N. NEWS

One of the most heartening pieces of news which emerged from the Federal Convention is the uprise of interest and impetus given Emergency Activity in VK5. A number of Type 121 sets have been released by the Army and pressed into service. Other Divisions are advised to seek from Department of Supply, details of equipment to be released in the near future which would be useful for emergency purposes.

For benefit of members, current list of C.D.E.N. Co-ordinators is set out hereunder:
Federal—G. Glover (VK3AG).
VK2—J. Corbin (VK2YC).
VK3—R. Busch (VK3LS).
VK4—V. Jeffs (VK4VJ).
VK5—J. P. Sullivan (VK5JK).
VK6—H. T. Mulder (VK6MK).
VK7—R. O'May (VK7OM).
VK8—F. Nolan (VK8FN).

Anticipation of an emergency and prewarning of the Control Station and Network generally will often mean the difference between success and failure.

For example, the approach of a storm, flood or fire is, in many cases, preceded in a given area by certain conditions which give due warning. Notifying the Network enables City Amateurs to be alerted ready to maintain watch during business hours; furthermore, it ensures that traffic originating in the City will be received by the Network which has been alerted.

Recently two cases have occurred where communication has been requested to an area in which a state of emergency was in progress and Amateurs in that area have not been listening. In both cases due warning had been given in the area and stations all around the affected area have taken up the relay without achieving results. In one case another Amateur voluntarily drove his mobile equipment fifty miles to the scene to establish vital communications.

The practise adopted by wide-awake members in areas where the fire danger is high is recommended to all Amateurs, that is, a tuner set to emergency calling frequency is fed into i.f. stages of b.c. receiver so that when a station comes up on the frequency the signal is super-imposed upon the XYL's favorite programme. The XYL then follows pre-determined procedure to bring the OM into action.

If you have any ideas for suitable transistorised unit for this purpose, send circuit and short story to the Editor of "Amateur Radio" for publication.

The second Communications Study Period at Mount Macedon was attended by the following members of the W.I.A. who represented their respective Divisions:

VK2HO—H. J. Hart.
VK3WJ—George Robertson.
VK4FP—J. F. Pickles, Vice-President.
VK3AG—G. Glover, Federal Executive.

Thanks to the courtesy of the Commandant of the School, your Federal Co-ordinator was able to address all assembled and outline the Institute's past and present activities. He was also able to outline our future proposals and indicate the Amateur's place in the whole scheme.

MODIFYING AR7 RECEIVER

(Continued from Page 8)

The few resistors and capacitors were wired across and around the socket, isolating as far as possible the input and output circuits. Minimum capacitance to earth and complete isolation of input from output leads is the secret of success.

Data issued by the Hallicrafters Company for modifying the noise limiter in the SX28 stresses the need to have the double diode, 6AL5, as close as possible to the detector diodes. All circuits including this type of limiter seem to include a separate 6H6 or 6AL5 as audio detector and a.v.c. rectifier. I suspect that any lack of real success with this type of limiter in the AR7 may be due to the long leads and the use of the diodes in the 6G8G for detection, etc.

It does work but not really as well as it should. If it can be tolerated, leave the limiter in all the time, set the threshold by fixed resistors, mount the 6H6 immediately above the last i.f.t. and get as short leads as possible.

Ground the cathode of the 6G8G and return the grid through the volume control to the a.v.c line as shown in Fig. 3.1 for some fixed bias. Large signals will give higher bias and thus some measure of control over distortion will be achieved.

OVERSEAS AWARDS

"SHORT WAVE MAGAZINE" AWARDS

Cards, from overseas claimants only, need NOT be sent with the original application, which must, however, include a full check list—band, call sign and date for each station worked—to justify the claim. From the check list, all or any cards may be called in for scrutiny, or details asked for in relation to particular contacts.

In no case can a Certificate be issued without proofs, or evidence considered good and sufficient that the claimed contacts have been confirmed.

From overseas applicants (only) claims duly certified by the headquarters of the Amateur Radio organisation for the country concerned can be accepted. All overseas claims must be accompanied by five I.R.C's.

WORKED ALL GM AWARD

The Aberdeen Amateur Radio Society is now offering the "Worked All GM Award (W.A.G.M.)" to licensed Amateurs able to submit proof of contact since October 1, 1946, with one GM2 station, fifteen GM3, one GM4, one GM5, one GM6 and one GM8. Contacts may be phone or c.w. or mixed, with minimum reports of RS33 or RST338. Cross-band contacts will not be accepted.

Claims for the award, accompanied by the 20 QSL cards and a renittance for 2/6 (or 10 I.R.C's.) should be sent to A. G. Anderson (GM3ECL), 'Helford', Pitfoedels, Aberdeen, from whom full details may be obtained.

VA-JF CERTIFICATE

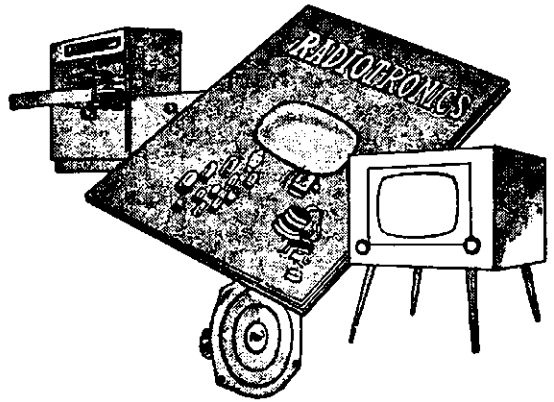
The Richmond (Virginia) Amateur Radio Club is issuing the VA-JF Certificate in connection with the 1957 Jamestown Festival which will be opened in April next to commemorate the 350th Anniversary of the first permanent English Settlement in America in 1607.

To claim the award, Amateurs must submit QSL cards confirming two-way contacts with twenty-five different stations in the Commonwealth of Virginia during the period January 1 to December 31, 1957.

Claims should be addressed to the Richmond Amateur Radio Club, P.O. Box 1985, Richmond 18, Virginia.

* Reprinted from "Break-In," January, 1957, with modifications.

REACH



FOR SOUND KNOWLEDGE

Radiotronics is published monthly and contains much valuable information for servicemen, technicians and engineers.

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- Up-to-the-minute valve data.
- Wide variety of technical information.
- Articles of interest on amplifiers, circuits, new valve types and the latest advances in the audio and television fields.

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VALVE DATA

6AV6

TWIN DIODE, HIGH-MU TRIODE

The Radiotron 6AV6 is a miniature valve containing two diodes and a high-mu triode in one envelope. The triode section is suitable for use in television and a.m. radio receivers as an audio amplifier; and the diodes for use in television receivers for such a purpose as an a.g.c. clamp, and in a.m. radio receivers as a detector and an a.v.c. voltage rectifier.

Base: 7 pin miniature.

Socket connections:

- Pin 1—Triode Grid.
- Pin 2—Cathode.
- Pin 3—Heater.
- Pin 4—Heater.
- Pin 5—Diode Plate No. 2.
- Pin 6—Diode Plate No. 1.
- Pin 7—Triode Plate.

Electrical Data

Heater Voltage 6.3 volts
Heater Current 0.3 amp.

TRIODE UNIT AS CLASS A1 AMPLIFIER

Maximum Ratings:

Plate voltage 300 max. volts
Grid voltage, positive bias value 0 max. volts
Plate dissipation 0.5 max. watts
Peak Heater-Cathode Voltage:
Heater negative with respect to cathode .. 90 max. volts
Heater positive with respect to cathode .. 90 max. volts

Characteristics:

Plate voltage 100 250 volts
Grid voltage -1 -2 volts
Plate resistance 80000 62500 ohms
Amplification Factor 100 100
Transconductance 1250 1600 μ mhos
Plate current 0.50 1.2 Ma.

DIODE UNITS

Maximum Rating:

Plate current (each unit) 1.0 max. Ma.

The two diode plates are placed around a cathode, the sleeve of which is common to the triode unit. Each diode plate has its own base pin. Diode biasing of the triode unit is not recommended.

50 Mc. W.A.S.			
Call	Cer. Add. No. Cntr.	Call	Cer. Add. No. Cntr.
VK2WJ	13 4	VK2AEZ	10 1
VK3PG	5 3	VK3KA	11 1
VK3VW	9 3	VK3GM	12 1
VK4RY	2 2	VK3ACL	14 1
VK4HR	4 3	VK3ZD	16 1
VK5LC	1 1	VK2HO	17 1
VK6DW	3 1	VK2ABC	8
VK3RR	6 1	VK2WH	15
VK3HT	7 1		

6BQ6GTB/6CU6

BEAM POWER VALVE

The Radiotron 6BQ6GTB/6CU6 is a beam power valve designed for use as a horizontal deflection amplifier in television receivers.

This valve has a maximum peak positive-pulse plate voltage rating of 6000 volts (absolute), a maximum peak negative-pulse plate voltage rating of 1250 volts, and a maximum direct plate voltage rating of 600 volts. These ratings, in addition to a plate dissipation of 11 watts and a grid No. 2 input of 2.5 watts, enable a single valve in a suitable circuit to deflect picture tubes having diagonal deflection angles of 90°.

Base: Octal.

Socket connections:

- Pin 1—No connection.
- Pin 2—Heater.
- Pin 3—No connection.
- Pin 4—Grid No. 2.
- Pin 5—Grid No. 1.
- Pin 7—Heater.
- Pin 8—Cathode, Grid No. 3.
- Cap—Plate.

Electrical Data

Heater Voltage 6.3 volts
Heater Current 1.2 amps.

Class A1 Amplifier*

Transconductance 6000 umhos
Plate resistance (approx.) 18000 ohms
Plate current 65 Ma.
Grid No. 2 current 2.1 Ma.
(* with plate volts 250, grid No. 2 volts 150, grid No. 1 volts -22.5)

HORIZONTAL DEFLECTION AMPLIFIER

For operation in a 625-line, 25-frame system.

Maximum Ratings:

Direct plate voltage 600 max. volts
Peak positive-pulse plate voltage† (absolute max.) 6000 max. volts
Peak negative-pulse plate voltage 1250 max. volts
Direct grid No. 2 (screen) voltage 200 max. volts
Peak negative-pulse grid No. 1 voltage 300 max. volts
Cathode current:
Peak 400 max. Ma.
Average 112.5 max. Ma.
Grid No. 2 input 2.5 max. watts
Plate dissipation‡ 11 max. watts
Peak Heater-Cathode voltage:
Heater neg. with respect to cathode 200 max. volts
Heater pos. with respect to cathode 200 max. volts
Bulb temperature (at hottest point) 220 max. °C.

Maximum Circuit Value:

Grid No. 1 circuit resistance 0.47 max. megohm

† The duration of the voltage must not exceed 15 per cent. of one horizontal scanning cycle. In a 625-line, 25-frame system, 15 per cent. of one horizontal scanning cycle is 10 microseconds approx.

‡ Under no circumstances should this absolute value be exceeded.

§ An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

¶ The d.c. component must not exceed 100 volts.

6BQ7A

MEDIUM-MU TWIN TRIODE

Radiotron 6BQ7A is a medium-mu twin triode of the 9-pin miniature type. This tube has high transconductance, low input capacitance, low input loading and low plate-to-cathode capacitance. These features make the 6BQ7A especially useful in the direct-coupled r.f. stage of television receivers utilising a driven r.f. grounded-grid (cascode) amplifier circuit. Use of the 6BQ7A in such circuits provides a reduction in noise with resultant improved receiver sensitivity.

Base: 9-pin miniature.

Socket connections:

- Pin 1—Plate of unit No. 2.
- Pin 2—Grid of unit No. 2.
- Pin 3—Cathode of unit No. 2.
- Pin 4—Heater.
- Pin 5—Heater.
- Pin 6—Plate of unit No. 1.
- Pin 7—Grid of unit No. 1.
- Pin 8—Cathode of unit No. 1.
- Pin 9—Internal shield.

Electrical Data

Heater voltage 6.3 volts
Heater current 0.4 amp.

AMPLIFIER—CLASS A (Values are for each unit)

Maximum Ratings:

Plate voltage 250* max. volts
Plate dissipation 2 max. watts
Cathode current 20 max. Ma.
Peak heater-cathode voltage:

Heater neg. with respect to cathode 200* max. volts
Heater pos. with respect to cathode 200 max. volts

* Under cut-off conditions, in r.f. grounded-grid circuits with direct-coupled drive, it is permissible for this voltage to be as high as 300 volts.

Characteristics:

Plate voltage 150 volts
Cathode-bias resistor 220 ohms
Amplification factor 39
Plate resistance 6100 ohms
Transconductance 6400 umhos
Plate current 9 Ma.
Grid volts (approx.) for plate current of 10 uamp. -10 volts
Typical Operation in Push-Pull R.F. Grounded-Grid Circuits:
Plate voltage 150 volts
Grid voltage obtained from Rk -2 volts
Cathode resistor (common to both units) 100 ohms
Plate current 10 Ma.

Typical Operation in R.F. Grounded-Grid Circuit with Direct-Coupled Drive:

Unit No. 1 (driver tube) is directly coupled with Unit No. 2 (driven r.f. grounded-grid amplifier tube).

Plate supply voltage 250 250 volts
Plate voltage 135 115 volts
Grid voltage -1 - volt
Grid resistor 0.5 megohm
Plate current 10 10 Ma.
Grid voltage (approx.) for plate current of 10 uamp. -15 - volts

Peak heater-cathode voltage: heater negative with respect to cathode 1 250 volts

Maximum Circuit Values (Each Unit):
Grid-circuit resistance 0.5 max. megohm

AMATEUR CALL SIGNS

FOR MONTH OF MARCH, 1957

NEW CALL SIGNS

- VK— Antartica
0JG—J. Goodspeed, Mawson.
- New South Wales
2GJ—J. G. Virtue, Dangar Street, Pilliga.
2JG—N. S. Hill, "Montague," Riddall St., Manly.
2ABK—K. L. King, Honour Street, Lawson.
2ANT—Tamworth Radio and Electronics Club, Peel St., Tamworth.
2AOL—M. S. Latham, 168b Hunter St., Glen Innes.
2AVH—W. O. Hill, 15 Morgan St., Petersham.
2ZDF—S. W. H. Fairbairn, 9 Lemnos Pde., Newcastle.
- Victoria
3IA—K. H. Gee, 23 Pope Road, Blackburn.
3JF—J. C. Batchler, 14 Simpson St., Kew.
3AOM—G. W. Baty, 79 Bealiba Rd., Caulfield.
3AOU—G. Wood, 60 Vincents Ave., St. Albans.
3AWK—W. H. Kerr, 17 Jasper St., Noble Park.
- Queensland
4AD—A. M. Miers, 9 Bellvue St., West Bundaberg.
4BV—B. Vanes, 3 Leeson St., West Bundaberg.
4CT—Central Technical College, George St., Brisbane.
4DR—L. G. England, 19 Kenilworth St., Mackay.
4TA—C. T. Amore, 45 Minimize St., Stafford.
4ZBB—B. M. Byrne, 118 Central Ave., Indooroopilly.
- South Australia
5DS—D. Scott, C/o Measday, Box 95, Bute.
5ES—G. E. Stallard, 27 White Ave., Lockleys.
5UM—R. L. Umbarger, C/o P.M., Alice Springs.
5ZBJ—J. K. Johnston, 63 Ninth Ave., Joslin.
5ZBN—B. A. Endersbee, 15 Holme Ave., Lower Mitcham.
5ZDF—R. A. C. Washington, 94 Main North Rd., Enfield.
- Western Australia
6TM—F. Wiseman, C/o W. E. Milward, Barragrup, via Pinjarra.
Territory of Papua-New Guinea
9MK—M. J. Kopunek (Rev.), Catholic Mission, Kavieng, New Ireland, T.N.G.

CHANGES OF ADDRESS

- New South Wales
2QU—C. A. Waldock, 31 Andrew St., Lithgow.
2XU—W. L. Nye, 34 Merrenburn Ave., Naremburn.
ZYY/T—Sydney Technical College, North Sydney Technical College, Pacific Highway, Gore Hill.
2AKQ—J. H. Lambert, 219 Windsor Rd., Northmead.
2AVG—E. G. V. Gabriel, 107 Grant St., Port Macquarie.
2ZAA—R. K. Dodd, Lambie St., Turmut.
2ZAE—A. K. Greenhalgh, Lot 41, Garden Grove Pde., Adamstown.
- Victoria
3HV—H. R. Hunter, "Bob's Knob," Golf Pde., Rye.
30I—R. J. Collins, 88 Bulla Rd., Strathmore.
3ZG—H. W. Lelliott, 267 McKinnon Rd., McKinnon.
3ABF—A. Robinson, 1 Joffre St., Croydon.
3AET—C. E. Tilley, Old Reservoir Rd., Belgrave.
3AFX—J. G. Foster, 39 Leonard St., Frankston.
3AJE—H. W. Ellis, 465 Hoddie St., Clifton Hill.
3AJI—J. Ireland, 11 Talaska Rd., Upper Fern-tree Gully.
3AJQ—J. R. Kling, Lot 8, Cassia Gr., Frankston.
3ALD—D. L. Robinson, 9 Reid St., Murrumbena.
3ALG—F. A. Freeman, 14 RIVERSDALE Rd., Chilwell, Geelong.
3AVE—E. V. Avenell, 44 Burrindi Rd., Caulfield.
3ZBT—K. A. Thomson, 444 Whitehorse Rd., Mitcham.
- Queensland
4JA—J. A. Marston, 39 Norman St., Deagon.
- South Australia
5AL—K. S. Harris, 38 King William Road, Goodwood.
5DZ—J. A. Casey, Bowman St., Crystal Brook.
5EH—J. B. Hawke, Bute.
5ON—C. J. Othen, 45 Pekina St., Eden Hills.
5VJ—J. J. Marten, Lot 5, Keynes Ave., Warradale.
- Western Australia
6HK—D. E. Graham, 108 Edenborough St., Mt. Hawthorn.

- 6RH—R. A. Hallamore, 14 Curlew Rd., Dalkeith.
6TR—T. W. Reed, 172 Shepparton Rd., Victoria Park.
6WU—R. Jaeschke, Moora.

- Tasmania
7AK—S. W. Carter, 10 Reid St., Kings Meadows, Launceston.

CANCELLED CALL SIGNS

- Australian Capital Territory
1JG—N. S. Hill, Now VK2JG.
1UZ—B. B. Browne.
- New South Wales
2ZJ—H. M. Temby, Transferred to South Aus.
2AF1—J. D. Ewing.
2AFJ—J. H. Fraser.
2ANO—N. Thuge.
2AWT—N. J. G. Watling.
2ZAI—K. L. King, Now VK2ABK.
2ZBH—W. O. Hill, Now VK2AVH.
- Victoria
3UV—N. Serpell.
3ABU—W. A. Brownbill.
3ABW—R. J. Heighway.
3AGU—H. Chapman.
- Queensland
4ZAB—C. T. Amore, Now VK4TA.
- South Australia
5JD—J. M. Coulter.
5LZ—A. S. W. Taylor, Transferred to Victoria.
5WY—J. F. Westley, Transferred to Tasmania.
- Tasmania
7AM—L. G. Arnold.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

- New South Wales
2EN/T—E. C. Hulme, 34 Gnarbo Ave., Carrs Park.
2VC/T—W. B. V. Cahill, 116 Flora St., Sutherland.
2AHP/T—H. J. B. Pickett, 12 Crane St., Homebush.
- Victoria
3TU/T—J. F. Irvine, 258 Balwyn Rd., North Balwyn.

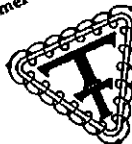
AN OPEN LETTER

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FIFTY-SIX MEGACYCLES AND ABOVE

56 Mc. NOTES

The advent of Z calls on the 58 Mc. band certainly stirred that sleepy hollow with a movement of life. Quick to accept the extending of their horizon they rapidly put signals on the air revitalising those few hoary habitues of the band who found themselves no longer forsaken and alone. May their enthusiasm continue to wax strong, providing, with the signals on the air, the opportunity to crack Divisional boundaries as the coming DX season gets into its stride.

After breaking through to VK4NR and VK4LK consistently since March 9, the JA signals have petered out though still breaking through occasionally. Indications so far are that the peak was not as good as last year, possibly accounted for by the JA stations concentrating on the W boys working the same band 50-54 Mc. The JA gang found it easier to work cross-band 50/28 Mc., as VK4NR found out, than to work cross-band 54/56 Mc. No reports have been received to date of signals heard on the other international skeeds on 58 and 50 Mc. as listed in this column, June issue of "A.R."

VK9XK has discontinued his evening sked with beam aimed south. He does not expect to be on again until he returns from furlough at the end of the year. At present his beam is down and lost in the thick lush growth of grass.

[News of recent and projected 56 Mc. activity is wanted urgently for this column by VK9OF so that all those interested may share in the news of the latest activity on the band. If you are on the band you are an enthusiast—so through this page get to know the other chap Interstate in preparation for the time when you make that contact. VK9OF is prepared to arrange skeeds or correspond by letter so that this column may reflect National activity as a whole.—Editor.]

V.B.F. RECORDS

VK7PF claims to have made the first contact with VK3ZCW on 144 Mc. As both VK7PF and VK7LZ are approximately equal distances from VK3 stations, the record should be VK7PF/TLZ to VK3ZCW, a distance of 512 miles.

Here is another one for the records. VK7TF to VK5ZAM, 440 miles, made on 18/2/57.

NEW SOUTH WALES

Now that Z calls are allowed to operate in the 5 mx band it is expected that the V.h.f. and T.v. Group will become more active than ever before. Several 2 mx boys have already indicated their desire to work more DX and to use both bands.

The 2 mx band was very active on the afternoon of Sunday, 19th May, when 2WI was officially opened at Dural by the Minister for the Interior, Mr. Allen Fairhall (also a Ham). The site was packed with cars and Hams who had come from all directions. A very distinguished visitor was Mr. Chas Maclearen. A most impressive welcome was extended to the Minister by President of the N.S.W. Division of the W.I.A., Mr. Jim Corben, VK2YC. Beside demonstrations on h.f. frequencies, there was also a signal from the club's 2 mx xmitter which was operated by John 2ATO. Assisting in the demonstration was Cea 2AZO/P who was at the ready. Dick 2ZCF was also portable/mobile on the spot. Further afield were portable and mobile stations: Horrie 2HL at Beacon Hill, John 2ANF with Phil 2ER at Victoria Barracks, 2AFM at Observatory Hill, Bob 2OA at Bourke St. Police Barracks, Jim 2ZED at Middle Head, Vic 2VL at Holdsworth Camp, and 2ZAV at Lapstone R.A.A.F. site.

Dave 2AWZ was the fox for the hidden xmitter hunt held on Wednesday night, 29th May, and the only hound to find him before time expired was Eric 2AFM. An excellent roll up and a good fine night made it a very interesting evening. News of the treasure hunt held on Sunday, 9th June, will be published in the next issue.—2AFM.

VICTORIA

Congratulations are in order for Ian 3ALZ in winning the Ross Hull Contest. Ian worked very hard at this Contest, particularly in the last fortnight and his win was a well deserved one. The next contest should see some rule changes because of the admission of Z calls to 56 Mc. With increased activity there, this contest may regain some of its former Interstate popularity.

56 Mc.—There has been a slight increase in activity on this band over recent weeks but even so, things are still pretty lifeless in VK3. Maybe everyone is building gear. David 3ZAT now situated in South Yarra has worked Reg

3ARI, Eric SKF, Ron 3AHJ and Alan 3AE. Stations heard here include 3YS, 3ALZ, 3ZAT, 3WI and 3AHJ. Other stations known to have usable gear for this band are 3ZL, 3AHL, 3ZBP/3ZDG, 3VL/3US and 3CL. 3ZBS and 3ZCN at Ballarat hope to be on before next summer. Max 3BQ needs a beam to complete his set up and I need a tx to complete mine.

144 Mc.—This band came good again on 5th May when 5BC came through at S9 in Melbourne. Hughie also put a solid signal into Ballarat and SPO, 3ZBC and 3ZCN were amongst the lucky ones to make a contact. On 8th May Alan 3AEL heard 2AJO (R4 and S5) but no contact was made. During the latter part of May 2WH and 2RS have been hearing signals from 3ALZ and contacts have been made occasionally.

New suburban stations on the band lately are John 3ZCH, Gordon 3AGK (ex-7GM), Ross 3ZDN, Don 3ZEP and Brian 3ZFH. Jack 3AJK at Moe has been on with a stabilised transmission—so also has David 3DY at Maffra. Max 3GZ at Mildura on 144.5 Mc. runs 3Zw. to a 5/5; 3ZCN reported hearing 3GZ during the break through mentioned at the start of these notes. 3AUG at Merbein near Mildura has good intentions about this band. I hope you make it Noel. 3XH at Norlane on about 144.1 Mc. has now got a 12 el. array up. Chas. is looking for contacts and is usually on of a Sunday night. Well with all these new stations coming on, particularly from country areas, the next DX season should be very interesting. Let's hope the winter doldrums do not discourage them too much.

288 Mc.—This band is rapidly slipping into the doldrums—a more or less annual event. Things must be really bad this year because one 3QO has migrated to 144 Mc.—ostensibly to work Geoff 3AUX, but methinks he got tired of talking to himself on 288 Mc. A new thing happened recently on this band. A new station appeared. Garth Jenkinson is now 3ZFA and he was the cause of the rare occurrence. Garth is using the usual mod. osc./super regen. combination and is contemplating putting up something better than a 5 el. yagi—horizontal polarisation of course.

V.h.f. Group Meeting.—The lecturer at the May meeting was Jacques Sapir, 3ZEE. He spoke on the I.G.Y. satellite project and described methods to be used for tracking the satellite in its orbit. Use is to be made of apparent frequency shift due to Doppler Effect to establish when it is directly overhead. The signal, together with time pips, is to be recorded on tape. Jacques' rx took the form of a xtal locked converter with the classic cascade circuit and a 6AK5 mixer. For his effort, Jacques earned a hearty round of applause.

The July meeting will be on Thursday, 18th, instead of the usual Wednesday meeting, and will be a visit to the Radio and Instrument Section of T.A.A. at Essendon Aerodrome, commencing at 8 p.m.

Field Day.—1st, Les 3ZCN, at Mt. Buninyong. 1397 points, including 239 bonus points for the three longest contacts on 144 Mc.; 2nd, Bob 3ZAN, at Mt. Macedon, 1391 pts., including 129 bonus pts. for the three longest contacts on 288 Mc.; 3rd, Tom 3AOG at Mt. Dandenong, with 268 pts. What a result! Only six points in 1400 separated 1st and 2nd. Snow was reported at all locations and therefore it does appear that May is a bit late in the season to hold a field day.

Anyway, what about a few ideas from country v.h.f. men about field days for next season? Les 3ZCN has suggested that they should be held over long week-ends so that operators may stay out late without worrying about how they will get up next morning. Do you like this idea or not? Now is the time to put your ideas forward and to think about points suggested by others. What about it, gentlemen?—3ZAQ.

SOUTH AUSTRALIA

The usual v.h.f. meeting was held kerbside after lights out of the ordinary meeting last month, during which one type was heard to remark, "I can't understand why you can't get to 20 mx in 3 tubes." Just too easy, isn't it Neil (5ZAW). Anyway, there was quite a bit of talk on what was doing and some very interesting discussions.

Keith 5MT and Hughie 5BC have been doing good things into VK3 on 2 mx and although it is but third party information, understand either of them find it possible now to work 3ZCW when conditions are average. Good going chaps, you have been persevering long to attain just that and deserve success.

George 5GB puts the morning 5WI session on tape each Sunday and for the benefit of those who cannot listen at 10 a.m., replays same at 8 p.m. on 144 Mc., a very good ges-

ture George, and much appreciated by quite a few. Reg 5RR has a signal on 58 Mc. which is on automatic transmission from 1930 to 2000 hrs. C.S.T. with a beam pointing West, awaiting the break through of course, but would appreciate reports and contacts from anyone.

The release of A3B transmission (double side-band, reduced carrier) to all bands, including v.h.f., should prove to be an interesting testing ground for balanced modulators and the like as a forerunner to s.s.b. reference to which has been made in these notes previously. Have had quite a few enquiries on this matter, and not having time to write each one individually, nor to do an article yet, will go through the main points here and now.

First of all this interest arose from an item appearing in "CQ" from the pen of Jack W3YHI, wherein he stated he wanted to find out for himself how s.s.b. and a.m. compared, so right away he built two tx's, each with an 828B final, same inputs, same power supply and modulators, with same mike and antenna. He quit using the a.m. job a few days after the s.s.b. rig got going, the s.s.b. showing vast superiority for day-in-day-out extended range coverage, and in particular makes contacts possible when conditions are down to the "hear the carrier only level."

Of course, any of you who have an s.s.b. generator for the d.c. bands can get into business easily and quickly, but there are not too many of us so set up, so to give a lead on it the following is an abridged story from his letter that will give anyone a starting point.

First of all he uses a cascaded half lattice filter following exactly that shown on page 302 of 1956 Handbook, and the l.f. transformers he used, although tuneable from 430 to 455 Kc., had to have some turns removed following the use of a capacity bridge to obtain a centre tap on the secondaries. 447 Kc. was the frequency of the first osc., other details as per article mentioned above.

For lining up the filter feed frequency meter, g.d.o. or what-have-you, into signal grid of first mixer, instead of the audio voltage, disable the 447 Kc. osc. and connect v.t.v.m. across the second mixer grid and watch the band-pass as the frequency meter is tuned through the filter frequency. A flat band-pass of from 400 to 3200 c.p.s. with an extremely sharp pull at carrier frequency of 60 db. should result.

A 12AT7 is used as a two stage audio that feeds a 6V6 mixer, another 12AT7 is used as a 447 Kc. xtal osc. and cathode follower being capacitive coupled to the mixer cathode to obtain 8 volts of r.f. at the 6V6 cathode. (All xtals used being FT243 type, for information re these see page 59 January, 1957, "CQ".)

The first heterodyne source is a 902 triode tuned osc. with 5675 Kc. xtal, again being capacitive coupled to cathode of 6V6 second mixer, which tube output is tuned to 612 Kc. Next follows a 6AG5 class A amp to build the sig up a bit whose plate circuit is linked coupled to the tuned (612 Kc.) circuit in the grid of the third mixer. Het. source of 3rd mixer being 12AT7 xtal osc. and cath. follower cap. coupled to mixer cathode with the plate of No. 3 mixer p.p. tuned to the sum frequency of 14,722 Mc. and in turn link coupled to another 6AG5 class A. (A good lark here if these Class A amps. take off is to load them down with a 6700 ohm resistor.)

Plate circuit of this 6AG5 tuned to 14,722 and linked to the grid of mixer 4, which mixer is fed also with a 129.6 Mc. signal obtained from two 12AT7s osc. and harmonic amps. from an 8100 Kc. rock. Plate of mixer 4 tuned to 144,322 Mc. to a 6AK5 class A (a 6CL6 is made for this job if available). From 6AK5 to 6360 and then into 828B final, remember the 6360 needs to be run Class AB1 to avoid "drive" worries.

All tubes other than the 828B are run on 150v. supply except the 8600 Kc. train on 210 and the 6360 about 270. The 828B of course at 550v. giving plate at peaks of 180 mills. (35 static), screen 210 regulated, grid minus 22, also regulated.

Of course if you want to wander around the band, make up a v.f.o. in place of the 8600 Kc. xtal osc., because as the frequency is raised to 144 by heterodynes the final frequency stability is equal to that obtainable on an 8600 v.f.o. which can be made very stable.

All tuned circuits for the 6 and 14 Mc. mixers and amplifiers are made from old l.f. transformers which were just torn apart and rebuilt for the purpose. The only tuning controls brought out to the front being grid and plate tuning of the final. A 13 x 17 x 3 inches chassis supports the lot with the power supplies same size and separate. Shielded wiring and by-passing looked after t.v.i.

So there you are fellows, if I haven't given you enough to start things going let me know, but the above answers most queries received

to date and at least will be a means of creating some interest and to start a new line of thought on v.h.f. Of course there is nothing to prevent the same ideas being applied to 56 megs—get there easier anyway.

Now all stand back whilst we rush for those crystals.—SEF.

WESTERN AUSTRALIA

The Fox Hunt held on Sat., 4th May, was a great success. The roll up was in excess of the numbers expected, owing to another function which clashed with the Hunt, but more of that anon. Frank 6CC was the fox, and a foxy fox was he. When anybody got near off would go the audio tone, as 6ZAV, who was first on the scene (time 25 mins.), found out. He thought his diode detector had gone on the blink at the crucial moment, but all wash well. Supper at Frank's QTH concluded the very fine evening.

Now about this other function. A Kitchen Tea for Wally 6ZAA and his YL on 11th May. Wally changed the YL to XYL. All the best of luck from the V.h.f. Group, Wally. May all your troubles be little ones and may we see more of you on the air from now on.

The V.h.f. Group monthly meeting was held at Dennis 6AW's QTH on Sat. evening, 11th

May. Attendance again was very good. After the usual business, etc., was disposed of, we were treated to a fine lecture on Transistors by P.M.G. Engineer, Mr. John Sanders, concluding with tests of a two stage transistor amplifier—in all a good show.

With the allocation of the 56 Mc. band to L.A.O.C.P's. it is hoped that contacts will eventuate with the East.

After several crossband contacts, 56-144 Mc., Don 6ZAV worked Tom 6ZAF to make what we think the first Z 56 Mc. QSO. Duplex working has a lot to recommend it. Roio 6BO also worked his first full contact with 6ZAV on 56 Mc. One of Roio's remarks being, "I've been waiting a long time for this."—6ZAV.

TASMANIA

Activity on 2 mx in the Northern Zone has been very low with a succession of low pressure centres and rain almost every day for two weeks, but with a rising barometer, hope was held for more DX contacts. On Sunday, 5/5/57, 7LZ was contacted on 40 mx by VK3s who said the 2 mx band was open from VK2-VK3. Skeds were arranged, but no signals could be heard. An early start was made next evening (6/5/57) and 7PF was tuning on apparently dead band when, to his surprise, 5BC was heard at RST 569 calling CQ, but no QSO resulted. This was at 1943 hours with the distance 616 miles. How the signal was propagated is a mystery, as during earlier openings with stations over 400 miles and S9, 5BC was inaudible. At 2000 hours, 3ALZ was worked by 7LZ, who heard 5BC's signal but did not identify, but signals were only fair.

7PF QRT at 2100 hours, but 7LZ stayed on to work four new stations—3ZDI, 3ZDX, 3ATW and 3KF, as well as 3ALZ, 3RK, 3ZO, 3AEL. QSOs were made harder by QSB. 7LZ QRT at 2400 hours.

7PF worked 3ALZ on c.w. on 7th and 9th May.

A watch was kept on conditions and with the barometer up to 30.8 ins., 7LZ and 7PF worked 3ALZ on c.w., with signals later strong enough for phone, on 4th June. 7PF worked 3RK on c.w. as well. 3ALZ was again worked on 5th and 6th June, signals on the 6th being weaker with QSB.

It appears that if conditions are watched, QSOs with VK3 may be an all-year-round affair.—7PF.

JUNE 1957 CALL BOOK

The new issue of the Australian Radio Amateur Call Book is now available. Make certain you purchase your copy early as only a limited supply has been printed.

D.X.C.C. LISTING

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No. rics	Call	Cer. C'tnt- No. rics
VK4HR	12 192	VK3JD	1 155
VK4FJ	21 192	VK4KS	9 152
VK3ATN	26 187	VK6KW	4 150
VK6RU	2 184	VK4RW	23 147
VK3BZ	3 176	VK3LN	11 141
VK3EE	10 163	VK3AWW	14 140

C.W.

Call	Cer. C'tnt- No. rics	Call	Cer. C'tnt- No. rics
VK4FJ	29 224	VK3KB	10 200
VK3BZ	6 222	VK5BY	45 193
VK4HR	8 218	VK2EO	2 183
VK3FH	15 215	VK4EL	9 175
VK3XU	48 213	VK6RU	18 170
VK3CX	26 205	VK3RX	23 169

Amendments
VK5JT .. 54 114

OPEN

Call	Cer. C'tnt- No. rics	Call	Cer. C'tnt- No. rics
VK2ACX	6 239	VK3HG	3 201
VK4HR	7 233	VK3JE	12 198
VK4FJ	32 232	VK2NS	16 195
VK3BZ	4 231	VK4EL	10 175
VK3XU	61 221	VK6KW	13 171
VK6RU	8 216	VK2DI	2 170

Amendments
VK5JT .. 63 120

YL CORNER

BY PHYL MONCUR*

WHAT IS A HAM?

A Ham is one of a species of strange characters who live, eat, breathe and talking nothing but Radio. He has a language all his own which normal people do not comprehend, one has to be tainted with his disease to do so. Under the laws of this language his wife and children are poetically named XYL and harmonics.

Life with a Radio Ham is a series of wires and knobs. Long bits of wire trailing across the floor to trip you. Thick bits of wire that come through the window from somewhere up on the roof and continually prevent you from connecting the window on cold and windy days. Rusty bits of wire, known as guys, that attempt to decapitate you whenever you walk in the garden, short bits of wire that get stuck in your vacuum cleaner. Twin lead, co-ax, just classy names for other sorts of wire that trail the side of the house where it would be so nice to grow creepers. The chum who conceived the idea of calling it wire-less must have been a rare one.

And knobs. Knobs on everything. But knobs that only he, the exalted one may turn, and never meant to amuse the small harmonic for whom they always seem to have so much fascination.

His Radio friends, he rarely has any other sort, are all types similar to himself, vague mysterious creatures, one is never quite sure whether they are terribly clever or terribly dumb.

Generally untidy in appearance, he has little interest in clothes, which are only necessary because they have pockets, and pockets are meant to be crammed full with wire, solder, nuts, bolts, resistors, condensers, pliers and side cutters till they burst or tear. Food also has little appeal, although he's always feeding something, usually a signal, into something or other. His favourite dish—the parabolic dish. The only drive he is interested in on a Sunday afternoon is grid drive; the only scenery, an elevated location and a multiple element beam.

His musical appreciation appears to be exceedingly limited and extends only to the appreciation of what is generally known as "tone", to which he seems to be able to listen for periods of very great length. His XYL on the other hand usually has, if any, a very low appreciation of the said "tone".

All Hams have one thing in common, they all have a QTH, a queer turn of a home in which one section is set aside and reverently termed the "shack". This may be in the bedroom, or at one end of the living room, or the end of the bench in the kitchen or even permanently enhancing one end of the kitchen table. In some of the more well-to-do Ham families he sometimes has a room all to himself in which he keeps his strange collection, this is usually the spare bedroom, and in these cases one finds junior sleeping on the back verandah, Ham Radio having arrived in the family before junior. And in some really exclusive families he has a little old tin shed right down the end of the backyard; fortune has certainly smiled on the XYL in such a family. His shack is the most holy of holies, a sanctum into which the XYL is rarely allowed to intrude. The dusting or cleaning up of which is strictly prohibited.

In his shack every Ham has a dee-vice, which appears to have a multiple of uses, but is never wanted until it has been borrowed by some other Ham.

A Ham is one who at some date—a week, or even a fortnight—after his wife's birthday, comes home beaming with a very large bunch of flowers and an equally large box of chocolates, plus two seats for the pictures and proudly places them before you. He's remembered your birthday and on the right day, too. You smile to yourself and forgive him all until about 7.30 p.m. when you are ready to leave for the pictures and another one of his queer species rings him to tell him about a sked he has with some rare DX and invites him to be in on it. So he suggests you ask Mrs. So-and-so next door to go to the pictures with you and tells you to have a good night and enjoy yourself. Oh well—that is a Ham!

* 235 Union Road, Ascot Vale, Vic.

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MAXWELL HOWDEN
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VICTORIA

DX ACTIVITY BY VK2QL†

Opinions vary this month as to the band conditions, judging from the comments of our contributors. If any of the gang have been watching on the band for me, my apologies as I have not been there very much.

NEWS AND NOTES

VP1EE is on 21180 Kc. a.m. around 0300z (4EL).

Christmas Is. notes in a recent issue were somewhat inaccurate. VR3B has never left Fanning Is., nor has he any plans to go to Xmas Is. VR3F, VR3G and VR3H have been heard all giving their QTH as Xmas Is. There appears to be confusion as to whether they are counted as a separate country. VR3F said they are the same as Fanning Is., but I believe a recent "QST" gave separate identification.

CR7LU complains of the time it is taking VK QSLs to reach him. In 1956 he received a batch of cards for 1952 QSOs and that is the last he has received.

EL5A is looking for VK contacts on 14 Mc. phone at 0700z (5WO).

Navassa Is. is in the news again with a proposed expedition in the making for a limited period of 36 hours. The date is unknown (5WO).

The licensed ZK2AB advises 2AIR that the station at present signing ZK-2AB is a "pirate." The licensed station has not been active for some time. His name is Chas., so if you work ZK2AB signing another name, you are out of luck, as you are QSOing the "joey."

3W8AA has now forwarded a big batch of cards to 2AIR for VK and ZL contacts and Alan has now put these into the Bureau.

ACTIVITIES

3.5 Mc.: Nil reports this month.

7 Mc.: 2AMB: FK8AT*, KL7*, FK8AC, BERS-195: CN8JZ, FK8AT, DU9IV, FA8BG, OD5AF, AM, U0SKAA, TIWS/MM, ZE1JV, ZK2AD, Rod De Balfour: HP3FL, KH6, VR2DA, JA, WIA-L3039: DU9WX, JA.

14 Mc. C.W.: 0AB: KW6CD*, VP8BO*, VP-8CO*, VK0AS*, KH6A/KG6*, PY2AJK*, CEA*, U3AG*, UK7AD*, KV4AA*, LU-8EN*, ZESJB*, IS1FC*, LA1VG/CY, GW3AX*, KG1D*, VS6AE*, KC4USA*, FK8AL*, CE-32O*, VK0CJ*, KC4USK*, 2AMB: UA1KA*, HH2LD*, EAAGA*, VP3YG*, GW*, GM*, OZ*, FY7YF*, CE9AQ*, LUTBN*, LUSAG*, KC4USA*, VK0CS*, VK0AS*, VK0AB*, FP8AP*, VP6PL*, CN8FD*, FM7WT*, HK1DG*, KC8JC, PJ2ME, BV1US, HC4MK, VO2NA, VP8AO, HL2AF, ZB1, VK0PK, F08AQ, 3W8AA, HK5CH, 4X4-JU, 4X4GY, FM7WR, CN8MX, VQ5GC, VS9AI, OQ0VN. 2QL: VP3YG*, F08AQ*, CR7LU*, VR3B*, HL2AE, VR3G, VR3H. 5WO: VESCPM/VOI*, U8KAA*, KV4AA*, VS9AD*, UM8-KAA*, 3W8AA*, VK0AS*, HIBBE*, KP4DP*, UQ2KAB*, 9DB: UM8KAA*, HL2AJ*, BERS-195: CE3RE, CP1CJ/AM, CX2CO, HH2LD, HL3AP, KC4USA, KZ6LB, UM8KAA, UN1AE, VK0AB, VK0CJ, VR3B, VQ2AB, YV8BX, ZC-5AL, ZK1BG, Rod De Balfour: VK0AB, ZL-5AB, HH1OT, 4S7SR, JA, WIA-L3039: LUINE, KW6, LA9BE, DL, EL, UA4KHC, SM, HL8AA, W61WW (QSO HL8AA using 10 watts), HC1LE, ZCSAL, F08AQ.

14 Mc. Phone: 2AMB: PJ2CK*, HH2R*, CO2KG*, CT2AH*, HP1LO*, HIBBE*, VP2KD*, CX2CO*, W7VKW/VOI, KC4USK, ZLSAA, HL2HH, VR2AG. 5WO: ZS6AE*, YS1MS, CQ2VC*, VQ8AR*, ZS6SY*, HP1LO*, YV8BD*, EL2*, OE*, G*, 9DB: JA*, LU*, HP. Rod De Balfour with a large list reports the usual run of Europeans, plus EA, CT1FY, GD2FRV, F0RY/FC, EL5A, AF2KW, VU2BK.

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.

* Call signs and prefixes worked.

z—zero time—G.M.T.

4S7WE, 4S7YL, DU9IV, VS4JT, HL2AJ, BV1US, F08AB, ZK1BS, HP3FL, YS1MS, XE2NF, VP1EK, VP1EE, YV5AY, C07OZ, HHIHB, FM7WQ, HK3HV.

21 Mc. C.W.: 0AB: VK* and ZS*. 2AMB: ON*, OH*, 2QL: UC2KAB*, UAOKFG*, VK-0AB*, OA4AU, SAITH, 5WO: YN1AA*. 9DB: HH2LD*, DL*, G*, W*.

21 Mc. Phone: 2AMB: G*, W*, GM3EST*, I1AMU*, VK0AB, FK8AS, CR5SP, VS4JT, VQ-5EK, 4EL: OE*, EA*, VP2GW*, CR5SP*, G* at 1000z, 5A1TC*, VP1EE*, F08AD*, VP6ZX*, 3W8AA, 5WO: G*, CR5SP*, UA4FE*, VP8WR*, VP8GT*, CEDY*. 9DB: GC6FQ*, VP4L*, VP6WR*, KP4ADS*, KP4ADX*, HH2LD*, VP5EM*, KB8BD*. Rod De Balfour: GD3GMH, CT1HX, EA, LASYE, 4S7YL, VS4JT, HC1FN, HC1FS, ZP5CA, LU9LJ, YV5AB, XE1BW, VP-1EE, HR3LL, VP9L, VP5EM, 5A1TC, VK0AB.

28 Mc. C.W.: 0AB: VP8CO*, VK5LC*, VK-6CU*, VK2AMB*, ZS6LR*, ZE5JB*.

28 Mc. Phone: 4XJ: W*, KH6*, VR2*, JA*, PY3AES*, PY3KG*, LUSMAH, HP2ER*, ZS-4PB*, ZS5CU*, ZS6CM*, VQNS*. 5WO: VU-2BK*, CR5SP*, ZESJU*, ZS6L*, ZS8VE*, ZS6NZ*, VS1FE, 9DB: W*. Rod De Balfour: JA, KR6CI, DU9IQ, VR3E, 4S7YL, KX6AF, KM8AX, ZE1JJ, FK8AC, ZS2OV, ZS4PB, ZS-5NZ, ZS8ZK, ZS6UR, ZS6AT, HK5ER, XE1PY.

QTHs OF INTEREST

HH2LD—Box 596, Port au Prince.
VR3F—QSL via R.S.G.B.
ZC5DA—Cpl. Max Anderson, R.A.A.F. Detachment, Labuan (BERS195).
ZS6P—Norm Eller, Box 35, Francistown (BERS-195).
9S4DE—Karlsruhe 21, Klarenthal (BERS195).
HS1B—P.O. Box 1038, Bangkok (Rod De Balfour).

R.D. CONTEST

In addition to the points in the scoring table that may be scored by a contestant (see rules "A.R." June, '57), a bonus of 25 points may be added to the score for the first contact with each call area worked on 56 Mc. or above.

VK SCORES FOR THE 1956 "CQ" WORLD-WIDE DX CONTEST

C.W. Section, Single Operator

Contestants whose calls are in bold type receive awards.

Call Sign	Band	Pts.	QSOs	Zon.	C.C.	Watts
VK2GW	All	317012	664	66	98	100
2PV	"	105490	336	43	67	"
2ADE	"	101280	287	53	69	"
5WO	"	17664	130	24	22	"
5JT	"	10150	117	13	16	"
6RU	"	205209	468	60	91	"
7WA	"	3822	51	16	10	"
2JS	28	16480	140	16	24	"
1ALR	14	10440	120	15	14	"
2AIR	"	42245	209	28	43	"
3AMR	"	61410	309	25	44	"
3CX	"	23077	172	18	29	"
3HL	"	4256	54	13	15	"
7UW	"	47750	323	18	32	"
7CH	"	30448	242	17	27	"
3XB	7	3495	81	8	7	"

Phone Section, Single Operator

All Contestants listed received awards.

Call Sign	Band	Pts.	QSOs	Zon.	C.C.	Watts
VK2ADE	All	30992	110	40	64	100
5WO	"	10191	83	16	27	"
6RU	"	28884	115	37	50	"
4HD	28	14443	95	19	32	"
4XJ	27	459	17	5	4	100
3HL	21	1872	34	12	14	36
4WF	"	15246	84	24	42	100
5AB	"	4838	50	17	24	"
3AMR	14	6156	57	16	22	"

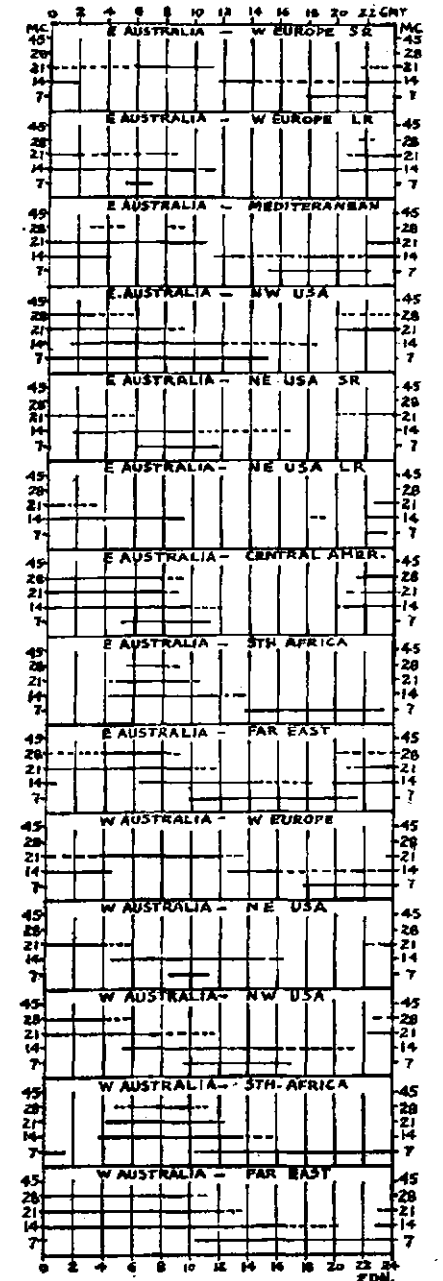
QSLs RECEIVED

2AMB: VP3AD, VK1RW (Cocos Is.), CESHV, VR4AA, HIBBE, 5WO: FL8AB, JZ0PB, BERS-185: HASBW, LZ1KEP, OA4AU, TZ2WR, UA-9DT, UBSWF, VK9AJ (Cocos Is.), VQ3KIF, VR1B, ZCSDA, ZS6F, 9S4DE, Rod De Balfour: VR2DA, VK0AB, TZ0E, GD3GMH.

My thanks for their assistance is to 0AB who is gradually approaching his DXCC with 84 countries up. Chas. just missed out from Macquarie Is. and has no intention of it happening again. 2AMB, 4EL who still gets good results from his two fixed 8JK's, 4XJ who finds 28 Mc. falling off except for ZS, 9DB who finds the bands quite OK when he can get to them. Rod De Balfour found the bands to his liking, Dave Jenkin (WIA-L3039), who for some reason best known to himself, gets up at times round 1.30 a.m. to look at the moon and has a look at the bands at the same time, and last but not in anyways least, the man who received 60 QSLs for the month—BERS195.

I hope that by the time you receive this copy, I may be on the band a little more and get some notes over the air.

IONOSPHERIC PREDICTIONS FOR JULY 1957



S.W.L. SECTION*

Firstly, I must apologise for the non-appearance of these notes last month. A bout of 'flu and the arrival of the first harmonic, a little girl, certainly put me out of my stride. (Was it the 'flu or celebrations, proud Papa?—Ed.) However, things have now almost returned to normal and I can begin to breathe again. As I've not had time to interview any prospective "S.w.l.'s of the Month," I'll take this opportunity to let you get to know a little about the writer of your notes. Since being bitten by the bug in 1948 my rx's have ranged from a single valve home-built regen. to the 9-valve AMR300 at present in use. During 3 years in the Army Signal Corps, I was able to use many different types of rx's. My antenna at the moment is a simple 20 mx dipole whilst the beam is on the ground undergoing modifications, which will probably result in a W8JK.

My main interest in s.w.l'ing centres on 14 Mc. where a total of about 115 countries have been logged on phone. Only 15 of them have been verified as yet. Much time is also spent in experimenting with various types of antennae. The only awards so far held are the S.W.L. 100 Certificate issued by the Victorian Division of the Institute, first in the open section of a contest held by the S.w.l. Group during 1955 and first in the Amateur section of the same contest. My sporting activities consist of playing Australian Rules football, running and tennis. Other interests which keep me busy include stamp collecting, music, reading, taking photographs of radio gear, acting as treasurer for Northcote Football Club Social Committee, Secretary of Vic. Div. S.w.l. Group, looking after a persian kitten and now the baby. During the day I work in a statistical branch of a Commonwealth Government department. For the benefit of any Victorian who may read this, I support the North Melbourne side in the V.F.L. and Northcote in the V.F.A. of course. My age? I sometimes feel about 40, but I was 24 years last month. After this, possibly boring discourse, we'll come to the latest news.

VICTORIA

May Group Meeting.—At this meeting of the Group we were presented with a talk by Mr. Sid Clarke, 3ASC, on the subject of rx's. Sid who is somewhat of a specialist in this line provided the members with a most enjoyable and interesting evening. His talk, which covered a very wide range of the various phases of rx's, was undoubtedly well timed, as at the June meeting a discussion will be held to determine the nature of the rx we plan to build as a Group project. We thank you sincerely for your efforts on our behalf, Sid.

Visit to D.C.A., Essendon.—On Sunday, 26th May, 23 members of the Institute met at the Dept. of Civil Aviation air traffic control centre at Essendon Airport. The weather was fine and the afternoon proved to be one of the best ever arranged by a Vic. Div. body. Dividing into three parties, members inspected the air traffic control room, aeradio and technical

sections and the control tower. We were treated to first hand demonstrations of talking to aircraft in flight by Eric Treblecock, well known as BERS185, and also as an Institute member, control of aircraft landing and taking off by the boys in the control tower, who, incidentally, included an ex-VK9, and also saw much of the transmitting, receiving, test, and beam equipment. Our thanks are extended to all the officers of D.C.A. who made our visit really worth while.

Future Programmes.—July: A talk by Mr. K. Dalziel, a member of several of the earliest Australian National Antarctic Research Expeditions, about his experiences down South. August: Tentatively arranged, a film on tx hunts and demonstration of mobile tx and rx gear. Arrangements are also in hand for visits by members to Amateur Stations and other places of general interest. Come along to the monthly meetings and hear all about it. Anyone interested, young or old is welcome. We meet at the rooms, 191 Queen Street, Melbourne, at 8 p.m. on the last Tuesday of each month.

Correspondence.—Robert Tacey, WIA-L3051, from Newport, has written me a letter detailing his latest activities. His present project consists of getting his converter for 80 through to 5 mx into operation. He has a 5-valve rx which he has modified and added bandspread to as his latest rx. Previously Robert was using a 3-valve regen. on 20, 40, and 80 mx with a doublet antenna. Hope you get everything going OK Robert and that we will see you at the next meeting.

John McEwen, WIA-L3040, has also put pen to paper. He states that solid study for exams, doesn't leave him much time for radio, but still manages a minute at the rx now and then. He now has a Philips No. 4 rx which is much better than the dual wave set he had been using, and now intends to build a converter for 15 and 10 mx. John asks me to tell Geoff Morris that there's another Camberwell football club supporter in the Group. (Guess I'd better find another North or Northcote supporter to keep things even).

QUEENSLAND

A letter from Don Bryant in the sunny city of Brisbane provides the following information: A number of the VK4 boys have been getting together to form a club and we hope that as a result s.w.l'ing in Queensland will really begin to progress. Don himself is at present carrying out some modifications to his AR7 in an effort to squeeze a bit more signal into the shack. With a new mast and antenna on the way things should really be looking up. Among other Brisbane s.w.l.'s, Don mentions N. Bolton, B. Bischa and P. Hayden. How about letting us hear from you fellows too.

SOUTH AUSTRALIA

John Campbell, WIA-L5011, lets us into the secrets from the land of parks, churches and a river with a plug-hole. In the VK5 Group's current listening contest on 14 Mc. some colossal scores are being amassed and practically every member is listening as hard as he can. Certificates are to be awarded for the 1st, 2nd, and 3rd places.

On 24th June the Group visited the new 5DN broadcast studios at North Adelaide and then

proceeded to the tx installation at Dry Creek, about 7 miles north of the city. This visit was arranged through the assistance of Warwick SFS, who really showed off the "new studios." (Wonder if he has his own desk to put his feet up on yet?)

The July meeting of the VK5 Group will be held at the Methodist Mission on the third Monday of the month at 8 p.m.

GUESS WHO?

And now for the scoop of the month! From VK9 we hear there are such creatures as s.w.l.'s. Up until now I think they must have all been hiding in the jungle. There are three of the boys up there and we hope to hear from each of them soon. My informant goes under the name of Bob Clark and is using an AR7 rx with a dipole antenna 40 ft. high. Bob hopes to soon have purchased an Eddystone 750 rx and says he'll really hear some DX then. Not much listening has been done lately as Bob has been doing a lot of study for the A.O.C.P. including plenty of morse practice. The boys up there are really keen to get going in the next contest to come along, so it looks as if there'll be plenty of competition from the VK9 area.



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FEDERAL

NEW FEDERAL COUNCILLOR IN VK9

Following the transfer of Doug Lloyd, VK-90Q, back to VK2 the Papua and New Guinea Division has appointed Russ Coleston, VK9XK, to the position of Federal Councillor.

The VK9 Division and the Institute generally owes much to the work of Doug VK90Q, for he took a very active part in affairs during the early days of that Division's formation. His contact with Executive was firm and his work as Federal Councillor most productive. It is hoped that he will find time to continue in some phase of the Institute's activities.

In Russ, VK9XK, VK9 Division has a worthy successor and best wishes go to him in assuming his new position.

SPECIAL CALL FOR QSL CARDS

It has been brought to the notice of Federal Executive that the London Members' Luncheon Club of the R.S.G.B. is most interested in obtaining the QSL cards of those members of other societies that they have entertained at their luncheons.

It is known that a number of VK members have availed themselves of the cordial invitation of this club and Federal Executive suggests that in return they forward to the Secretary, Mr. Frank Fletcher, G2FUX, of 11a Ickenham Road, Ruislip, Middx., England, one of their cards. Let's make sure that VK is represented 100 per cent.

FURTHER LIST OF SUCCESSFUL AMATEUR CANDIDATES

- A. Parker, Mt. Beauty, Victoria.
- H. E. A. Gehrrke, 52 Norma St., Mile End, S.A.
- A. Eder, 107 Alice Street, Bellevue, W.A.
- C. F. Jaeschke, Moora, W.A.
- I. H. Clinch, Moora, W.A.

FED. CONTEST COMMITTEE

Advance copy of the results of the 1958 "CQ" DX Contest was received from the DX Contest Chairman, Frank Anzalone, WIWY, early this month. These are published elsewhere in this issue. He also points out that the dates for the 1957 Contest have been delayed by a fortnight to make them as:-

Phone—October 28-27.

C.W.—November 30-December 1.

This has been done to leave a fortnight between the VK-ZL Contest and the "CQ" one.

The congratulations of the Committee go to those who represented Australia in this Contest.

Please study the VK-ZL Rules published in this issue and make them as widely known as possible. Nearly 100 Societies and most of the Amateur publications have been already circulated and have promised their support. You will note that the rules are based on the new R.S.G.B. Contest Rules—that fact should be the selling point.

Regarding certificates awarded for ANY W.I.A. Contest, the Contest Manager, Mr. Rex Richards, VK5DO, reports that all have been posted and there should be none outstanding. A very meritorious effort on his part.

G. M. Bowen, VK5XU, Chairman.

FEDERAL QSL BUREAU

Writer has been on vacation during April and May, hence no notes appeared in the June issue. Portion of the period was spent at Marysville enjoying the mountain air and feasting the optics on the glorious autumn tints of the wealth of deciduous trees to be found there. The remainder of the "vacation" was spent in dealing with a mountain of QSL mail which during the past two months has trebled in volume, and wielding the paint brush in the interior of the menage. The big switch was not thrown to the on position for a full month.

The QSL Bureau address of the Marts is now Box 777, Kuala Lumpur, Malaya. This bureau will clear cards for all VS1, 2, 4, 5, ZC3 and ZC5. The QSL Manager is VS2DO.

New certificate data comes thick and fast. The latest is the Kroonstad Radio Club Award. Details briefly are: Foreign Amateurs must QSO two stations in Kroonstad. No confirmations need be sent when applying as Kroonstad logs will be checked, but before the award is issued the applicant station's

QSL cards must have been received by the Kroonstad Amateurs he has contacted. Costs are three I.R.C. and application must be directed to the Secretary, ZS4MG, Box 325, Kroonstad, South Africa. Active Kroonstad stations are ZS4AA, BH, BN, CO, HN, IO, JB, JC, JL, MG, and VR.

The QSL Manager of the N.I.V.I.R.A. is C. Loze (ex-FKILZ) with address as Iordenstreet 23, Haarlem, Netherlands.

The QSL Bureau for VE3 is handled by VE3QE, Les Whetham, 32 Sylvia Crescent, Hamilton, Ontario, Canada.

The Seibu Amateur Radio Club, care Seibu Department Store, Ikebukuro, Toshima, Tokyo, Japan, advise that JAIALG is their club station and that they have 100 members. They state that about ninety per cent of JA Hams cannot use 20, 15 and 10 metre bands because they have only a second class license.

MF4BCD, John Hancock, Bahrain, is a Victorian hailing from Box Hill, Vic. John is on the look out for VK stations on 14 Mc., both c.w. and phone, around midnight E.S.T.

The U.S.S.R. Central Radio Club organised a traditional international c.w. contest on May 4 and 5, 1957. Unfortunately they did not have the foresight to send a copy of the contest details by air mail so that publicity could be given to the contest in earlier issues of "A.R." They sent the details by surface mail which was not received until 15th May—ten days after the contest was over. The rules state inter alia, that reports should reach Postoffice Box 88, Moscow, U.S.S.R., by May 28. Seems they have a little to learn in the staging of International Contests.

VOID, who was very active in recent contests and who contacted many VK stations on c.w., is Roland Peddie, 11 Vaughan Place, St. Johns, Newfoundland. Roland QSLs every contact and is a regular reader of "A.R." He uses a Viking with 120 watts and a half wave doublet. Since the last contest his call sign has been changed to VO1BD. He is still seeking VK contacts on 14 Mc. c.w.

Eddie Roberts, who operates VK9AT at Lae, New Guinea, is ex-G3KIP and DL2WL. Eddie uses 95 watts to a diode on 14 Mc. c.w. and QSLs all contacts.

Details are now to hand as to the relationship between VK1RW (Cocos) and VK9AJ of the same location. This set up has caused some confusion in the minds of many local and overseas Hams. The call sign VK1RW was originally issued to R. Widows, and when he was recalled, the call sign was transferred to Les Lepinier. Shortly afterwards the call sign was changed to VK9AJ. OM Widows left his log book behind to enable Les, VK9AJ, to reply to all QSLs. VK9AJ operates mainly on 14 and 21 Mc. c.w. using an A.W.A. transmitter with 90 watts to a centre fed longwire. Rx is an AR88. Now that the situation has been cleared and "lines of communication" have been established for QSL handling, stations working VK9AJ can expect a QSL on receipt of theirs.

As a contribution from Hams of Mocambique for the 50th anniversary of the town of Belra, the L.R.E.M.—official organ of CR7s—will award a certificate if contact is made, c.w. or phone, with not less than two (2) Hams at Belra during the month of August, 1957. Contacts must be made on bands of 10, 15, 20 and 40 metres. The Belra Hams' stations with which contacts may be established are as follows: CR7BN, 7CP, 7CY, 7DI, 7DS, 7DQ, 7IT, 7LU. The listeners who log not less than twenty (20) contacts from Belra stations are also entitled to a certificate. QSLs must be addressed to CR7BN, P.O. Box 875, Belra, Portuguese East Africa, and must reach Belra not later than October 31; accompanied by two I.R.C's.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

HUNTER BRANCH

The May meeting of the Hunter Branch was held at the University of Technology, Tighes Hill. Vice-President, Stewart Fairburn, was in the chair as President Lionel 2CS was in VK3 to attend a Civil Defence School.

Activity on the bands has been quiet of late but with 10 metres opening up a mass migration to this band is imminent. The 2AWX broadcast on 40 mx has met with mixed reception and it appears that 2CS will have to conduct the session on 20 mx. As forecast, Ernie 2FP is bowling over the DX on 10 mx, after an absence of seven years Ernie has lost none of his touch. However, he has some local competition from Joe 2ANL who is in the fortun-

ate position of being able to operate in the forenoon during the week with no QRM and the band at its peak. Visitors to the district have been Taree Bill 2AEY/Mobile who put himself at the mercy of Bill 2ZL at Fennell's Bay Railway Yards, from there Bill went to the other side of the lake to see 2WB/ZDA who is sojourning with caravan and Type 3 Mk. 2. Another visitor was Rod 2ACU; he called on Jim 2ZC and Bill 2XT naturally!

Bob 2AQR has been holidaying at the VK4 Gold Coast visiting Hams en route and finished up testing 807s with Mayor of Church Point—2AHZ. Treasurer Bill 2XT is preparing for holidays on Gold Coast and expects to attend the VK4 Convention. Good to hear that Varley's (2SF) XYL has recovered from her illness; Varley is again active on 7 and 14 Mc. Harold 2AHA kept busy mothering his mobile marine, but pops up now and again on 7 Mc. mobile. Norm 2ANA, who recently made a comeback, is taking things easy so far with only local contacts on 20 mx. We hear that Tom 2PQ has given the game away due to high noise level; wait till he hears from 2FP of 10 mx being open—he'll be back! Ron 2AA1 also seems to have gone QRT since being appointed manager of a city theatre. Assoc. Syd Daniels has been busy photographing the district and 2ASJ's gear for W8AL. Just returned from three weeks holiday at the lake is gentleman Jack Hamilton. Harry 2AFA has been busy painting but has made time to work some choice DX including a KV4. Ron 2YASJ will again be sending mail on v.h.f. after repairs to rx by Milton Hughes. Congrats, John 2YQ and XYL on birth of daughter; the 2AOR's are the next couple to watch. Leo 2QB is re-building his modulator into a smaller cabinet.

The next meeting of the Hunter Branch will be held at the University of Technology on 12th July. Also an informal get-together on the fourth Wednesday of each month at Bill 2XT's place of business.

SOUTH WESTERN ZONE

Herb 2QD at Albury has an f.b. tower mounted on top of the shack; waiting on help to erect quad beam atop. Art 2EW has been amongst the DX on 20; must be the new mod. trans. or is it the AR88? Athol 2YA has been heard occasionally on 20 and 40. Ben 2AEM active on most bands; is using 2RS portable while re-building gear. Noel 2OJ active on 20 once a week with W2CC. Noel had the misfortune, to lose his good wife recently. Please accept the condolences from all in the zone, Noel, on your sad loss.

Barry Dooland has received notice that he has obtained the L.A.O.C.F.; awaiting call, congrats Barry, hope to hear your v.h.f. sig soon. Jim 2ANQ has lately been married and I hear will soon be leaving VK2 for VK3. Don 2RS active on all bands; has a new mobile 20 watts. Also has a new quad yagi on 144, so has been blowing the cobwebs off the 144 ear. Don also had a mishap at Easter, his radar failed while mobile and he collided with a cow, I hear. Tut, tut, and Don is a teetotaler.

Your scribe and Stan Abbey spent the weekend of 25th and 26th at Forbes with Hugo 2WH, where we had a most enjoyable time. We were well looked after by Hugo and wife, Jean, even though Hugo's daughter, Helen, had just had an appendix operation the day previously. Hugo gave us a demo. of how 144 sigs reach Forbes from Sydney per medium of Bob 2ARG. We operated mobile both ways on the trip and had some good contacts.

News from the Griffith area is that the club had a visit from Noel 2AQH who gave a very interesting lecture, and also discussed the problem of commercial interference in the Ham bands. John Smith (Z call) has now passed the c.w. and is awaiting full call, congrats. John. Hope you get the AT3 going soon. Brian 2AVJ has left Griffith and is now in Sydney. We of the zone are sorry to see you leave Brian, but I know your move is to your advantage. All the best.

Next month I will have a full report on the preliminary meeting to be held on 9th June at Coolamon.—2AJO.

VICTORIA

Over the years we have been privileged to hear some very fine lectures at our monthly meetings, and that given at the meeting on the 5th June was no exception. It is always a source of wonder to find the number of people who are always prepared to give of their time and talents to the Institute in this way. The

members who arrange these talks are to be congratulated for their efforts on our behalf. On this occasion the speaker was Alec Brown who was VKIDA during 1966 and his subject, "The Wild Life of the Antarctic as encountered during his tour of duty as a Radio Officer on Macquarie Island."

Before commencing the lecture proper, the speaker gave some very interesting facts about the island and its present role in the scientific studies of such things as weather, cosmic rays, ionospheric predictions and geomagnetism. Having dispensed with these preliminaries he then enthralled us with some really magnificent slides of the island and its wild life, and his descriptions and commentary of the various scenes left nothing to be desired. You really lived the life on the island through the speaker without the obvious discomforts.

It had been previously advised that the lecture was to be of a general nature and a number of the members took the opportunity to bring along the XYL and harmonics. As a result the attendance was about 73.

Apart from the members' families and the speaker, the only visitor was Mr. H. Larson (VK4WJ) who was duly welcomed.

Many thanks are due once again to a very able lecturer.

You will note from your membership card that the next meeting will be held at the same place (Radio Theatre, Royal Melbourne Technical College) on 3rd July when Squadron-Leader White, of the Ground-Air Section of the R.A.A.F., is the lecturer. His lecture will cover ground to air communications and other angles of R.A.A.F. radio work and will be illustrated with films.

As is usual on meeting nights, the stalwarts who manage the affairs of the inwards and outwards QSL Bureaux had things going at full blast and were attracting plenty of customers. The June 1957 edition of the "Call Book" was also on sale.

At report time, David 3ADW informed the meeting that double sideband reduced carrier (23b) type emission is now permissible. Len 3LN gave notice of Fox and Transmitter Hunts, and Ian Hunt, of the S.W.I. Group, reported on the activities of these members. The YLs had nothing to say for themselves though, and only seem to appear in the YL Corner of the mag. What about it girls?

The President brought to notice that Mrs. May, our Administrative Secretary, has, for some weeks, been acting as "Scribe" for the Sunday morning broadcast, pending the appointment of a member to the post. Volunteers were then called for but, as often is the case when jobs are around, no starters appeared. No doubt everyone was leaving it to the "other fellow" to make the move. Unfortunately the "willing few" will probably be called to the rescue and once again the great majority will stand complacently by, and demand their rewards. It does not seem to be realised that the life of the Institute is dependent on workers and the only source of these is its members. If the Institute should die for the want of these necessities, Ham Radio must surely follow. Let's rally round then and assist where we can. Don't procrastinate—activate, and help to build the Institute on the foundations already laid by those who have gone before.

One last thought while on the subject of jobs. Some Hams don't seem to know, or don't want to know, that the Victorian Division conducts Slow Morse Transmissions for Beginners each Sunday night on 3550 Kc. and 146 Mc. between 8.30 and 9 p.m. If you operate on these bands during the broadcast time, please have a thought for the beginner and keep clear of the frequencies mentioned. The transmissions only occupy half an hour per week, which is little enough for learners, and it is very disappointing to the sender and the receiver to have the broadcast spoiled by the thoughtless interference which often occurs. Remember your own beginners days and be tolerant.

New members admitted: Full Members—K. A. Thomson (3ZBT), E. V. Avenall (3AVE), D. H. Goldsworthy (3ZDL); Associate—C. M. Vriens, M. G. Johnston, R. W. Wilkinson, J. E. C. Heaver.

80 METRE TRANSMITTER RUNT

This hunt was held on 12th May and was won by the transmitter! It was hidden by 3JE and co. on the north bank of the Yarra half a mile downstream from Burke Road bridge. Fourteen cars started (two non-competitors) and about seventy people had a hilarious afternoon among the willows, the watties, the boxthorns, and the blackberries. XYLs and harmonics had time to offer much advice.

Gymnastic efforts, on the fallen wattle trees in the river, discovered the co-ax feed coming under water from a box buried in the same bank that supported the "antenna farm," made

of hundreds of feet of almost invisible wire. 3LN's harmonic dug it out half an hour after the 1½ hours time limit had expired.

Join in the fun on the next hunt. Bring the YL, XYL and/or family, plus picnic hamper even if you have no d.f. gear. 2.20 p.m. outside Queen's College, University.

EASTERN ZONE

Sorry chaps there have been no notes over the last two months, especially as our Convention was coming off, but I am afraid television took too much of our time. Jack 3AJK, George 3ZCG and s.w.l's Terry and Des made the trip to Geelong for the South Western Zone Convention and came away talking nothing else but hidden tx hunts and fox hunts, so they thoroughly enjoyed themselves. Ian 3AAV visited Adelaide where he and 5MT went up to Mt. Lofty on the last V.H.F. Field Day to work VK3 but no luck.

Cliff 3AIT has been working some nice DX on 20 mx. Ron 3ZD has been quiet on 2 mx lately, but we understand he is building a rig up for 40 and 80 mx to further his v.h.f. records. Norm 3ANC is now residing at Mirboo North, so will soon be on again. Joe 3TO has been heard warming his rig up on 15 mx. Reg 3ZCR is now on the air at long last, and has worked most of the boys even 3ZCG. David 3DY has a very good signal on 2 mx, but had bad luck with his final tube, so at the moment is running only 10 watts. Gordon 3TH is still experimenting with his cubical quad on 2 mx.

Still looking for a few more chaps to come on the Sunday evening 80 mx zone hook-up, only the few regulars have been on, including Graham 3QZ. Hoping all who attended the Eastern Zone Convention held at Moe on 22nd and 23rd of June thoroughly enjoyed themselves and had a safe homeward journey.

MIDLANDS ZONE

The inaugural meeting of the recently formed zone was held in the R.S.L. Clubrooms, Castlemaine, on 24th May, 1957, and in attendance were: Col 3FO, Neville 3ACN, Bill 3FY, Roy 3ND, Marc 3ZAW, 3APJ from Kyneton, Jim 3SV, Bob 3AIM, Pix 3ARS, Jack and Russ Dempster, and Theo Dredge.

The unofficial appointments of 3FO as President, 3ACN Secretary, 3ND Vice-President, and 3FY Zone Correspondent and Treasurer were confirmed, and the meeting continued on an enthusiastic and vigorous level. All known members in the zone were listed and it was decided that non-members be approached so that the zone can become active, and with the assistance of other country zones, become a force in the Division.

This discussion led, naturally, to the shortcomings of being a country member and the ways and means of overcoming these, with particular accent on disposals equipment. A majority of members were in agreement, and if their words can be translated into deeds, it appears possible that the elusive piece of equipment may reach the shacks after all.

A decision to hold the zone hook-up on 40 mx on second and fourth Monday of every month at 7.30 p.m. was reached. 3AIM being rückbound on 7120 Kc., this frequency became the sole contender for a starting place amongst the QRM. 3FO becomes control station to call each member in turn, and they simply acknowledge with advice that they have business or not; in turn again, each station is called upon to make known his business and then it becomes time for rag chewing. In this way, those members in a hurry who have news and views, can unload it and be off without too much delay.

The official opening of the zone in the form of a week-end get-together after a short meeting will probably take place on 31/8/57 in Bendigo, the arrangements being unanimously dumped in 3ACN's lap, with some assistance from 3FY and 3UR. Neville having done a good job of the Convention held in Bendigo last year, is expected to surpass the previous effort; but will welcome any ideas to keep the party going, particularly if the present spell of late summer comes to a sticky end. All those who are interested in Radio are invited to attend and further details will be made known at a later date.

After a number of efforts by 3ACN to conclude the meeting, he finally succeeded and all present adjourned to Roy 3ND's QTH where he and the XYL did a thorough job of entertaining the company.

No personal news is to hand for this first lot of notes, but once your correspondent descends from the heights of 15 and 10 mx with a G4ZU to 80 and 40 with a dipole, he hopes to have some news of interest next month.

GEE LONG AMATEUR RADIO CLUB

A most informative evening was given by Mr. G. Woods, well known yachtsman and

boat builder, at our last meeting. The speaker devoted much time to the procedure necessary in rigging 'aerials', the types of splicing required and the methods adopted, as well as the raising and lowering of tall masts.

There has been a great deal of activity in the South Western Zone. John 3ARJ is working the Ws on 20 mx, 3ADY is on 15 mx regularly and has become engaged. John 3AGD has experienced some rare DX with t.v. at his QTH and is hard at his text book "Fatherhood in the Nursery." Harry 3XI is tired of DX, it's so easy. 3HF is lost forever to Ham Radio now that t.v. is here. Alf 3AJF has a daughter and Chas 3XH has a son. Bill 3AWZ's XYL is convalescing after her recent illness. Bill has the budgetiger craze! T.v. still occupies the time of Ed. Blackney and Vic. Clarke. Keith Vines has constructed a handy converter for his car radio. Fred 3ALG has repainted and refitted the shack and hopes to be on the air soon.

The new syllabus for the ensuing year has been drawn up and the election of officers will take place soon for the club. Our zone hook-up night is Thursday at 8 p.m.—what about dropping in?

QUEENSLAND

Things have been happening this past month and the place has been a hive of activity. I've taken a few peeps "behind the scenes" and even I was surprised!

Our willing horse, Aussie 4TN, has once again put in a great deal of effort into the organisation of the Palm Beach Convention, which was held on 15th, 16th and 17th June at the National Fitness Camp.

Stan 4SA, after a short break, will be starting classes once again in September. Stan's course on "how to get your A.O.C.P." is backed by practical instruction, with, of course, the usual morse class. Stan has already put some sound ideas to Council and when things start to "pan out" the way Stan hopes, quite a few eyebrows are going to shoot up in surprise! So boys, for more news on this subject watch this column!

Once more comes the subject of clubrooms! Still in the talking stages, fellas, but we are open to suggestions and healthy bequests. Contact the Secretary regarding either.

We also have before us the not-so-little matter of interference on the bands. We've all muttered, "That blank, blank, commercial! Right up on my DX!" This interference is really getting worse. I'm not an old timer yet, but I can remember the days when the interference was bad but not nearly as objectionable as this. So what about it? Don't wait till it is too late!

One night this week put yourself out and record interfering non-Amateur stations, together with their frequencies, times, dates, etc., and send the lot to the Divisional Secretary. We need a concentrated effort from everybody, including associates and the short wave listeners. With enough evidence the W.I.A. will be able to do something about the matter!

One revered gentleman Ham put his W.I.A. car badge on the back bumper of his Mark VIII. The reason being, I believe, was that the back of his car was the usual view presented to most motorists.

At the last general meeting it was decided to negotiate for some 6V8Gs and 6X5GTs. If we are lucky enough to get them the price would be right. However, it will be some time before we know the net result.

Now that winter is supposed to be on the way, Bert 4AO will be cranking up VK4WI on 80 mx to give a re-broadcast of W.I.A. news. The scheduled time will be 2000 hours on 3580 Kc. on Sunday nights. The 40 mx hook-up on Sunday mornings is gaining in popularity too. Must be that really smooth station manager. I remember listening to 80 mx five months ago and thinking of arctic blizzards . . .

Maybe I should be a nark and not pass the word around that a full scale W.I.A. controlled emergency will be dumped in your laps when you least expect it. I wonder just how many of you fellas know just where that sheet of emergency drill is at present? Right! Boys knock the dust off that gear and get it going. Incidentally, this time last year a bobby-dazzler of a cyclone hit the place.

The Short Wave Listeners' Group is once again to be revived and affiliated with the Institute. It is hoped that with added interest the Group will grow and prosper. Also all A.O.C.P. and L.A.O.C.P. holders be gentlemen and kindly acknowledge ANY QSL cards.

At our last meeting John 4FP gave "an up to the minute" lecture on Civil Defence with reference to the Amateur role. John recently attended (as Qld. delegate) the Civil Defence School at Macedon (Vic.). In the lecture John pointed out that all Amateurs outside target

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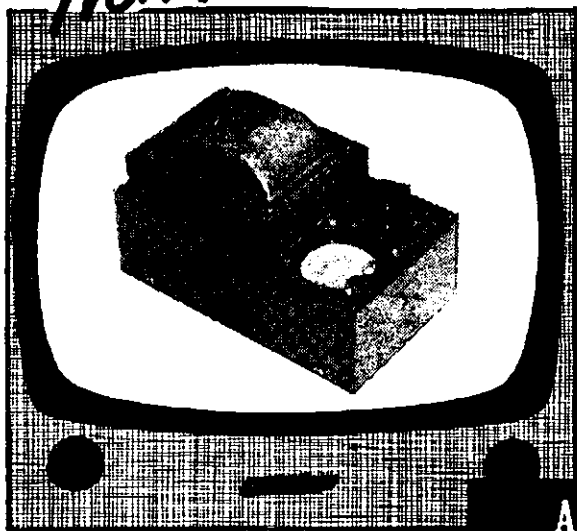
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areas (i.e. industrial areas and cities) should be conversant with civil defence procedure, and he proposed that at a future general meeting members, in several groups, should attempt to solve the many problems concerning communications. Should a H-bomb be dropped on Brisbane. Remember an H-bomb can cause a circle of varying degrees of damage which is 30 miles in diameter. On behalf of the boys, many thanks John, for a job well done. Afterwards Evan 4EF showed another film dealing with hydrogen bomb explosions and like the previous film, it was extremely absorbing. Just observing the extent of damage from this weapon makes a seemingly unreal thing a sobering reality. A lot of chaps saw the film but far too many did not. Thanks again, Evan, for an interesting evening.

A mild sensation stirred the Amateur fraternity recently when official communication with Madang in New Guinea was temporarily "out." Two VK4 boys tried unsuccessfully to raise Madang Amateurs in order to inform one of the residents there, Mr. Sooboda, that his son Ricky was dangerously ill in a Melbourne hospital. When Jim 4PR first heard the news he contacted Ian 4MO, a member of the Emergency Committee, having previously received the green light from the R.I.'s Dept. The boys tried systematically to raise Madang on 80, 40, 20, 15 and 10 mx but their efforts unfortunately didn't bear fruit, so, at midnight the boys retired, having told their story to Harry 9HO in Rabaul and feeling that they had done all they could. Next morning official communication with Madang took the matter out of the boys' hands. Stout work fellas, anyway.

TOWNSVILLE

Again a good roll-up at the last monthly meeting. The Secretary, 4WH, who is expected back from Brisbane in time for the June meeting, will be pleased to see so many new faces. After disposing of the usual minutes, the meeting was open for general business. Quite a long discussion took place in regards to building up test gear for the use of members. Also that once more classes for A.O.C.P. be again started and that instead of being held at the meeting place, they be held in each lecturer's home in turn. Thus giving everyone a turn at conducting the classes. It was decided that at next meeting the subject of the club's finances be thoroughly gone into and arrangements be made for obtaining test gear.

Rex 4LR then gave an interesting lecture on s.s.b. which was attentively listened to and questions were asked at the end. Just how to tune in s.s.b. to the best advantage. It is heartening to see at long last that 144 Mc. is becoming a reality in the Townsville district. Ken 4ZAK has built a transmitter and is now putting the finishing touches to his receiver. Tests were carried out with 4PS. Alan listened in with a super-regen. rx. Who knows in the I.G.Y. activity Townsville may be heard further afield, sincerely hope so.

Don 4PW has taken up residence at Collinsville and is on the air on 14 Mc. and promises to get going on 7 Mc. to give local boys a ragchew. Eric 4EL tries hard to get DX on the band when conditions are not so good. Frank 4PF now happy that he is on the air. Ted 4EJ and few others waiting arrival of dural to get up new miniature beams—a la 4ZU plus all latest mod.

MARKYBOROUGH

4AI, whose bug is bug-free transmitters, has once again changed the lay-out of his new rig, which will have a single 807 final. Will be fully band-switched. 4CB is trying out a 7 Mc. portable rig. His one half watt final has put a signal into Sydney.

At 4BG, with the help of a s.w.r. bridge, the 21 Mc. beam (3 elements) is being trimmed. Meantime, changing conditions make 21 Mc. mbre effective for DX working than 14 Mc. A pre-amp. using a 6J6 is under construction to make small signals bigger. 4DJ, back from National training, is on 14 and 7 Mc. and works many Ws. His new rig should soon be on the air.

SOUTH AUSTRALIA

At our last meeting we once again saw the seating accommodation taxed to capacity so that lat-comers had the choice of sitting on the furniture at the back of the hall or standing around the walls. President John Bulling, 5KX, welcomed several visitors and introduced the speaker for the evening, 5XU—none other than Gordon Bowen, who always seems to be able to pull an interesting lecture out of the hat.

Gordon's subject was "Multiband Antennae" and with his grasp of the subject he made it seem deceptively easy to load a skywire with

any number of frequencies, harmonically related or otherwise. He took as his illustration an all-band aerial designed for use by the Bush Church Aid Radio Service, out Ceduna way, which uses frequencies from 2 to 8 Mc. Basically, the scheme embraced a wyndham type job cut for the lowest frequency and fed at the 300 ohm point. Quarter wave matching stubs were then introduced at the other required frequencies and adjusted until they presented an impedance of approximately 300 ohms at the same feed point.

He then touched lightly on the design of the 4ZU beam and showed how this was an extension of the previous illustration, whereby quarter wave matching sections were used to shorten parasitic elements and make them resonant at higher frequencies. Really getting warmed up to his subject Gordon then gave the mobile boys some very useful information by diagrams on the blackboard of a scheme for an all-band loaded whip.

Bob 5PU expressed the feeling of the meeting when he thanked Gordon for his very fine lecture.

After the usual smoko the QSLs were distributed and the general meeting business was resumed. The smirk on the handsome physog of Secretary Brian 5CA's face was well worth seeing when he announced "no correspondence," which must surely be a record, not the handsome face, but no letters!!!

Luke 5LL had to have his customary growl about something, good on you my friend, for you usually say the things we less courageous can't frame to words; anyway he and Pete Monfries aired their views regarding some shortcomings at the Exhibition, which was all to the good, for we must learn from experience and not gloss over mistakes.

We welcome quite a few new members this month: Messrs. Williamson, Caut, Rodger, McMillan, Wallace, Burns, Oliver, Hilditch, Baker, and Lahne as Associates, with A. L. Hudd, 5DU, and S. G. Hart full members. We hope you enjoy your membership and don't forget, come to the meetings, enter into the Institute's activities and thus use your membership benefits.

My Erompton scout, Joe 5JO, has reported most enthusiastically on a recent visit he made to VK3 where he went with the idea of playing cricket, but report on that was very small, most of the activity appeared to be being conducted tours by VK3 types to various shacks and points of interest relating to the "one eyed monster." Such names as Bert 5VA, Jim 3LM, Reg 3MZ, Rob 3AVZ, Dick 3XD, "The Winker 3JR, were freely mentioned, in fact it looked as though Joe was having a private "Convention" all of his own.

Les 5AX has his mighty structure on the way, the beam is finished and the tower half way up. Look out he will be calling for volunteers to hook it up any time now. Incidentally, he has departed from the orthodox (as you would expect) and has placed a variable condenser across the trombone tubes of the reflector to effect a very fine and easy tuning arrangement.

5QW, whom you probably know as Bernie who holds the fort at 5WC, recently returned from a holiday in VK3; whilst there he went portable and worked all States and had several ZL contacts. Ron Catmur, Secretary of the Woomera Club, has just completed a tour of N.S.W. where he went to visit his parents near Katoomba. Ron has re-applied for his old call sign 5FY and hopes to have something on hand for his trip south.

Lance 5XL from Clare has been heard on the air recently with an AT5 using the original grid modulation. Ern 5EN heard mobile from Clare with 4 watts, very good too, he is spending a deal of time on t.v. work at the moment and hopes to have something to show soon. Doc 5MD manages to keep all sorts of complicated schedules these days on various bands without much effort, but ask him some time how he remembers the call sign of a certain VK5 he was working on 40 mx.

The C.D. Net is being pushed forward which is being incorporated here using the standard gear obtained originally for our link up with E.F.S. So keep in touch chaps and join the ranks.

The A.O.C.P. Class continues to function well and has of course resumed after the recess. Nose down fellows and knock it over in October.

Don 2AMN keeps us informed on activities from the Silver City where I.G.Y. seems to be having its share of followers, whilst Dave 5BF keeps Yankallilla on the radio map. 5WC, Burnie and Co. bob up after the session with their little (?) say so, the main item last week being that Ron (ex-5FY) is to have a hair cut at last! However will we know you now Ron? Wally 5DF leaves 50 cycles alone long enough to give the bands a go and recently had Keith 5KH there with him; the latter gentleman, when commenting on Gordon's reference to the

Astronomical Society and I.G.Y. link-up, wondered what the Astronomical Society had to do with geophysics!!! A sandwich now and again Keith will keep the juices flowing.

One Warwick 5PS suffered a sprained ankle not long ago. He did that when retiring from an encounter with someone who had more Bs in the BBSS idea. Then again, rumour has it that he was dashing out on his bike to chastise someone who referred to him as a big something or other, and his pantaloons got caught in the chain.

Brian 5CA finds it impossible to attend meetings or even from Friday through Monday. Reason? To use his own words "Those days (or nights) are reserved for necking." Oh yes, he announced that himself, so don't call him those nights and expect a reply, either on phone, which he can't read, or c.w.

On Sunday mornings at the now well publicised times, 7146 Kc. is used by the various Divisions for their news sessions, yet in spite of that there are still a few who come up on or near the frequency and mar the transmission as a result. This news and notes session is put off for all to hear and in many cases is the only way a number of country members can keep up with the doings, so watch out fellows, check your frequency and get far enough from 7146 that the sidebands of even a normal a.m. transmission don't splash into it.

WESTERN AUSTRALIA

At the regional meeting for May, 6JT gave an interesting lecture on the early days of Radio and also demonstrated a miniature transistor tx on 80 mx with which he had had good results over 4 to 5 miles on c.w. and about half that distance on phone, both of excellent quality. There was also a demonstration of a transistorised loud hailer, like a megaphone, with the amplifier and microphone (battery and all) in the rear end of the flared trumpet-like speaker, the whole weighing about 3 to 4 lbs.

6RU gave the circuit of the No. 11 set and a discussion followed on their uses and possible modifications.

6KW gave a report on the Federal Convention from which he had just returned.

6MK has been appointed Co-ordinator for C.D.E.N. in the West. Tom's experience in Army Signals should be an asset. Unfortunately he was unable to attend the meeting, but will no doubt have something to say at the next one. From a bit of "mail reading" on the i.f. bands, I think he will get the necessary support.

Congrats to Keith, another Albany resident to get his ticket—call sign 6GW—and I understand he has gear almost ready to go. Also to Alex at Armadale just awaiting his new call.

Recent new arrivals now active on the bands include 6CJ, 6CL, 6EA and 6TL. 6CJ is a brother to old timer 6WU. The welcome rains provided quite a topic on the i.f. bands when the farming fraternity, 6BS, 6CL, 6CJ, 6EJ, 6TH and 6WU got comparing notes!

No. 11 sets are very popular and many local Hams have been using them for portable work on 40 mx on Sunday afternoons. 6CL was heard in QSO with 6EW (Perth) on 12th May, working mobile all the way from Dalwallinu to Miling—a three-quarter hour trip. 6MU was also putting in a good mobile signal.

The 40 mx band has been very active at week-ends, the following stations having all been on at various times during the past month: 6AG/P, 6AV, 6BE, 6BO/P, 6CL, 6CP, 6DJ, 6DX, 6EA, 6EJ/P, 6EW, 6FD, 6GA, 6GU, 6HT/P, 6JD, 6JG/P, 6JR, 6JP/P, 6KJ, 6LG, 6LH, 6MU/P, 6RD/P, 6RP, 6RT, 6RU, 6RW/P, 6TH, 6TK, 6TL, 6TR, 6UF, 6VK, 6WS, 6WU, 6WZ, 6XG, and 6W/P.

80 mx is showing more activity, the Eastern States and ZLs coming in at good strength, and there is also increasing local activity on the band. The following have been heard: 6AG, 6BE, 6BO, 6BR, 6BS, 6CC, 6CJ, 6CL, 6EJ, 6LG, 6LH, 6HT, 6MO, 6RK, 6TH, 6TK, and 6WG.

Our farthest northern station, Dave 6DG, on Troughton Island, was worked on 20 mx c.w. (the only band he uses) and said he will be leaving his present QTH for Bicton in late Nov., but will be active on 20 mx for a few weeks yet from his present QTH.

6UF has taken over the job of traffic officer for the Division from 6LU who is very QRL house-building. Lou has done an excellent job for a long time. Thanks Lou! 6VK, with his f.b. single sideband, has been getting good results and gives us some good practice at tuning the old rx! An interested visitor to 6EJ's shack during May was New Zealand young farmer, Phil Hulse, who has been touring W.A. on a Junior Farmers' sponsored trip. It was Phil's first experience of Amateur Radio and his itinerary included a week's stay with the

EJ's. When ZL3RB was worked some leg-pulling was indulged in as to which Island constituted the mainland! Wouldn't surprise me if Phil adds Amateur Radio to his J.F. activities.

TASMANIA

"Tis thine they give away and not their own. Pirates may make cheap pennyworths of their pillage."

Which all goes to show that if Bill Shakespeare was not a VK7, he must have been Bacon. And perhaps it's necessary to say that the chap who was apprehended here recently would have saved his bacon, too, had he directed his obvious enthusiasm first into obtaining a ticket.

Anyway, Sirs, a good deal else has been going on in these parts. Search and rescue exercise in conjunction with the Walking Club a couple of Sundays back, found TMH trudging around the hilly Collinsvale area with some 67 volts of h.t. on 80 mx, and TAB on the nearest road providing close support with the Type 3 Mark II. Both heard in Hobart and on the N.W. coast. More interesting, maybe, was the better coverage obtained between portable and base than on an earlier occasion when v.h.f. gear was used.

Daughters again. . . we don't know who is lined up for next month, but this time congrats. go to Barney Watson. After checking on contest dates, ionospheric predictions and the broadcast roster, Ken TKA is keeping 15th June clear for a march to the altar. But it's all right, chaps, KYL-to-be has sighted his rig and has been assured of spare power points in the shack for sewing machine and b.c. receiver.

Three new members to report. Bert Citrine, 7B1; Lee Cordell, ex-VK6, now TKC; and Associate Walter Miller. A healthy state of membership was evident, too, at the meeting just past, when 31 rolled up to hear TLE's lecture. Len dealt competently with standing wave indicators, complete with gear and real r.f., and then sailed on with details of what must be one of the very few Amateur Radio-astronomy set-ups. Article for the magazine please, Len.

A rush trip to the north-west for your scribe included a visit to the fine shack of TJO where, in the course of enjoying the hospitality of Jim and KYL, it was possible to spend a while prodding suspiciously around the t.v. set and noting his cupboard shelves for future attention. These notes being a rush job also, gentlemen, pardon the omissions, we'll catch up with you some time.

NORTH-WEST ZONE

Eyebrows rise, with some surprise. Our Southern notes, headed by quotes. The columns fill, written by Bill. And the standard's high, from TYY.

Sorry, Bill, but I couldn't resist it. Some of our associates seem to be moving about the State prior to the onset of winter. Ken Brown, associate from Burnie, has been enjoying a holiday in Hobart. Did you make yourself known there, Ken? David Searle also on holidays. How do you manage this mild weather, David? Another Burnie associate, Ken Hancock, has been extinguishing, sorry, distinguishing himself in the golfing line. Had a trip to Launceston recently, after buying a full set of the necessary whackers. Presume the KYL knows all about it, Ken!

Interest is still pretty high in the one-eyed monster, two members, Roy TRN and Ken TAI, took the opportunity of visiting studios and transmitters in Melbourne recently. Roy knows all about HSV7 and Ken GTV9. Roy also obtained a No. 11 set whilst in Melbourne. Ken has had remarkable success with a synch. unit of his own design. It will even lock in on a picture not strong enough to be seen.

Sam TSM, still full of enthusiasm, now runs a 24-hour service on most bands, from his AT5-AR8. Believe Roy TRN has taken his p.a. amp. back, Sam, so it looks like brass pounding again. Ted TEJ encouraged by his success at the last field day, has been on the air again, got as far as VK3 by working 3ARL. Lin is an ex-VK7. Our President, Jim TJO, recently attended an R.S.L. dinner, but I understand he behaved himself. Jim also passed report that associates Athol Lockett and Allan Baptist were still in Devonport. Max Ives, Devonport associate, is really interested in his rx now. He has considered turrets, band switching, double conversion, plug-in converters, and is now back to turrets.

A report from Leon TJP, at Queenstown, shows that mountains don't make a lot of difference. Leon opened up on 15 mx recently and made contact with an HS, GM, VE, VS one after the other.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

EMERGENCY NETWORKS

Control Station,
Flying Medical Services,
Ceduna, S.A.

Editor "A.R." Dear Sir,

I am rather appalled by several articles in the March issue of "Amateur Radio" both of which dealt with the operation of emergency networks in time of national disaster.

Firstly, VK3AHH makes some rather sweeping and amazing statements in his article "A Transistorised Miniature Transmitter." Hans is to be congratulated for his work on transistors and for his endeavours to introduce them to readers. He rather spoils the effect by such generalisations.

The article states "Absolute stability is a major requirement. A possible choice would be a crystal oscillator, but present day communication standards and C.D. requirements do not make it desirable to use such an oscillator." These sentences are contradictory. If absolute stability is essential, why should present communications standards not require it. I claim that present day standards most assuredly require an extreme degree of stability under all operating conditions, more particularly so in such important networks as those used when measures cannot be taken to obtain the best physical conditions of operation.

Those of us who have worked with a number of stations on a network will know just what havoc can be caused by unstable or slightly off tune transmitters. Under no circumstances, not even in a dire emergency, could such off channel working be tolerated. Frequency tolerance of 0.02 per cent. or less would be necessary, as would extreme stability, or all operators would be reduced, after a short time, to the gibbering lunatics most people now consider us to be.

On a number of occasions I have listened to an Army network operating out from a big South Australian camp. The choice of frequency seems to be arbitrary and completely without regard to other services. I have heard men, supposedly radio operators, spread in groups over about 500 Kc. between 4 and 6 Mc., each looking for the other to get the net into operation. Such snatches of conversation as this gem are enlightening and relevant to this discussion. "I don't know what is wrong with the others, I have called them many times without answer. I have the transmitter pointer set on the right mark on the scale." Most assuredly crystal control is essential.

How then can this be obtained? The use of vacuum packed miniature crystals is now commonplace. They are very light and could well be incorporated in a miniature transmitter. The quartz is plated and mounted on wire supports which act as shock absorbers. These are no more likely to be affected by accidental dropping than the matchbox of the inductance and capacitance of the unit under discussion. The whole unit could well be potted in one of the new cold pouring plastic compounds now becoming available on the market, thus providing even better shock-proofing. Also the benefits of extreme miniaturisation are doubtful. A two-stage transistor crystal controlled transmitter, a transistor receiver, possibly crystal locked, and a larger battery supply could well be fitted into a leather 35 mm. case and carried very conveniently slung over the shoulder. The leather case would give added protection to the equipment. This of course presupposes a transistor receiver of sufficient sensitivity without the aid of an efficient antenna. To say the least this is a tall order at the present time. Separate units should be available for each frequency of a predetermined group.

The receiver may well be the stumbling block. The article tells us that "distances up to three miles can be covered without difficulty, proved by reports from 3.5 Mc. stations." The proof no doubt was supplied by multibyte superhets. The experience of firefighting networks has shown that small handie-talkie sets using final input powers of half a watt or so with short loaded whips, when operated in the 2 to 3 Mc. region are unreliable over distances in excess of 1½ to 2 miles. How then can small transistor units be relied on to cover even greater distances with even less power? The conditions experienced in an emergency will be operationally similar to those during a fire. The use of c.w. under such conditions is too fantastic to consider. Quick exchange of information is required.

Accurate descriptions are essential. No person, except perhaps the dyed in the wool c.w. fanatic, would claim that c.w. can approach the usefulness of phone in these instances.

Let us get down to earth in our preparation for emergencies. The renowned Amateur habit of making do with bits and pieces on hand, when forced to do so, should be restricted to just that occasion—when forced to do so! Now is the time to prepare with the best we are able to obtain. Such fancy tricks as keying the transmitter with two bits of wire in the pocket, as suggested in the article, makes excellent reading in the local paper, but indicates a criminal lack of preparation to those who stop to think. The objection that high class equipment costs money is valid. If we are not prepared to spend money to obtain the best possible, and I don't mean waste money on fancy manufactured goods, then it is best that the Amateur fraternity stop fooling around and leave emergency networks to those best able to obtain equipment of the necessary standard, and to offer themselves as operators and technicians only.

Before leaving this subject two more points need to be raised, concerning procedures. Firstly, the use of the international phonetic alphabet as used by most services and the Dept. of Civil Aviation is a necessity. Some plebeian concoction of our own or even the old Able Baker Charlie should be things of the past. The second and more important point is that there should be a complete abandonment of the usual chatter and chacking which unfortunately spoils so much of the good work done by a few operators in the New South Wales floods of the last few years. The unnecessary signals and comments heard from the nightly "emergency" network certainly did no good to the reputation of the Amateur body.

The second article in the March issue is on page 7, "Civil Defence Emergency Network" which commences with "The relentless southern advance of the red tide is slowly awakening officialdom. . . ." It is a great pity that those lines were ever printed. Our magazine is not the place for politics, either national or international. It is sufficient to prepare for emergencies of certain specified types. Let us follow the path of "QST," which, amidst the vociferous pressure groups in the U.S.A., has never, to my knowledge, specifically named an ideology in its articles, except in time of war.

We would do well to be on the watch for any attempt to introduce sectarianism or politics into our hobby, for once that came about it would not only be farewell to the spirit of Amateur Radio, but to Amateur Radio itself.

—George Cameron, VK5EC.

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EDITORIAL



LEST WE FORGET

With August once more upon us, our thoughts turn to Contests and especially the Remembrance Day Contest, for it was on the 15th day of this month twelve years ago that peace once more returned to a war-weary world, inevitably leaving in its wake a trail of bereaved. Amateur Radio and its many exponents was no exception. We were proud to have provided the fighting Services and the Merchant Marine with many operators who at the outset of hostilities provided a pool of experienced and readily available personnel to draw upon whilst new adherents were being trained to play their worthy part.

It was to hand down to posterity their unselfish sacrifice and for the part they played that the first contest to be known as the Remembrance Day Contest was inaugurated in 1947. This coming event therefore will be the tenth anniversary of this popular test in skill and endurance between States. The last few years have seen a marked increase in this Contest's popularity with newcomers and oldtimers, active and (usually) non-active Amateurs alike. It is not unusual perhaps then that the original concept of this contest has been largely

forgotten in the tear and rush of exchanging serials and of pitting one's skill and operating ability against the next comer.

A very worthy and commendable suggestion—to bring home to all participants the original nature and concept of this Contest—will most likely be incorporated in the event for 1958, but for this year we enjoin you to enter and enjoy yourselves at the same time sparing a thought for the real reason for the Contest. The Rules of the Contest have been modified over the years to endeavour to provide every entrant with an interest in his final State score, to obtain as many entries from within a State as possible, to encourage the use of all Amateur bands, and to keep the Rules simple and the results easy to check.

Your Division requires your entry to assist in its final points, so dust off the rig, warm up the receiver, stoke up the transmitter and get cracking—but before zero hour arrives, spare a thought for those to whom this Contest is dedicated and let your operating be based on the concepts of gentlemanly conduct and unselfishness which inspired **THOSE YOU REMEMBER.**

FEDERAL EXECUTIVE.

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A 100 Watt D.S.B. Mobile Transmitter*

BY JACK NAJORK, W2HNH

WHEN John Costas, W2CRR, came up with his double sideband suppressed carrier transmitter ("CQ," Jan. '57, and "A.R.," July '57) we looked over the pros and cons and came to the unbelievable conclusion that here, at last, was the closest approach yet to something for nothing. For the mobile operator fighting QRM and low efficiency antennae, this mode of emission has, in general, all the advantages of s.s.b. but is actually simpler to build and operate than an a.m. transmitter of equivalent power. Here are the advantages as compared to an a.m. rig in the same power class:

1. More "talk power."
2. Easier and less expensive to construct.
3. Lower average d.c. input power required.
4. No critical or specialised components needed.
5. Instant change to straight a.m. if desired.

The drawback of the system, if it can be interpreted as such, is that you will now be talking to the s.s.b. men and must therefore be equipped to receive them. Lacking a b.f.o., this can easily be done by using the transmitter v.f.o. for carrier insertion, as will be explained later.

The basic difference between a high level d.s.b. transmitter and a conventional a.m. rig is in the final amplifier and the method of modulating it. Existing exciters and/or drivers can be used together with conventional speech equipment. This was one of the reasons for using a surplus Command transmitter as the heart of the mobile rig to be described. The other reason is that the oscillator circuit in the Command transmitter, when suitably isolated, takes a back seat to none in terms of stability. As in s.s.b., this feature is essential if the station at the other end is going to decipher your carrier-less sidebands.

CIRCUIT DETAILS

The Command transmitter we used originally tuned 4.0 to 5.3 Mc. and this range can easily be padded down to cover the 75 metre phone band (as well as the c.w. band if desired) by adroit manipulation of the oscillator coil slug and padder capacitor. Using this range Command rig has the added advantage of a higher "C" oscillator tank than would be the case if the 3.0 to 4.0 Mc. transmitter is used. This means better oscillator stability.

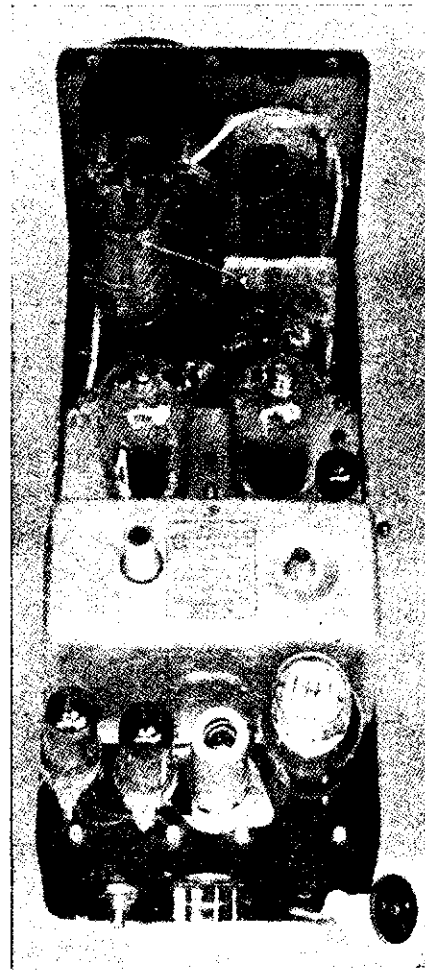
The original 1626 oscillator is followed by a 6AK6 buffer. It should be emphasised that some form of isolation between the oscillator and final is essential—otherwise the final will pull the oscillator frequency and you will have a novel system of f.m. plus double sideband less carrier, which will not endear you to the fellow at the other end. Since ours was a 12 volt system, the 6AK6 heater is wired in series with the front panel No. 47 pilot lamp thereby conserving 0.945 watts of d.c. power.

* Reprinted from "CQ," March, 1957.

● Last month an article on the theoretical approach to double sideband was reprinted from "CQ." From the same magazine herewith is printed a practical article on the same subject. Although it is referred to as a 100 watt d.s.b. mobile transmitter, it can quite easily become the basis of a home station transmitter. —Ed. "A.R."

(You think like this after years of mobiling.)

The 6AK6 develops its drive across a low "Q" slug-tuned coil. A look at the schematic will show you how to get away from the nasty chore of centre



tapping this coil while still ending up with push-pull drive to the final grids. The small mica trimmer at the lower end of the coil compensates for the 6AK6 capacity across the top side of this coil so you will end up with equal grid drive to each final tube. If you want to be different, you can drive the grids in parallel and operate the plates

in push-pull and come out with the same results. In case you hadn't recognised it, this final is nothing more than our old friend, the push-pull doubler—except that in this application it is operated straight through. The result is carrier cancellation.

Separate grid RFCs and grid resistors are needed with this arrangement, but this is desirable because we want to be able to look at the grid current for each final tube in initial tune-up. This scheme of push-pull input can be considered self-balancing and should therefore give us better carrier cancellation, although this is apparently not a problem. At any rate, none of the stations worked to date has been able to find the carrier so it must be pretty well buried.

The final tubes are 12DQ6 t.v. sweep output bottles—big brother to the 12BQ6. Both these types have high permeance—that is, you can make them pull their load of plate current with comparatively low plate voltage. A second very desirable characteristic of this family of tubes is that the screen power requirements are relatively low. This means that the audio modulating power required for a given peak power output is correspondingly lower. Although the original 1625 tubes can be used, their higher screen power requirements may result in somewhat less peak power unless the audio section is beefed up. Although either the 12BQ6 or 12DQ6 can be used, we settled for the latter because of the higher plate dissipation rating (15w. versus 11w.) and slightly higher gm.

The final tank is a conventional shunt-fed, single-ended circuit with a tapped, link-coupled antenna coil. Although the popular pi-network can be used, the author prefers the link coupling system for mobile work because the final cannot be loaded unless the antenna is resonant. This is not necessarily true with a pi-network as evidenced by the Hams who unknowingly load a length of co-ax line rather than an antenna.

The original final tuning capacitor is left ganged to the oscillator merely because removing it would wreck the entire dial drive assembly. Although an additional tank capacitor is used in the final, the original capacitor is connected in parallel with this to build a higher "C" tank and also to afford some degree of oscillator-final tracking. If you want to be fancy, you can tailor the final tank coil and added tuning capacitor to achieve perfect tracking across the entire band. Since most of our operation is in the top 50 Kc. of the band perfect tracking was not essential and frequency excursions of this order can be made without retuning the final. (Provided your loaded whip is resonant!)

Now we come to the pay-off on this d.s.b. system; the audio requirement. Or, to put it more concisely, the lack of it. The modulator consists of a 12AU7 miniature dual triode with sections in parallel. (Yes, you can use 12SN7 or 12BH7 with no changes.) This is driven

by a resistance-coupled 12AT7 speech amplifier. The carbon mike input circuit is the familiar grounded-grid method which does away with the need for a mike current supply and mike transformer. Notice one important point in connection with the modulator. We must have push-pull audio output to modulate the screens. (By the same token, don't try to use tubes like 829B, 815, 832, etc., which have a common screen!) As the schematic will show, the screens are effectively at d.c. ground for d.s.b. emission. When audio is applied, one screen is driven positive and this tube will conduct. The second tube's screen, at the same time, is driven negative, so it just sits there and coasts. On the other half of the audio cycle, the second tube works and the first tube rests. In other words, at any given instant, only one final tube is working.

details, it is mentioned now in order to show the reason for inclusion of the d.s.b.-a.m. switch. More elaborate versions of this type of transmitter include a built-in tone generator to supply a steady audio modulating signal so the final can be resonated and loaded. This is not for us mobileers! So, you say, how about a steady whistle into the mike. Fine! But unless your whistler is a lot steadier than ours, you'll never find the plate current dip because small variations in whistle level will vary the plate current too much. The answer is the a.m. d.s.b. switch which provides two nice features.

In the a.m. position you have a conventional rig with carrier and two sidebands. This you can resonate and load in the usual fashion. You can also use this position to talk to other mobileers or die-hards who refuse to insert car-

switch to the other position restores the rig to d.s.b. A few minutes with the schematic will make this clear.

The modulation transformer required in this application is not critical except that it should provide a step-up in impedance between the modulator and final screens. A turns ratio step-up of at least one to two (full primary to full secondary) is needed and a step-up of one to four or one to six is much more desirable. With the lower ratios of transformation, more audio power will be needed for a given peak power output. Our transformer was dug out of the junk box and happened to be an interstage push-pull plates to push-pull grids. This was connected in reverse, with the modulator connected to one half of the grid winding to give a step-up of one to two.

In general, class "B" driver transformers are not suitable because they step down. However, if you can find a class "B" driver with push-pull plates to push-pull grids, you are in business. Connect it in reverse, that is, modulator connected to half the grid winding and screens connected to the plate winding. In our experiments we even tried a small 60 cycle power transformer with modulator connected to the 115v. primary and screens connected to the centre-tapped h.v. secondary. It worked almost as well as the interstage job, too, so do not be afraid to experiment!

CONSTRUCTION

The original 1626 oscillator circuit is left intact and the output coupling link feeding the 1625 grids is reconnected to the buffer grid. The 6AK6 buffer, 12AT7 speech amplifier and 12AU7 are squeezed into the rear apron space formerly occupied by the crystal socket and indicator tube. The OA2 voltage regulator sits just behind one of the 12DQ6s. No special precautions in construction are required other than the usual one of shielding long audio leads to prevent r.f. and/or audio feedback.

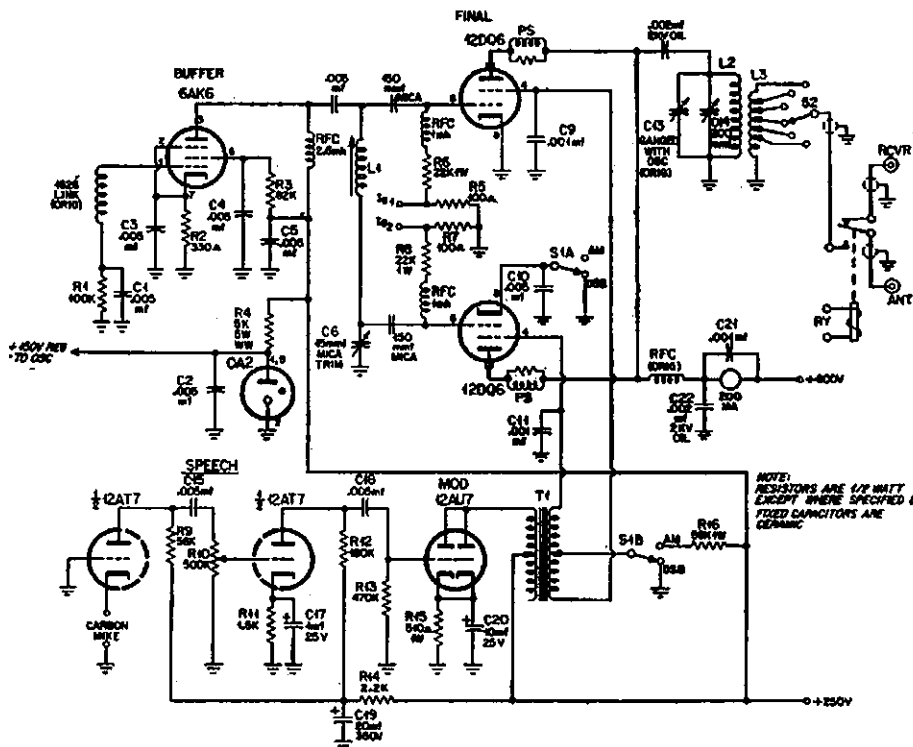
Power is supplied at the rear via a Jones plug while photo connectors are used to antenna connections.

The original oscillator dial can be covered with paper and new calibrations inked in, or, it can be replaced with a disc of thin aluminium suitably marked.

Octal sockets are needed for the 12DQ6s, these being secured to a sheet of aluminium which covers the area formerly occupied by the 1625s. Removal of the final padder condenser leaves room for the modulation transformer underneath. The original tank coil and antenna roller coil assembly are removed to make room for the meter, antenna coupling switch and final tank tuning capacitor. Naturally, it is not necessary to follow this exact order of construction. Just make your own parts fit the available space. Note also that control circuits are not shown. Your pet ideas are probably better than mine so why complicate the schematic?

JUNE 1957 CALL BOOK

The new issue of the Australian Radio Amateur Call Book is now available. Make certain you purchase your copy early as only a limited supply has been printed.



Schematic of Transmitter.

- L1—80 turns No. 28 enamel scramble wound on ½ inch diam. slug-tuned coil former.
- L2—30 turns No. 18 tinned, 1 inch diam. 2½ inches long. Air wound with plastic ribs.
- L3—10 turns No. 14 tinned, wound around bottom of L2. Space diameter of wire and cement to L2 with 1/16 inch concentric clearance from L3. Tap every turn.

- S1—D.p.d.t. toggle switch.
- S2—Ten position rotary switch.
- T1—Interstage transformer. Turns step-up at least 1:2, modulator plate to screens. See text.
- PS—5 turns No. 22 tinned wound on 100 ohm 1 watt resistor.
- RY1—12 volt d.c. s.p.d.t. relay.

The idle tube is still hanging in the circuit, however, and its internal capacity acts as a neutralising capacitor for the working tube. Eureka! True automatic neutralisation!

Obviously, with no audio applied and with zero screen voltage, application of plate voltage will produce very little plate current flow. With the antenna properly coupled, however, modulation will kick the plate current up to a high value. How, then, does one resonant and load the final of this rig, especially in an automobile?

Although this question would normally be answered later in the tune-up

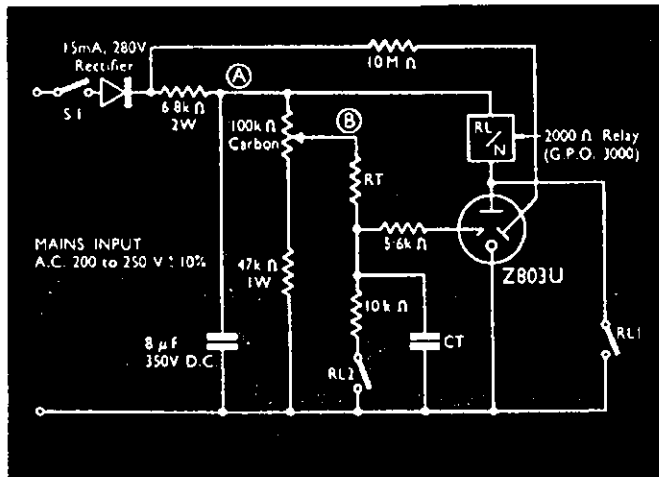
rier for you. Once the rig is tuned up in the a.m. position, flip the switch to d.s.b. and you are tuned and ready to go with lots of talk power. To put it another way, once you tune up properly on a.m., no retuning is necessary when switching to d.s.b.

In the a.m. position, the switch performs two functions. First, the cathode of one of the final tubes is opened. This leaves us with a conventional, single-ended class C amplifier. Second, B+ is applied to the remaining tube's screen through the centre-tap of the modulation transformer. End result: a screen modulated final! Throwing the

FOR TIMER SIMPLICITY
AND ACCURACY

Z803U

TRIGGER TUBE



The Z803U trigger tube can be used for a variety of timer, voltage control and general relay applications. It has an extremely stable trigger voltage over a very long operating life and offers the advantages of all Mullard cold cathode tubes — no heater supply requirements, no waiting for "warming-up" and good mechanical strength.

Typical of the applications of the Z803U is the simple interval timer described here which can cover the range between 5 seconds and 10 minutes. It may be operated direct from any a.c. mains supply between 200 and 250 volts.

To start a timing sequence the mains supply is switched on (S1). The d.c. voltage at point A will then rise, in about 100 milliseconds, to between 184 and 282 volts, the actual level depending on the value of the local mains voltage. The timer capacitor CT will start to charge up through RT, the timer resistor.

When the voltage on CT reaches the critical trigger voltage of the Z803U the tube will fire, pulling in the relay, partially discharging the 8 microfarad smoothing capacitor, and lowering the voltage at A.

The relay will self lock on contact RL1 thus extinguishing the Z803U, and the relay current will then be limited by the 6.8 kΩ series resistor. Contact RL2, which should make after RL1, re-sets the timer capacitor to zero volts.

However, the relay drops out only when S1 is opened. A new sequence can then be started on reclosing S1.

The 100kΩ preset potentiometer allows the timing circuit voltage to be set up so as to compensate both for component tolerances and for the value of the local supply voltage. The pre-firing voltage at point B will be about 170 volts.

The values of RT and CT will be set by the required time interval T', and can be determined from the fact that $T' = 1.6 RT.CT$.

RT should be a high stability resistor, while CT must be a capacitor with a small power factor, e.g., a paper or plastic film capacitor. All other components are of ± 10% tolerance.



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M46

90° R.F. Phase Shift Networks

BY N. L. SOUTHWELL,* VK2ZF

PART ONE

THE most critical sections of phase shift type s.s.b. equipment are the 90° audio and r.f. phase shift networks. The subject of Audio Phase Shift Networks was covered in a previous article in "A.R." (June and July, 1955), and in this article the various types of r.f. networks used will be dealt with.

These networks are simple in structure, they are not wide-band devices like the audio networks, as they have to produce a phase shift of 90° at only one frequency, the carrier frequency at which the s.s.b. signal is generated in the case of an exciter, or, the frequency at which detection takes place in the case of an s.s.b. receiving adaptor. The networks discussed can be used either in transmitter exciters or receiving adaptors.

The function of the r.f. phase shift network is to produce two voltages, equal in amplitude, but 90° apart in phase. Any discrepancy between the amplitudes of the two voltages, which we will call the two outputs, or a deviation from the 90° phase difference between them, results in a reduction of the sideband rejection, or suppression, and therefore, a reduction in performance of the associated equipment.

Amplitude variation between the two outputs affect the sideband suppression, in accordance with the formula:

$$\text{Sideband Suppression} = 20 \log \left(\frac{200 + E}{E} \right)$$

where E is the difference between the two output voltages, given as a percentage.

Thus a voltage difference of—

- 1.0% results in 46 db. suppression.
- 2.0% " " 40 db. "
- 4.0% " " 34 db. "

The above figures assume that the phase shift produced by the unit is perfect. Phase shift variations from 90° between the two outputs also affects the sideband suppression, and is calculated from the formula:

$$\text{Sideband Suppression} = \tan \left(\frac{A}{2} \right)$$

where A = the number of degrees that the phase shift between the two network outputs departs from 90°.

Thus an error of—

- 1.0% produces 40 db. s.b. suppression.
- 2.0% " 35 db. " "
- 3.5% " 30 db. " "

These figures assume that the voltage balance of the two outputs is perfect.

Errors from both sources may be present at any time, so the r.f. p.s.n. (phase shift network) should be adjusted as carefully as possible to the required conditions.

Phase shift s.s.b. exciters fall into two general types: (1) Those that generate the s.s.b. signal at some fixed frequency outside the Amateur bands (usually 5 or 9 Mc.), and then use the heterodyning principle to obtain a signal within an Amateur band; (2) Exciters that generate the s.s.b. energy directly at the transmitter operating frequency.

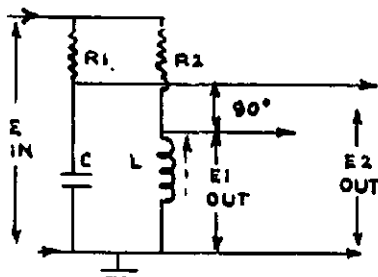


Fig. 1.—"Two-Branch" Type of Phase Shift Network.

At operating frequency F:

$$X_c = X_L = R_1 = R_2$$

and the input $Z = R_1$ or R_2

$$C \text{ in pF.} = \frac{10^9}{2\pi FR}$$

$$L \text{ in } \mu\text{H.} = \frac{R}{2\pi F}$$

where R is in ohms, and F is in Mc.

F. Mc.	R1, R2 Ohms	C pF.	L μH.
3.6	300	147	13.33
3.6	200	221	8.88
7.1	300	72	6.74
7.1	200	112	4.45
14.2	300	35	3.37
14.2	50	224	0.56
21.2	100	75	0.74
21.2	50	150	0.37
28.4	100	56	0.56
28.4	50	112	0.28
28.4	25	224	0.14

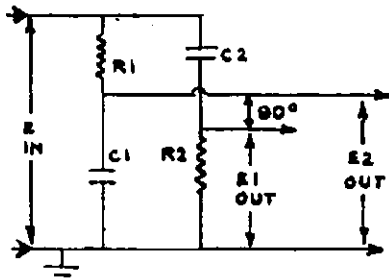


Fig. 2.—"Two-Branch" Type of Phase Shift Network.

At operating frequency F:

$$X_{c1} = X_{c2} = R_1 = R_2$$

and the input $Z = \frac{1}{2} (R_1 - X_c)$
Refer to Table with Fig. 1 for values of components.

RECEIVING ADAPTORS

Phase shift receiving adaptors all operate at a low frequency, normally that of the i.f. channel of the main receiver to which they are attached.

The first type of exciter requires only one r.f. p.s.n., the second type requires an r.f. p.s.n. for each band (where operation is desired); this can produce quite a headache, as will be explained later, on some of the higher frequency bands. Also, with the latter type of

exciter, another matter has to be taken into consideration. This is that each Amateur band occupies a slice of the frequency spectrum, and an r.f. p.s.n., when adjusted for optimum performance at any one frequency, will have a poorer performance if required to operate on a frequency somewhat removed from that channel. This effect is worst on the 3.5 Mc. band, which is the widest band percentage-wise in Australia, i.e. the band runs from 3.5 to 3.8 Mc.; if the r.f. p.s.n. is adjusted to the centre band frequency of 3.65 Mc., a variation of ± 150 Kc. would be required to cover the whole band. This, as a percentage, works out to be $\pm 4.1\%$ of 3.65 Mc.

Frequency changes affect some networks only as far as voltage balance of the outputs is concerned, the two-branch network in Fig. 1 is one such. The voltage unbalance in percentage in this network is equal to the percentage difference between the alignment frequency and the operating frequency. Other networks have both the amplitude balance and the phase shift difference between the outputs affected, the pi network in Fig. 5 is one such. However, on most bands s.s.b. stations operate around some particular part of the band and this minimises frequency shifting.

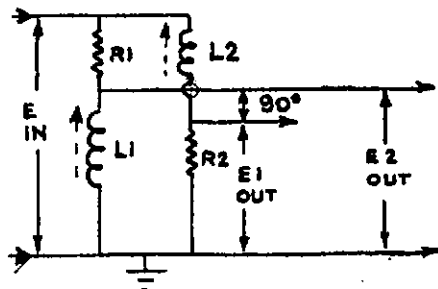


Fig. 3.—"Two-Branch" Type of Phase Shift Network.

At operating frequency F:

$$X_{L1} = X_{L2} = R_1 = R_2$$

and the input $Z = \frac{1}{2} (R + X_L)$
Refer to Table with Fig. 1 for values of components.

The impedance of the r.f. p.s.n.'s. used on the Amateur bands range from around 300 ohms down to 50 ohms or lower, the impedance being lowered as the operating frequency is raised, to minimise the effects of stray inductance and capacity of the associated circuitry on the network performance.

Careful consideration should be given to the power level at which the r.f. p.s.n. should be operated.

It must be borne in mind that the outputs from the network provide the switching voltages at their operating frequency to the balanced modulators. Too little voltage restricts the audio input that the balanced modulators can handle before overloading, and consequently restricts the sideband output; too much voltage brings other troubles.

* 90 Dutton Street, Yagoona, N.S.W.

Firstly, almost all networks use resistors, and these components must be non-inductive and so are usually carbon. Should these resistors become heated, due to operation at too high a power level, or for any other reason, they change value, the change is usually permanent, generally the resistor increases in value by anything up to 20%.

The degree of permanence of the balance and phase shift adjustments of any network is no better than the stability of its components, hence changes in the magnitude of any component cannot be tolerated.

In s.s.b. exciters it is common practice to use 5w. or 10w. resistors in the r.f. p.s.n.'s., made up either of single units or lw. resistors of suitable value in parallel.

Secondly, the greater the power at which the network operates, the greater will be the difficulty in minimising the carrier leakage, both through the balanced modulators, which can be controlled to a certain extent by the carrier null controls, and around the balanced modulators by stray coupling. This latter can only be minimised by shielding and filtering and can be a nuisance.

Between the two extremes lies the optimum operating power level, a little time spent in determining it will pay good dividends and result in a minimum of residual carrier on the transmission, whilst still retaining efficient operation.

In the case of receiving adaptors, the power level of the network should be kept as high as possible, consistent with the ability to minimise the carrier getting through to the audio stages following the balanced modulators. Unwanted carrier voltage on the audio grids can produce distortion and whistles in the output. All adaptors incorporate efficient filter circuits between the balanced mods. and the audio stages, to get rid of the carrier energy. The object in keeping the operating level of the r.f. p.s.n. up, in the case of receiving adaptors, is to provide favourable conditions for exalted carrier type reception which is desirable in these adaptors.

In regard to diode balanced modulators, whether germanium or vacuum tube, the r.f. voltage at which they operate in s.s.b. exciters, should be such for every volt of audio applied to the balanced mods., ten volts of r.f. should be applied. In s.s.b. receiving adaptors vacuum tube diodes should be used, never germanium, and the ratio of the input voltage from the oscillator to the input signal voltage can be raised, even as high as 100:1.

The output voltage required from r.f. p.s.n.'s. used with multi-element tube type balanced modulators cannot be laid down as definitely as it can be in the case of the diodes above, the drive required depending upon the tube type and the operating conditions of the stage.

From the foregoing it can be seen that the r.f. phase shift network used in any piece of equipment is to a certain extent determined by the type of balanced modulator circuit it is required to drive.

For instance, diode balanced modulator circuits dictate that the impedance of the associated r.f. p.s.n. drive

circuits to them be around 50 ohms or lower for satisfactory operation. This applies to either germanium or vacuum tube diodes; incidentally, the most satisfactory vacuum tube diode has been found to be the 6AL5.

Balanced modulators using multi-element tubes are, compared to diodes, relatively non-critical in their driving source impedance requirements, so the designer can normally use an r.f. p.s.n. having a somewhat higher impedance.

R.f. phase shift networks can be classified under one of two headings:

(1) Those using two branches each of which has a phase shift of 45°, one advancing, the other retarding the input voltage, to give the required 90° difference between the two outputs.

(2) Networks that derive the 90° phase shift in one operation and use the input voltage, or portion of it, as one of the two output voltages. Figs. 4, 5, 6, 7 and 8 show circuits of this type of network.

TWO-BRANCH NETWORKS

The circuit of Fig. 1 is probably the one most commonly used in phase shift exciters, and in the opinion of a number of people, including the writer, one of the most frustrating to try and adjust. $R1 = R2$, and on the 3.5 Mc. band the value is usually 300 ohms. The values of C and L are chosen so that at the operating frequency, their reactance equals that of the resistance wired in series with them, i.e.

$$R1 = Xc = 300 \text{ ohms.}$$

$$R2 = XL = 300 \text{ ohms.}$$

The phase shift of each branch of the network will be 45° and can be verified from the formula:

$$\tan \text{ Angle} = \frac{X}{R}$$

where angle = phase shift in degrees.

$$\text{From the above, } \tan \text{ Angle} = \frac{300}{300} = 1 = \tan 45^\circ.$$

The input impedance of Fig. 1 is resistive and is equal to $R1$ (or $R2$).

Figs. 2 and 3 are also two-branch networks. Fig. 2, using resistance and capacity, is to be preferred to Fig. 3, using resistance and inductance. The reasons for this are:

- (1) Inductances have a certain amount of distributed capacity.
- (2) The two inductances would have to be positioned so that their fields would not interact.
- (3) Inductance values are not as convenient to adjust as condenser values, nor can they be varied over so wide a range as easily as condensers.

Each branch of the circuits in Figs. 2 and 3 introduces a phase shift of 45°. It will be noted that the relative positions of the resistive and reactive components of these networks differ from those given for Fig. 1, where both inductive and capacitive reactances are used in the one network.

The circuit of Fig. 2 has been very satisfactorily used in several receiving type s.s.b. adaptors, popular amongst American s.s.b. enthusiasts.

The impedance of the network in this application, at a frequency of approximately 450 Kc., was raised to a somewhat higher value than can be used on the Amateur bands, as the effects

of stray capacity and inductance in the associated circuits upon the operation of the r.f. p.s.n. were much less at the lower frequency. The values of components used were $R1$ and $R2$, each 3,300 ohms (1w. 5%); $C1 = 100 \text{ pF.}$, $C2 = 75 \text{ pF.}$ mica, paralleled by a 50 pF. variable for network adjustment purposes.

The input impedance of these networks, Figs. 2 and 3, is not a pure resistance, and the magnitude of the reactive component can vary over a wide range as the frequency is changed.

TWIN TUNED NETWORK

Fig. 4 is a network in the second group of r.f. p.s.n.'s., those that produce the 90° phase shift in one operation.

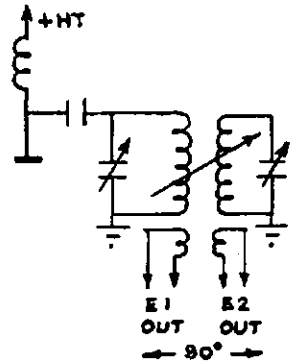


Fig. 4.—Twin Tuned Circuit Network.

The two tuned circuits are each capable of being tuned through resonance at the operating frequency. The two coils are mounted so that the coupling between them may be adjusted until a position is reached where they are critically coupled. Generally, this means that one coil and its associated link is mounted firmly in one position, whilst the second coil and link, which are of similar size and construction to the first, are mounted on a swivel bracket. The position of this coil is varied during the adjustment of the network and when the correct position is obtained the bracket is locked in position.

The two circuits are adjusted so that one is detuned on the h.f. side of the operating frequency, and the other on the l.f. side, to a point where the voltage delivered from each circuit is 70.7% of that which is obtained when the circuits are tuned to resonance.

Under the foregoing conditions, when the coils are critically coupled, the voltage outputs from the two links are 90° apart in phase and equal in amplitude.

The adjustment of this network (Fig. 4) always takes some time and as can well be imagined a considerable amount of fiddling with it is required in the initial stages. The higher the operating frequency, the trickier it becomes in adjustment. A number of coil positions have to be tried in succession and notes kept on the performance obtained at each position, finally the optimum position is arrived at.

This type of phase shift network is widely used in s.s.b. exciters operating at a fixed frequency of 5 or 9 Mc., and working on the heterodyne principle to obtain signals in the Amateur bands.

The two output circuits being links, have a low impedance, and it is common practice to use this type of r.f. p.s.n. to feed balanced modulators utilising diodes.

PI NETWORK

The network shown in Fig. 5 is a single section l.p. pi filter, terminated in its characteristic impedance.

Pi networks can be used for two purposes:

- Impedance matching,
- Phase shifting.

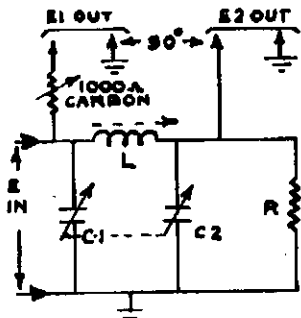


Fig. 5.—Pi Type Network.

At operating frequency F :

$$XC1 = XC2 = XL = R$$

and the

$$\text{Input } Z = R.$$

Refer to Table with Fig. 1 for values of components.

The normal pi couplers and inter-stage tuning circuits used by the Amateur fraternity come under the first category, whilst the circuit in Fig. 5 comes under the second.

It is emphasised now that this circuit, when properly adjusted, is not tuned anywhere near resonance at the operating frequency. It is a single section low pass pi filter, which, when used on the various bands with the constants given, will produce a 90° phase shift at the operating frequency.

When a l.p. pi network is used at a frequency, 0.707 times its designed cut-off frequency, and terminated in its characteristic impedance, a phase shift of 90° occurs between its input and output terminals.

The 1,000 ohm carbon potentiometer in series with the lead to "E1" output (in Fig. 5) is to allow compensation to be made in the "E1" output circuit for any loss that occurs in the filter feeding the "E2" output. It is the amplitude balance control for the network and is initially set at minimum, frequently only a fraction of the resistance available is required, and on occasions the circuit has been operated reasonably satisfactorily without the potentiometer.

The pi filter has one good feature, the stray circuit capacities fall across

the input and output capacities of the filter and can be compensated for by reducing the value of those components by the required amount. This is in direct contrast to the two-branch type of networks, where stray capacitance in the associated circuits results in a degraded performance of the p.s.n.

The pi filter also discriminates against harmonics which can be a handy feature.

A disadvantage of the pi type network is that if operation is undertaken on a frequency differing from the frequency it was adjusted to operate at, both the phase shift and the voltage amplitude balance are affected.

However, this network, once the proper constants have been found, has proved itself to be very easy to adjust, the writer having used one for some time with excellent results.

The pi network in some s.s.b. circles has been rather disparagingly spoken of. The writer is of the opinion that a number of people have condemned the circuit without ever trying it.

TUNED PI NETWORK

In Fig. 6 is shown another pi network. This unit is a tuned pi network and is known by that name. The circuit has not had a great amount of use in Amateur circles, probably because it is not well known. It differs considerably in its operating conditions to the pi network of Fig. 5.

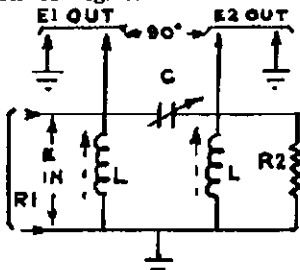


Fig. 6.—Tuned Pi Network.

The basic relationships for Fig. 6 are given from the formulae:

$$E_{out} = \frac{E_{in} J R_2}{Z}$$

$$\text{where } Z = \sqrt{\frac{L}{C}}$$

$$\text{and } (2 \pi F)^2 LC = 1$$

$$R_1 = \frac{Z^2}{R_2}$$

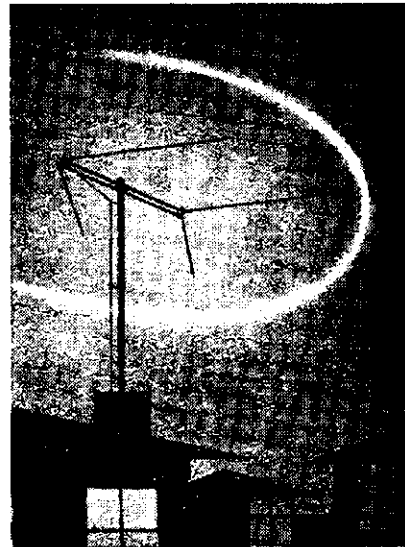
F = operating freq.

$$J = \sqrt{-1}$$

From these it can be seen that the input is a pure resistance and that the amplitude balance can be adjusted by variation of the load resistor R_2 . When R_2 changes the input impedance stays resistive, and the phase shift between E_1 and E_2 does not change from 90°.

The circuit is operated, tuned to resonance at the operating frequency.

The circuit when designed for a low impedance, say 100 to 200 ohms, practically ensures correct phase shift when tuned to resonance, and the amplitude balance is capable of control independently of the phase shift. For use on 3.6 Mc. the constants for the circuit in Fig. 6 are $C = 330 \text{ pF.}$, L_1 and L_2 each $3.3 \mu\text{H.}$, slug adjusted; $R_2 = 200$ ohm variable carbon pot, R_1 approximately 150 ohms.



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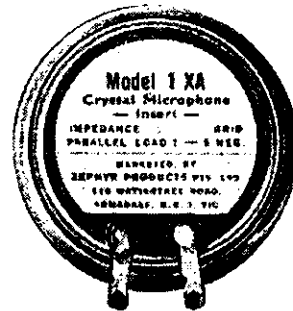
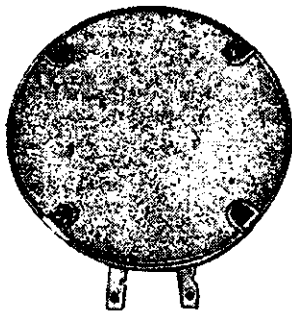
50 Mc. W.A.S.

Call	Cer. No.	Add. Cntr.	Call	Cer. No.	Add. Cntr.
VK2WJ	13	4	VK2AEZ	10	1
VK3PG	5	3	VK3XA	11	1
VK2VW	9	3	VK3GM	12	1
VK4RY	2	3	VK3ACL	14	1
VK4HR	4	3	VK3ZD	16	1
VK5LC	1	1	VK2HO	17	1
VK6DW	3	1	VK2ABC	8	
VK3RR	6	1	VK2WH	15	
VK3HT	7	1			

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Rochelle salt crystal microphones are perhaps the most widely used for all types of service where quality speech and music reproduction at high output levels is a requirement. They are dependable in performance and when fitted with the appropriate "Zephyrfil" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved.

Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars, being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case 1½" diameter (rear), ¾" thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
 Output Level = -45 db (0 db = 1 volt/dyne/cm²)
 Impedance = Model 1XA Grid 1 — 5 megohms.



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Modifying the AR7 Receiver

PART FOUR

BY G. M. BOWEN,* VK5XU

MAKING A 10-METRE COIL BOX

This section will be devoted to the making of a 10 metre band coil box and its alignment procedure. At the time when this coil box was made, the 33 Mc. beacon stations were still operating and as these were a guide for "break-throughs" on 50 Mc., the range was extended to cover this frequency. However, when you decide to tackle the task it is only a matter of altering the ratio of each air condenser to cover whatever you may wish to have.

As it was desired to keep the receiver coil boxes intact, another Band A box was bought and the coils therein removed and put away for r.f. chokes (that's only my Scotch ancestry; you may feel disposed to pitch them into the waste paper basket). Take care when removing the unit that the small bakelite spur, which holds the coil upright, does not get broken for this is exactly the size to support the new coil.

Freq. Range		Bandspread	
Dial Reading	Freq. Mc.	Dial Reading	Freq. Mc.
462	25	224	28.0
340	26	220	28.1
276	27	215	28.2
224	28	210	28.3
175	29	205	28.4
132	30	200	28.5
91	31	195	28.6
53	32	190	28.7
22	33	185	28.8
		180	28.9
		175	29.0

A set of 28 Mc. band coils manufactured by R.C.S. for their multiband unit was purchased and modified for the purpose. As this would be at least seven years ago, these coils may not be available now, so the exact details of each coil will be furnished in the text and by diagram. The location of the connecting wires can make quite a difference to the ultimate performance on this band.

A-band coil box has not a second aid trimmer, so four 21 plate condensers were obtained from disposals and installed into the vacant positions for C2, C4, C6 and C8. If these are not available from any source, it may be possible to obtain small Eddystone trimmers and make up the necessary capacitance with good silvered mica or special ceramic types with zero coefficients. Maximum capacitance range should be about 70 pF.

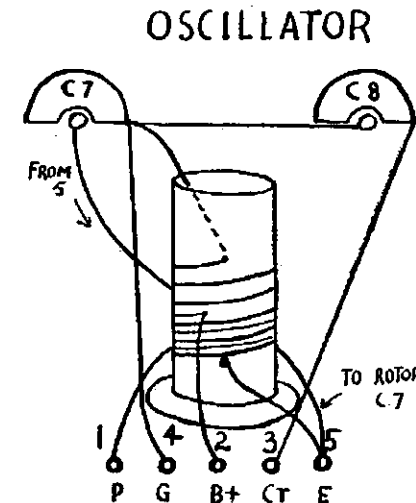
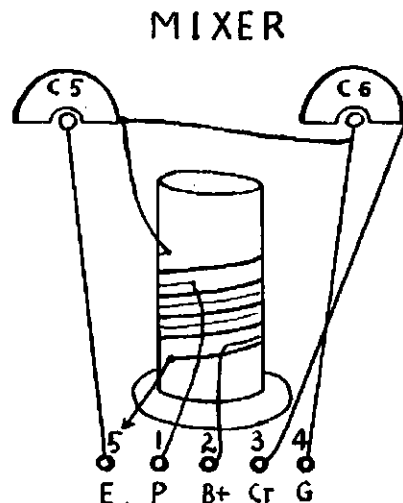
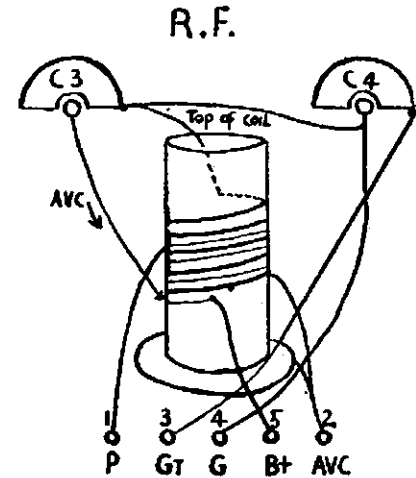
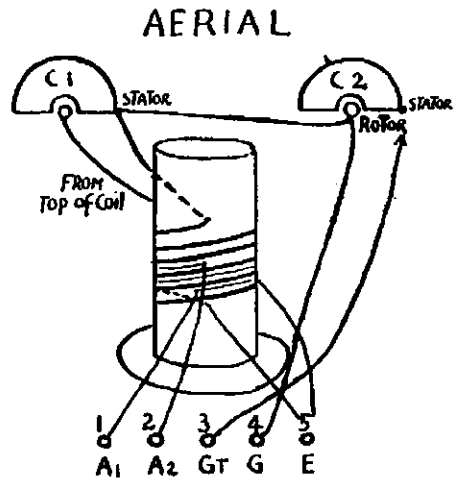
Before mounting the condensers make sure that the rotor contacts are clean and fit tightly, for very slight movements due to vibration can make the alignment a nightmare if there is the least bit of sloppiness. That same

warning goes for all the components and rigid mounting of the coil and its associated wiring is of prime importance. Use bare tinned copper wire for all the leads, keeping them well away from each other if not tied to the same point. The primary winding on each coil may be wound with enamel covered wire—make sure that there are no dry joints, that's all!

Do not be tempted to add extra turns to the plate "tickler" winding on the oscillator coil or you may find that

From the way that the receiver performs on this range, there does not seem to be any point in trying to use iron dust cores. They generally only add mechanical troubles and if R.C.S. and other manufacturers with more design equipment than most of us have at our disposal, still use air core for these higher frequency ranges, then maybe it's a good thing to follow suit.

Spread the turns if necessary or use a short-circuit turn as the National does.



suddenly the oscillator will jump frequency as the plate circuit takes control (being usually of a higher Q than the grid coil with its 50K resistor across it for bias).

The diameter given for the grid coils, is taken across the outside of the windings. Some adjustment of the length of the coil may be necessary to obtain the range required, but generally all but major shift can be accommodated by adjusting the two air trimmers.

Alignment procedure follows the system used for Band E coil box but with these preliminary steps. The oscillator unit is adjusted to cover the range required either with a modulated oscillator or frequency meter. Unfortunately it is not possible to use a grid-dip meter with these coils for very obvious reasons. Getting the oscillator on the high side of the signal is a little tricky because with the output of the modulated oscillator attached to the grid of the ECH35, there is practically

* 73 Portrush Road, Toorak Gardens, S.A.

no selection of the frequency by the mixer coil.

A good tip is to always swing the mod. oscillator down from the high frequency end until the signal appears and then, continuing on to about 900 Kc. lower, the signal that is wanted should appear.

If the condensers are similar to those described in the text, then the settings given in the coil data will allow a fair setting to start the alignment.

The conversion cannot be hurried, so be prepared to spend quite a lot of time without becoming discouraged. Aligning a new set of coils can take up to four hours—so good luck. When it has been done you will be satisfied.

The next article will have the band-spreading of the E band coil included, so you may prefer to leave the alignment of this band F coil box until then.

COIL DATA

Aerial—

Grid: 5 turns No. 22-24 tinned copper, $\frac{1}{2}$ " outside diameter of coil; length $\frac{5}{16}$ "; polystyrene tubing; air core.

Aerial Coupling: 2 turns No. 40 silk covered and interwound as shown.

C1: 18 plate; 9 stator, 9 rotor, air trimmer.

C2: 21 plate; 10 stator, 11 rotor, air trimmer.

R.F.—

Grid: 5 turns No. 22-24 tinned copper, $\frac{1}{2}$ " outside diameter of coil; length $\frac{5}{16}$ "; polystyrene former; air core.

Plate Coupling: $3\frac{1}{2}$ turns No. 40 silk covered and interwound; air core.

C3: Same as for aerial box; half in mesh.

C4: Same as for aerial box; three-quarters in mesh.

Mixer—

Grid: 5 turns No. 22-24 tinned copper, $\frac{1}{2}$ " outside diameter of coil; length $\frac{5}{16}$ "; polystyrene former; air core.

Plate Coupling: $3\frac{1}{2}$ turns No. 40 silk covered and interwound.

C5: Same as before; half in mesh.

C6: Same as before; seven-eighths in mesh.

Oscillator—

Grid: $5\frac{1}{2}$ turns No. 22-24 tinned copper; $\frac{1}{2}$ " outside diameter; slightly longer than $\frac{5}{16}$ "; spread to obtain correct inductance value; air core.

Plate "Tickler": $2\frac{1}{2}$ turns No. 40 silk covered; interwound as shown, starting below the grid coil.

C7: As before; one-eighth in mesh.

C8: As before; three-quarters in mesh.

N.B.—C1-C8 do not correspond to values in the AR7 circuit diagram, but only to this article's diagrams.

D.X.C.C. LISTING

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No. rics	C'tnt. No. rics	Call	Cer. No. rics	C'tnt. No. rics
VK3ATN	26	193	VK3JD	1	155
VK4HR	12	192	VK4KS	9	152
VK4FJ	21	192	VK6KW	4	150
VK6RU	2	188	VK4RW	23	147
VK3BZ	3	176	VK3LN	11	141
VK3EE	10	163	VK3JE	7	140

C.W.

Call	Cer. No. rics	C'tnt. No. rics	Call	Cer. No. rics	C'tnt. No. rics
VK3KB	10	225	VK3CX	26	210
VK4FJ	29	224	VK5BY	45	193
VK3BZ	6	222	VK2EO	2	183
VK4HR	8	218	VK3YL	39	178
VK3FH	15	215	VK4EL	9	175
VK3XU	48	213	VK6RU	18	172

Amendments

VK3JE	21	148	VK6RJ	42	128
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OPEN

Call	Cer. No. rics	C'tnt. No. rics	Call	Cer. No. rics	C'tnt. No. rics
VK2ACK	6	239	VK3JE	12	210
VK4HR	7	233	VK3HG	3	201
VK4FJ	32	232	VK2NS	16	195
VK3BZ	4	231	VK4EL	10	175
VK3XU	61	221	VK6KW	13	171
VK6RU	8	218	VK2DI	2	170

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ROSS HULL MEMORIAL V.H.F. CONTEST, 1957-58

The Federal Contest Committee of the Wireless Institute of Australia invites all Australian and Overseas Amateurs and Short Wave Listeners to participate in this annual contest which is held to perpetuate the memory of the late Ross Hull whose interest in v.h.f. did much to advance the art.

A handsome Perpetual Trophy is awarded annually for competition between members of the W.I.A. in Australia and its Territories, inscribed with the name and life work of the man whom it honours. The name of the winning member of the W.I.A. each year is also inscribed on the Trophy. In addition, this member will receive a suitably inscribed, framed photograph of the Trophy.

Objects: Amateurs in each call area (this includes those in Australian Mandated Territories and Antarctica) will endeavour to contact Amateurs in all other call areas and overseas. (VK1 and VK2 will be considered to be one call area.)

Date of Contest: 1st December, 1957, to 31st January, 1958.

Duration: From 0001 hours E.A.S.T. 1st Dec., 1957, to 2359 hours E.A.S.T. 31st Jan., 1958.

RULES

1. There shall be three main sections to the contest:

- (a) Transmitting phone.
- (b) Transmitting open.
- (c) Receiving phone and c.w.

2. All Australian and Overseas Amateurs may enter for the contest whether their stations are fixed, portable or mobile.

3. All Amateur v.h.f. bands may be used, but no cross-band operating is permitted, with the exception that 50-54 Mc. and 56-60 Mc. will be considered to be the same v.h.f. band for overseas contacts.

4. Amateurs may enter for one of the above sections listed in Rule 1. An "open" log will be one containing both phone and c.w. contacts.

5. Only one contact per station per band is allowed each calendar day and arranging schedules for contacts on other bands is not permitted.

6. Only one licenced Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points may be claimed for a contact serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures which may begin with any number be-

tween 001 and 100 for the first contact and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number will be 054, for the third 055, and so on. If any contestant reaches 999 he will start again with 001.

9. **Entries:** Entries must be set out as shown in the example, using only one side of the paper. Entries must be postmarked not later than Saturday, 1st March, 1958, and addressed to the Federal Contest Committee, W.I.A., Box 1234K, G.P.O., Adelaide, South Australia.

10. **Scoring:** Scoring will be based on the table shown herewith.

11. **Logs:** All logs shall be set out as in the example shown and in addition will carry a front sheet showing the following information:

Name.....Section.....
Address.....Call Sign.....

Claimed Score.....

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.

Signed.....
Date.....

12. The right is reserved to disqualify any entrant who, during the contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

SCORING TABLE

		To												Overseas
		VK1	VK3	VK4	VK5	VK6	VK7	N.T.	VK9	ZL1	ZL2	ZL3	ZL4	other
		VK2												than ZL
From	VK1-VK2	-	5	4	2	10	4	6	10	7	7	7	7	10
	VK3	5	-	4	4	9	10	6	10	7	7	7	7	10
	VK4	4	4	-	5	10	7	3	7	7	8	8	8	10
	VK5	2	4	5	-	7	5	3	10	8	8	8	8	10
	VK6	10	9	10	7	-	10	10	10	10	10	10	10	10
	VK7	4	10	7	5	10	-	7	10	7	7	7	7	10
	N.T.	6	6	3	3	10	7	-	3	10	10	10	10	10
	VK9	10	10	7	10	10	10	3	-	10	10	10	10	10
	ZL1	7	7	7	8	10	7	10	10	-	-	-	-	-
	ZL2	7	7	8	8	10	7	10	10	-	-	-	-	-
	ZL3	7	7	8	8	10	7	10	10	-	-	-	-	-
	ZL4	7	7	8	8	10	7	10	10	-	-	-	-	-
	Overseas other than ZL	10	10	10	10	10	10	10	10	-	-	-	-	-

The score for the first contact with any particular call area on each band will be that shown in the above table. For each subsequent contact with the same call area on the same band the score will reduce by one point until the contact value reaches 1, when all further contacts with that call area on that band will retain this value. In addition a bonus of 20 points may be claimed for each new call area worked on each band.

EXAMPLE OF TRANSMITTING LOG

Date/Time E.A.S.T.	Band	Emis-sion	Call Sign	RST/NR. Sent	RST/NR. Rcvd.	Call Area Bonus	Points Claim.	Blank

NOTE.—The standard W.I.A. Log Sheet follows the above form.

EXAMPLE OF RECEIVING LOG

Date/Time E.A.S.T.	Band	Call Sign Heard	RST/NR. Sent	Station Called	Call Area Bonus	Points Claim.	Blank

NOTE.—The standard W.I.A. Log Sheet follows the above form.

FIFTY-SIX MEGACYCLES AND ABOVE

56 Mc. NOTES

It is many a year since activity stirred so much on 56 Mc. during the winter months. Most States appeared to participate in this though no Interstate contacts took place. Co-ordination and publicising of skeds should provide the opportunity, with attention paid to the periods 1100, 1300, 1800/1900 E.A.S.T. Even if you are running a local sked, bear in mind that your beam polar diagram normally includes someone else apart from the station you are working, whether they be in VK, ZL, ZB or elsewhere. The chance is always there that conditions may suit extended working and it makes it so much easier if the distant Ham has some idea of when and where to listen, and in what direction. It gives a warm and comfortable feeling to the man tuning the band, the knowledge that in some given place that there is a signal on the air. Examples of this are the VKANR/ZAR sked (usually at 1900 E.A.S.T. daily), the VK5RR auto tx beamed west at 2000/2300 E.A.S.T. on 56 Mc., the VK2ATS/ZADT/2AQ1 North Coast hook-up if still held and the projected VK2RS/2AJO activities in southern VK2. Not forgetting the nightly VK3CI/3UI/3APF party in mid-central VK3. A trifle of patient sleuthing, listening and calling by other Hams at these times could bring results. [VK3KK calls daily on m.c.w. on 56016 Kc. at 0915z. See DX Activity page—Ed.]

Interstate contacts on 50 Mc. down the eastern seaboard were a feature of the band during the winter, signals following the pattern of the 27 day frequency. Admittedly that 6 Mc. more is a lot of frequency spectrum, the trick should be turned again with conditions approaching their peak. Whilst the slope to peak conditions is acute, when the peak is passed conditions taper off far more gradually, giving more years of good to fair results.

No reports have been received of reception on 56 Mc. of VK0AA or the Ws on 50 Mc. It would be a pity if no one paid any attention to these skeds because conditions are reputedly poor, awaiting the time when each individual Ham decided that things may click. These fellows are operating for our benefit as much as their own and it is up to us all to co-operate. Very good break-throughs have occurred as early as August, the months following bringing VK/KH6 and ZL/JA contacts on 50 Mc. It is obvious that the VK Hams are letting themselves down by not paying attention to 50 Mc. Remarkable conditions have prevailed in other parts of the world, full use being made of the widespread trans-equatorial scatter when it appeared. LU7AT QSOed 15 countries which include YV, XE, CO, OA, KZ5, W, KH6, KP4, PZ, PJ2, PY, TG9, JA. The JA stations worked consistently into South America, with the North to South America path open also. October should provide some good listening here in VK3 with the possibility of cross-band work. Whether we try and succeed, or try and fail, it is to our credit if we try.

A parting thought. Regulations call for the frequent identifying of a carrier put on the air, and this applies to 56 Mc. as well as any other band. Do not leave the listener up in the air by failing in this. It is also an excellent idea to state the approx. freq. of the station you are working to help others find their way around the band.—VK30F.

ALTERATION TO 6 METRE SCHEDULE

With regard to 6 metre signals from KH6CCZ the schedule is now altered to 2230 GMT each Saturday (Sunday morning Australian time) only, instead of daily. He will also beam to VK on I.G.Y. Regular World Days. These are August 12, 25 and 28.—Norman Burton.

NEW SOUTH WALES

All members of the V.h.f. and T.V. Group are indebted to the grand way in which Max 20T conducted an excellent and most interesting lecture on 7th June regarding the use of a 17 inch t.v. tube for alignment of i.f. channels. The Group look forward to the next occasion when Max may be prevailed upon. The committee formed to assist with I.G.Y. matters are progressing very well and by the end of June it is expected that 2ZBD, 2ANF and 2ER will stage a rehearsal of the event. During a country tour by 2ARG, who visited 2ACU and contacted 2WH, some new country links were established. 2NY, of Grafton, is looking for 2 mx sigs—VK4s will be holding a convention at Palm Beach. 2VU and 2ANU have been heard and worked from Sydney. 2ASA and 2BZ are also very active. Roy 2HO gave a splendid talk from 2WI recently about C.D.E.N. activities and especially mentioned the value of portable light equipment.

Conducted by Jim 2ZBD, the Treasure Hunt held on 9th June proved to be very popular and Jim made a most interesting day for all who took part. Points were scored as follows: 2OA 11, 2ZCF 9, 2ANF 5, 2AZO 4, 2HL 3. The route chosen by Jim commenced at Parramatta and traversed East Bankstown, Georges River Bridge, Kirrawee, Venora, Condell Park, Fairfield, and Silverwater on Parramatta River.

The usual monthly night hidden tx hunt was held on 26th June when Eric 2AFM set up on the edge of Concord Golf Links and awaited the arrival of the hounds. He was not lonely for long and stations arrived as follows: 2OA 37 minutes, 2AWZ 42, 2ZBD with 2ANF and 2ER 51, 2ATO-2AZO 55, 2ZAV 65, and 2HL 83 minutes. It was a mild winter night and the usual hot dogs and cuppas completed a very enjoyable evening.—2AFM.

VICTORIA

Fox Hunts: Eric 3ADU acted as fox at the June hunt and despite the rain 12 hounds turned up. The winner was Roy 3ARY 20 points and Tom 3AOG was second with 18 points. At the August hunt on Wednesday, 14th, Roy 3ARY will be the fox.

The Eastern Zone have decided to run a 2 mx fox hunt once a month on the last Sunday, the first hunt was to be on July 28. These Eastern Zone boys are really on the ball. Congrats. on the fine move and I hope the events are a big success.

576 Mc.: As feared, the good intentions for this band have fizzled out. However, Bruce 3VF has indicated his willingness to go portable with 576 Mc. gear during the next field day season if he can be sure of some contacts. He is on 144 Mc. most Sunday nights and so if you are interested contact Bruce and see if you can work out something.

144 Mc.: A couple more new stations have appeared on this band over the past month—3BN and 3ZBT, whilst 3ZAH hopes to be on very soon.

Frequencies of some of the Gippsland gang may be of interest, so here they are:—

3DY .. 144.18 Mc.	3ZAB .. 144.53 Mc.
3TH .. 144.33 Mc.	3ZCG .. 144.65 Mc.
3ZD .. 144.02 Mc.	3ZCR .. 144.65 Mc.
3ACA .. 144.18 Mc.	3ZDF .. 144.65 Mc.

There is an intra-zone hook-up on 144.18 Mc. on Thursdays at 8.30 p.m. George 3ZCG is looking for Melbourne and Ballarat contacts as he wants to try out his new 32 element beam, so turn your beams cast and see what you can work.

Anybody wanting an extra QSL card, have a look on 146.27 Mc. Ken 3AWU runs a stabilised transmission on that frequency now and he promises to QSL anyone who will bother to tune up that far.

56 Mc.: A practical interest is now being shown in this band and on one Sunday afternoon there were at least seven stations on the air—and that's a crowd for 56 Mc. Some more stations with gear on the band are 3OF, 3ZAI, 3ZCN, 3AZY, 3ACL (Red Hill) and 3ZCG (Newborough). 3ZCG operates on 56.0 Mc. and 57.8 Mc. and hopes to be on Sundays and Tuesdays at 8.30 p.m. Peter 3ZDF at Sale hopes to be on the band before the end of this year.

Well that's the lot for this month. See you in September when I hope to have more news of interest.—3ZQA.

QUEENSLAND

The activities on the home front have been rather slow as other more pressing matters have been keeping the boys off the air. Quite a number of new shacks are starting to take shape and the boys are starting to talk of high power. The usual 2 mx Hidden Tx Hunts have not lost in popularity as the attendance is still up around the 20 mark.

We have quite a few new boys occasionally putting in an appearance and it will not be long before there are some new signals on the band.

The Tx Hunt in May took the shape of a Fox Hunt with Jim 4OB acting as the fox! He did a good job of eluding, but John 4FP, in his Jaguar, stopped Jim within seven minutes! Quite a dash I can tell you. All the boys were hot on the trail, and one contestant even parked behind the fox, outside the "Ablion," without knowing it!

John 4FP, having won the event, had to hide the tx the next month. This he did with the assistance of 4ZAE. A site was chosen, after considering the possibilities of several others, a week before. The tx was hidden close to the Brisbane River, just opposite the University, amid barkings of a crazy dog and the not-so-soft epithets of fed-up neighbours! A line-of-sight bearing cut the river in several places; things started to get tough, but Jack

4JO and a crew of helpers found the tx in 38 minutes. Ross 4ZAT came second, finding the tx in 50 minutes.

Quite a few activities regarding 2 mx occurred at the '57 Convention, and the majority of these are written up under Divisional notes. However, we can say again that Jack 4JO is the Queensland Blindfold Champion for 1957.—4ZAE.

SOUTH AUSTRALIA

Activity in these regions has not been great of late in this Division, cold weather, poor long-range conditions, and of course a lot of building to get going on 56 Mc. has kept the bands quiet. Nell 5ZAW has been tower and beam building and whilst has been on a bit, is not very strong here for temporary ant. is only a few feet up—am looking forward to hearing the new signal squirter Nell and, by the way, a correction—last month's notes my fault I think, stated inter alia "get going on 20 with 3 tubes." Should have read "get going on 2 with 3 tubes."—sorry Nell.

Must have been a month of mistakes for at this QTH when the gear was returned to service put the 2 mx rig on the air and was getting no replies or not hearing anything either and didn't do any good till the GAZU was taken off the rig and the correct ant. fastened to it. Moral? Mark the things correctly when dismantling.

Bill 5ZAX still goes mobile, had the pleasure of working his sig. from Freeling to Gawler recently 5 x 9 plus 30 all the way. Bob 6RI reports his 2 mx sig (carrier) heard at Albany, but no QSO made of it for he could not copy them on 2 mx, bad luck Bob, but stick to it and you will become like Keith 5MT and Hughie 5BC who find Interstate on 2 mx a very interesting conclusion to a series of patient attempts. Keith 5MT has advised contacts made with 5ZAM and has heard Max 3ZCW and 3NN at readable strength, but due to QSB found the reverse way prevented a QSO being made of it, although Hughie 5BC, who acted as intermediary, copied both ends and advised each the other was copying sometimes. Keith also reported that the news previously circulated that he had worked into Melbourne was not correct. Keith's sig. here remains the usual 5 x 9 plus 69 db.

David 5ZAM has his 5 mx gear going and would welcome skeds, so tee them up with him chaps, a good distance to try your gear out. He uses a QQE06/40 final on 2 mx into a long yagi with 55w. To that final, but what the 5 mx gear is can only guess it's up to the 2 mx standard.

Col. 5RO and Ken 5KC were heard at 5 x 9 recently and also advised lack of activity on 2 mx, but interest on 5 mx increasing, having heard 5ZAW, 5ZQA and 5ZBA on that freq.

Have been told that George 5EC is an interested starter for s.s.b. on 2 mx so will look forward to developments from that quarter, for it will definitely be attempted at this QTH when the 14 Mc. s.s.b. exciter is done, intend doing it that way so that the same exciter will do for both the h.f. and v.h.f. bands. One point worth thinking about and that is that in the States it is standard practice to employ lower sidedband for v.h.f. and upper for h.f. so it might pay us to adopt that standard here for receiver tuning convenience, particularly for when it develops into voice operated break-in, which is one of the advantages offered in s.s.b. work.—5EF.

WESTERN AUSTRALIA

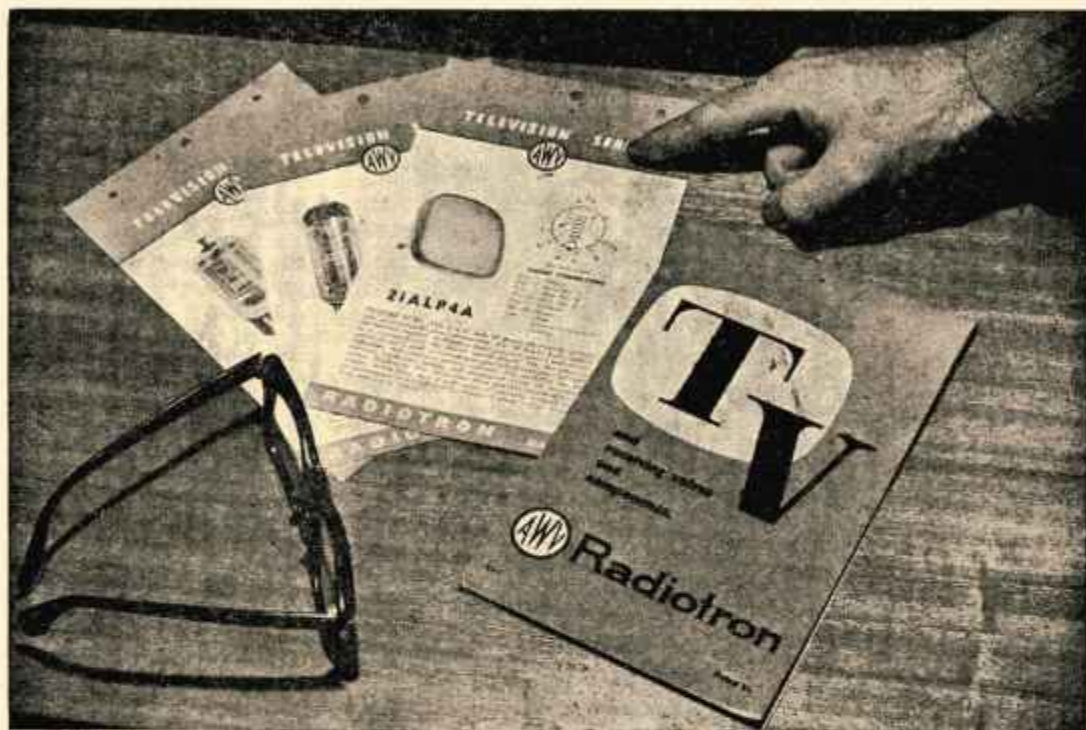
The Fox Hunt held on 1st June was a great success for the foxes, Don 6ZAV and co-driver Ray. The tx was hidden on the foreshore at Bicton Jetty with the beam pointing up river towards Kings Park, the assembly point. Only one made the grade, Rolo 6BO, who came down the only road in to the petty; the others spent the time sitting from one side of the river to the other. Spot lights were very much in evidence. Supper and post mortem were held at Roy Chamberlain's QTH. The next Hunt we hope will be held on 28th Mc.

The V.h.f. Group meeting on Saturday, 8th June, was held at Syd 6SJ's QTH. Business was disposed of in quick time and after a short ragchew, Dennis 6AW held the attention of the meeting with a talk on the Theory and Practice of Pi-Couplers, which was enjoyed by all, as also was the supper.

Activity on 144 Mc. is not as good as could be desired, so what about it chaps?

56 Mc.: Checks with 6WG (Albany) have so far produced no results. It seems that it is easier to get through on 2 mx than on 5 mx. Tom 6TH has a converter for 5 mx; we know it works because it was checked by Rolo 6BO with 6ZAV's signal. So far we have 6BO, 6GB, 6ZAF, 6BE and 6ZAV on 5 mx. I must not forget, 6RK—he has his converter working; working cross-band 144-56 Mc. with 6BE and 6ZAV.—6ZAV.

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C.D.E.N. NEWS

We are pleased to welcome Roy Hart, VK2HO, to the ranks of Divisional Co-ordinators. Roy's experience at the Commonwealth Civil Defence School will prove valuable in guiding the N.S.W. boys towards the ultimate aim of the combined emergency services. Jim Corbin, VK2YC, no doubt, will appreciate the rest from the strain imposed during his long term of office.

Divisional Co-ordinators desiring to follow in the steps of VK4 may obtain from their State Emergency Directors loan of films suitable for screening at Institute meetings. Members of the Institute, whether active in C.D.E.N. or not, will learn much from these films.

Equipment for emergency use can be relatively simple, however it must be efficient, stable and rugged. Components used should be of a type readily available or for which substitutes are available which readily mount in the same space. Obviously for quick transfer between fixed channels crystals are a must, however provision must also be made for v.f.o. operation.

The foregoing does not mean that equipment need be elaborate or complicated. Even if some commercially minded people do sneer at the finished product—it is the results that count. Your Publications Committee would appreciate the opportunity of publishing articles covering suitable equipment.

Irrespective of the outcome, members of VK4 and VK9 are to be applauded for their persistent efforts to reach the father of a very sick Melbourne boy so that he could speed home from New Guinea to comfort his boy. That was one time when Hams at the receiving end could not be expected to be aware of impending emergency. However, it does stress once again the need for local Hams to be in readiness whenever there is any indication of an emergency developing in any form. Disasters due to weather in the main are at least preceded by weather forecasts which serve as a warning. Just as, generally speaking, conditions suitable for bush fires do not develop overnight.

Naturally such things as explosions, freak cloud bursts, collapsing dams, do not advertise the coming event. In such cases we can only be expected to assess the communications

requirements and commence operations as quickly as possible. This means that the greater the number of operators who can leave a receiver running on the emergency calling frequencies of 3501 and 7002 Kc., the greater the possibility of establishing contact quickly.

The easiest way of ensuring that the greatest number will hear an emergency call is to adopt the system of employing an adaptor which feeds into the family receiver i.f. stages. In the average household the radio goes most of the day so that a call on the frequency immediately impinges on the local programme, enabling the YF to carry out previously laid down drill for such events.

In the evening of course the OM only has to put down his newspaper and toddle out to the shack, unless of course he is one of those lucky individuals with remote control from the fireside.

Federal Co-ordinator, W.I.A.

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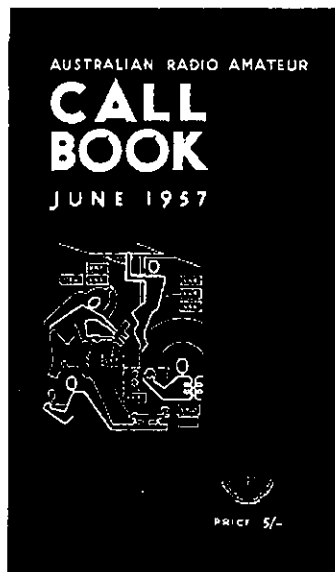
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YL CORNER

BY PHYL MONCUR*

A CONVERTER FOR THE XYL

Several OMs have come along to me and said they wish I would have a talk to their XYLs and try and make them see the right side of Amateur Radio. Their comment usually is "You seem to be able to put up with it but my wife just can't stand any part of it." Well here it is, but it is directed more at the OMs than the XYLs.

Firstly and foremost, don't try to rush her, give it to her in small doses. Don't just throw the handbook down in front of her and tell her to read that. After all her cook-book wouldn't look very interesting to you, now would it? Say if the great Einstein were to place his theory of relativity in front of you, would it mean anything to you? No, of course it wouldn't. But should the great Einstein explain it to you, little by little. It would then become mighty interesting, wouldn't it? So you just pretend you're the great Einstein and really try and help her to learn what it's all about.

Don't be too jealous with your precious hobby, share it with her, let her do some of the wiring and perhaps wire up a converter for mobile work, that's bound to appeal. But make sure it works even if you have to re-wire it yourself sometime when she's not around.

Teach her the code. Most women take very easily to c.w. and you'll probably find after practice, she'll be able to beat you at it. This won't do you any real harm and will give her a sense of achievement. C.w. can be very handy as a means of conversation when you don't want the children to know what you're talking about. We use it at our QTH but our harmonics retaliate by talking in pig-latin and we can't understand them.

Explain to her the elementary things about radio and keep getting a little further advanced with your chats and you'll find it will grow on her, but guard against giving it to her in big doses as you'll only give her a headache. Be kind and patient when she's slow to comprehend, and above all never be sarcastic when her efforts at building aren't so hot.

* 235 Union Road, Ascot Vale, Vic.

Teach her the Q code and other abbreviations so that she can better follow the conversations on the air. When there's a contest on, give her a part in that too. Keeping the log or writing out the QSLs will keep her interested and a contest can be really exciting when the bands are busy, even to an XYL. Helping you to recognise faint c.w. signals (even though you know darn well what they are) will bound to appeal to her and make her feel very important and necessary.

Try getting her to come along to the transmitter hunt picnics or the fox hunts for a start, she'll meet other XYLs there and if she drives the car, let her do the driving even if she can't drive the car as well as you think you can. The very driving of the car will, as well as probably giving her a lot of enjoyment, make her feel that she is playing some real part in it and is necessary to you. If she tries to start the car off in top gear, don't do your lolly, she's probably only trying to save time and get there a little quicker. And if she grates the gears and you must groan, then for Pete's sake keep your audio down, she may not have very great selectivity with the gear stick, but she's probably got high sensitivity of feelings.

If she doesn't drive the car, let her be the navigator and teach her to tune in the signal and line the beam up on it. Forget that this teething period will probably cause you to come last in the next few hunts, but that part of it is not nearly so important as being able to do something together and in time she'll probably turn out to be a real help to you.

Try and be tidy with your equipment, particularly if the shack happens to occupy one end of the living room. There's nothing that turns an XYL off Amateur Radio more than untidy radio gear all over the house.

Actually getting a licence will, in most cases, be a bit beyond the normal XYL who has forgotten any maths she ever had and with a home and family to cope with, can't afford the enormous amount of time and study necessary. But it's really not essential for her to be licensed for the two of you to enjoy your hobby together, but make sure she feels it's her hobby too.

Oh, and remember, there are other things in the world besides Amateur Radio! Don't forget to take her out sometimes to places where she likes to go, even if it happens to be to the ballet or the theatre, and the thought of it nearly kills you; just make sure you don't kill her with an overdose of Amateur Radio.

Well there it is Einstein, go to it and good luck!

S.W.L. SECTION*

Once again I begin my monthly grouch. No doubt you will guess what it's about. You're so right! Lack of correspondents. If you do see these notes it will only be because of the Editor's kindness (fine chap I might add) as they are supposed to be in by the 8th of the month. I've held off until now, the 9th, but alas, no mail today either, and only one letter received before this. So come on now chaps, pull your socks up and let's see a little more interest in this page, or else! Or else we'll have to give it up, see! Now after this dire tale of woe, we will proceed to my next complaint.

You may have noticed that last month I said things had almost become normal now. Well they haven't and I think somehow they won't. My trouble is that when I'm ready to do a bit of listening in the evening the new harmonic is either asleep, going to sleep or awake and has to be watched or nursed or something. No evening's s.w.l'ing is therefore forthcoming. Secondly, early in the morning she doesn't wake up anyway. OK you reckon? Well that means that I don't get out of bed early and listen then either. As a result I am currently not hearing anything much at all.

VICTORIA

Jnne Group Meeting.—This meeting was well attended, about 16 members being present. The first portion of the meeting was devoted to a discussion of future activities. Many good ideas were put forward and arrangements made for various visits to places of interest. Some time was then spent discussing a receiver building project for the Group. It was decided that two small super-regen. type receivers would be built. A donation of a disposals v.h.f. rx from George 3WJ and an old super-het rx from the Victorian Division has provided a good supply of parts to allow work to be commenced.

Future Programme.—A visit to the Newport Power Station has been arranged for the 13th August. As the exact number who will be along has to be known, anyone who wishes to attend is requested to ring the Group Secretary, Ian Hunt, at FB0261, Ext. 311, no later than the 7th August.

Visit to TV Station HSV7.—This visit will be held on 2nd September. Again as the exact number in the party must be known you must contact the Group Secretary. Preference will be given to those who put their names down for the GTV9 visit, which, unfortunately had to be cancelled.

August Group Meeting.—This will be our annual meeting and election of office-bearers for the next 12 months. So come along and we'll find a job for you. At this meeting we will be entertained by Noel 3ANS, who will show us a film on tx hunts and also some shots taken during the Group visit to D.C.A. at Essendon Airport. More arrangements are being made for interesting talks and visits, so keep your eye on this column and listen to the 3WI Sunday broadcasts for further announcements.

SOUTH AUSTRALIA

John Campbell, W1A-L5011, tells us more of the June Group meeting. Normal business was suspended to allow members to visit broadcast station 5DN. Arriving at the studios in North Adelaide, the members found Jim Paris, who they thought had probably become lost or something, but had instead gone there direct. Their look over the studios proved most interesting and then they went out to Dry Creek to examine the tx. The degree of automatic operation surprised everyone as no engineer is on duty at the tx and even the air-conditioning plant can be turned off and on by a telephonic circuit from the studio.

Many thanks are due to Warwick 5PS for arranging this outing for the S.W.L. Group. John mentions something about the "best broadcasting station in the State." I'll leave that for someone else to fight out. John also tells me that he has now 110 countries verified—the latest card coming from Radio Tahiti. Of the 110 countries about 25 have been verified on the Ham bands.

Well chaps, this brings the notes to an end again for another month and if I don't receive some mail soon, probably to an end for good. Why not send me enough information about yourself to allow me to write you up as S.W.L. of the Month, and help me continue this feature. I haven't the time to run around Melbourne interviewing chaps all the time I'm afraid, and besides, it's cold weather now. So till next month I'll say cheerio to all and begin watching for the postman.

* Compiled by Ian J. Hunt, W1A-L3007, 211 St. George's Road, Northcote, N.16, Vic.

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EMERGENCY NETWORKS

Editor "A.R." Dear Sir,

It would be wrong to detract from the commonsense and experience apparent in much that VK5EC has said. One does not need to be a "fanatic," however, to detect in his remarks about telegraphy a fallacy which is usually based upon inexperience.

In some 20 years of work on communication circuits which have required proficiency in both modes of transmission, it has seemed to me that the following can be stated as a general rule: In cases of operational urgency, provided it is possible to give a good circuit directly between the people whose job it is to act upon information exchanged, telephony is the obvious choice. But the ship's master, the aircraft pilot and the doctor can be busy people in an emergency. Now, with intermediate parties involved, accuracy usually demands that information be recorded together with evidence of its origin. And for both speed and accuracy in this respect, well-handled telegraphy can "clear the hook" while the poor old talker is still trundling along with phonetics. To pitch the matter at its lowest, it does not take much effort to cultivate the slow, steady morse with which an out-station can still communicate in conditions which render R/T useless.

It is interesting to note that a recent job of evaluation by the U.S. Navy produced conclusions rather like those stated above.

Instances like the sad and potentially dangerous antics of the Army net observed by VK5EC are unfortunately common. But if they illustrate a need for different equipment they also serve to show that no equipment and no organisation can be better than its operators. A resourceful type I once knew tramped for some weeks to announce that, after a few calls, he had given his only crystal a good rub in river sand! And it will take me some time to forget the Navy operator who blamed the rest of the net for the fact that his own carrier was running . . .

By all means let us study Service examples and where possible benefit from them. But as Amateurs we need also, I suggest, to evaluate for ourselves (not devaluate in advance) the skills that people can be trained to employ for the specific purpose of passing information between A and B, using a reasonable minimum of power and equipment in which both mike and key can be used. It will be found that some assumed necessities can be done without. We can only guess at the nature, let alone the magnitude, of emergencies that could beset us. Let us leave the guesswork in that department.

—W. W. Watson, VK7YY.

Editor "A.R." Dear Sir,

The letter by VK5EC in the July issue of "Amateur Radio" prompts me to continue this discussion on Emergency Networks.

I am in complete agreement with all the points expressed by the writer, particularly in regard to the standard of equipment used. In emergency service there is absolutely no room for equipment which is not 100% stable, 100% efficient, 100% reliable and maintained ready at all times for immediate use. An operator who, on being called to an emergency, has to race around with odd bits of wire and a soldering iron before his gear can be put into operation is a liability to the emergency service. Neither can the use of anything but the best in commercial, ex-service, or home constructed equipment be expected to inspire confidence in the minds of the authorities, and all those connected with an emergency operation.

In connection with the proper set-up for Emergency Stations, several points come to mind. For instance, how many Base Stations, or proposed Base Stations, particularly those in City Areas, would be able to carry out their duties and operate full power if the a.c. power lines were put out of action? How many of these stations have on hand, or have made provision for connection to emergency power plants? How many Base Stations have a telephone connected to the operating room? This is essential.

For operation in the field, are there any stations, with portable power plants, which could operate full power for any length of time at an isolated base? Battery charging facilities may not be available, and conditions generally may require maximum power for effective communication.

For mobile operation all equipment, both transmitting and receiving, should be xtal controlled. Xtal control is important for all equipment used in emergency networks, but is particularly necessary for mobile use. Admittedly there is some quite good mobile gear in use which does not incorporate xtal control in the receiver, but it would be all the better for it. If xtal control is not available in the receiver, facilities for netting to the transmitter frequency are essential. Dial locks would also be advantageous.

Portable equipment of the "Handle-Talkie" type appears to be receiving some attention, both on h.f. and v.h.f. This equipment should be of a standard similar to all other gear. VK5EC's remarks should be carefully noted!

It may be argued that some of the suggestions made above are unnecessary and extravagant. However, all of these ideas, which should definitely be considered necessary in an efficient Emergency Network, are due to particular deficiencies which have been noted in work with another emergency organisation. It may also be argued that the cost is far too heavy for the average Amateur, and if such equipment is necessary, Amateur participation would be limited to the favoured few. I would suggest that any Amateur in Emergency Service should first decide his capabilities, and then direct his activities accordingly. The most important thing is that no matter whether the choice be Fixed or Portable Base Station, Mobile or Portable work, the Amateur should make himself proficient in this field, and provide and maintain suitable gear of the highest standard.

Regarding emergency operation generally, it might be well to remind Amateurs, particularly metropolitan Amateurs, that in Victoria there is already a State-wide voluntary emergency organisation which is reasonably well set up and operates fairly efficiently.

This organisation is concerned mainly with bush-fire emergency work. During the summer season operators are on call continuously, and maintain daily "skeds". For the remainder of the year most Regions hold weekly or bi-weekly "skeds" in order to maintain their equipment at full efficiency. These operators would no doubt be very willing, and would probably expect, to assist in any other type of emergency. Therefore in order to avoid confusion and unnecessary duplication of equipment and personnel the setting up of effective and reliable liaison between emergency organisations should be of paramount importance. One wonders, too, what the attitude of this, or any other emergency network is, toward an Amateur C.D.E.N. and vice-versa.

I trust that this letter will encourage further discussion on this matter.

—James R. Barber, VK3ABT.

D.S.B. VERSUS S.S.B.

Editor "A.R." Dear Sir,

I take exception to the article in "A.R." July '57, "Single Sideband—is it better than Amplitude Modulation."

I feel that W2CRR has misrepresented facts and in the case of signal-to-noise ratio, juggled his mathematics to achieve his desired

results. May I give my version of signal-to-noise ratio and criticize other aspects of the article.

In the case of receiving a 100w. s.s.b. signal on a receiver of 3 Kc. bandwidth the signal-to-noise ratio will be 100 divided by Pn.

In the case of receiving a 100w. d.s.b. signal on a receiver of 3 Kc. bandwidth the signal-to-noise ratio will be 50 divided by Pn.

In the case of receiving a s.s.b. signal on a receiver of 6 Kc. bandwidth the signal-to-noise ratio will be 100 divided by 2Pn, and on d.s.b. in 6 Kc. also, 100 divided by 2Pn.

This indicates that where the receiver bandwidth is chosen to suit the signal being received, i.e. 3 Kc. for s.s.b. and 6 Kc. for d.s.b., there is a 3 db. advantage to s.s.b.

W2CRR points out that the main disadvantage of receiving d.s.b. is the phase requirements of the reinserted carrier. This also, incidentally is the reason why s.s.b. signals with poor sideband suppression are so hard to tune in on some receivers. He then mentions phase locking circuits but apparently suggests that they are so simple as to warrant no further mention, but rather suggests we go over to s.s.b. reception of the d.s.b. signal. This is in effect throwing away 3 db. which by his peculiar brand of reasoning he tells us is not wasted because it is there IF needed.

He later mentions d.s.b. adaptors for the receiver and tells us that they are beyond the scope of his present article, having in a previous paragraph dismissed phase locking circuits in favour of s.s.b. reception.

His remarks on average QRM on a Ham band being the same for s.s.b. or d.s.b. seem to have completely overlooked the fact that this would be a consideration, only if the receiver was simultaneously receiving a spectrum as wide as the Ham band in question. As a practical receiver receives only 3 to 10 Kc. at a time the average QRM is not important so much as the instantaneous QRM on the frequency the receiver is tuned to.

Of his three points in conclusion, I would suggest that point 1 should read—s.s.b. has a 3 db. advantage over d.s.b. (suppressed carrier); point 2, s.s.b. will reduce QRM; point 3, while s.s.b. is more difficult to generate than d.s.b., its difficulty is severely over-rated.

I feel that I should point out the difference in receiving a good s.s.b. signal and a good d.s.b. suppressed carrier signal.

In receiving s.s.b. the reinserted carrier at the receiver must be reinserted at least within 50 cycles of the correct frequency.

In receiving d.s.b. the carrier must be reinserted within 10 cycles of the correct frequency, and must have the correct phase relationship to the sidebands.

In the alternate case of receiving d.s.b. on a s.s.b. receiver the frequency is not so intolerant and the phase requirement is no longer necessary. BUT the receiver must be capable of rejecting the unwanted sideband by at least 25-30 db.

No doubt s.s.b. versus d.s.b. or a.m. will serve a good purpose in airing points of view and ideas, but may I suggest that nothing but harm will be done to any cause by distortion of facts and arguments to achieve certain preconceived conclusions.

—Cyril Edmonds, VK3AEE, s.s.b.

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DX ACTIVITY BY VK2QL†

3.5, 7 and 28 Mc. have not produced much interest to the DX fraternity of late and 14 Mc. not showing much activity after about 1100z in the Eastern States. Due to my own inactivity my knowledge of conditions is limited.

NEWS AND NOTES

The 3W8AA QSL position is still confused. I had a long talk with Phan and he said he gets no QSLs via Saigon and only 30% via Canton. His new avenue is via Box 69, Praha, the OK QSL box, and OK1FF is doing the honors, so far quite successfully. Phan has tried sending cards outwards via the VS1 Bureau, XW8AB, but is doubtful if they have reached their destination. I suggest that if you have not yet received a card from 3W8AA, try another from the OK1FF route. Phan waits until he gets your QSLs before sending one.

VK0AB finds that 3.5 and 7 Mc. are of no use at the present time in Antarctica.

ZD4 contacts after Mar 5, '57, will count for Ghana. Prior to that date will count for Gold Coast. So—two countries for the same geographical location (2ACX).

The Saar (9S4) after April 1, '57, is not a separate country but counts as Germany (2ACX).

Trieste contacts after April '57 will count as Italy (2ACX).

FW8AA can usually be found on the rare occasions he is not frightened off the "dog pile" round 14310 Kc. (2AGH).

UA00M is in the news again. QSOed at the end of the month he gave a QTH indicating he is in Zone 23 (2AGH).

VQ9HAY, Seychelles, maintains a sked each Sunday at 1300z with VQ4AO on 14 Mc. phone. He is reported to be staying on the island for a couple of months (5WO).

JAIJG is located in the Antarctic area (BERS195).

VK2EG claims he has applied for the first Antarctic DX C.C. for his operations as VK1EG. Bill finds even he has difficulty collecting cards for his DX C.C.

For those interested in working the YL/XYLs, IISGZ can be added to the list (4EL).

ACTIVITIES

3.5 Mc.: 6EJ: DU7SV, VSIGX, 3W8AA.
7 Mc.: 2AGH: VR2DA, 2AMB: FY2BQM, VEIARY, VK0CS, UH8KAA, 2QL: FK8AT, KG6, UB, UA1, UO5CA. Rod de Balfour: ZD8DT SA at 2300z, KH6, KR6AQ, BERS195: FK8AT, JAI0AH, KL7, KZ5BB, KR6AK, PY7YS, VK0AB, UAIKAE, ZL5AA.

14 Mc. C.W.: 0AB: ZL5AA, VSIGZ, KG6AHA, VE7JB, LUSHL, PYIOE, CE9AS (Deception), VK0CJ, AF2Q, CR8CK, KV4AA, ZC5AL, KP4DP, BVIUS, GI3JXS, VQ2NS, 2ACK: VR6TC, 2AGH: UA0s, UA9s, ZL5AA, VP2VG, UAIKAE, KP4CC, VR3F, VR3G, IT1ZGY, KC4USV, KC5AA, DU7SV, VP4KL, GI3JXS, LA, VK0AB, UJ8KAA, UA2, KAW, HL2AP, UA00M, 2AIR: HC1OR, FY7F, UAIKAE, VK0AB, KC4USA, KP4CC, KP4TN, ZC5AL, VP5BL, 2AMB: FA8RJ, OA4AQ, TI2MAR, 457WP, VR6TC, VP2GD, CR7LU, FG7XC, ZS6CY, ZS5RE, 2QL: VP3YG, FG7KC, KC4USB, W7FNK/KP6, VP6CZ, VR6TC, ZK2AD, ZD4CM, KGIAS, VP2GD, SV0WR, FM-

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.

* Call signs and prefixes worked.

z—zero time—G.M.T.

7NT, 5WO: FB8XX, ZK2AD, UB5WF, UO5PF, W7FNK/KP6, 7LZ: UJ8KAA, G, HH2CL, KEIMB, 2YL: CE8AA, FB8BD, HC7WK, XE1AX, KE1PB, KE1MB, YV4AU, LUSDEL, CO7NR, LUINE, CO2SW, BERS195: CX1BO, FB8XX, HL2AC, HL2AJ, LUTEZ, KGIAS, PY1FB, YV5HL, VK0AB, VR3G, 3A2BG, 4X4HK, ZK1BG, ZK2AD, 9S4DG, 9XK: YN1AA, YV5EX, PZ1AP, HL2AC, FY7F.

14 Mc. Phone: 2AGH: HH1HB, CM9AA, FS7RT, VP5CP, 2AMB: YV5EF, YV3BQ, CE2CO, LU4NB, TI8ECH, EA8CC, ZS6ACU, FM7AD, GD2FRV, TG9AL, TG9MQ, CT2AH, FM7WQ, BVIUS, YV5AB, 5HI: GW5PH, CN8D8W, YV5AY, YV5BS, YU2DB, SP6AH, EASIM, 5WO: YV5AY, HK7LX, TG7SJ, TG9MQ, VP4TO, 7LZ: TG7SQ, HP1GD, HH2LD, HK7LX, YV5AY, YV5EC, FUSAD. Rod de Balfour: GD2FRV, 457YL, KR6QQ, KR6AF, BVIUS, FUSAD, FK8AS, KE1FY, FO8AB, HH2LD, CO2OS, TG9AC, HP1GD, HP3FL, YS1MS, HK7LX, YV5AY, LUBAJ.

21 Mc. C.W.: 2AGH: 3W8AA, YO3ZA, UB5UW, SP6BG, VP1NB, 2AMB: HA5BV, UBSA1, 3W8AA, 2QL: ZS, VK0AB, ZS3AG, FF8AJ, 3W8AA, CX6CM, FA8RJ, UQ2AS, 2YL: DL3YO.

21 Mc. Phone: 0AB: CR7LU, FO8AC, UD6A1, CX2CO, VP8BO, FB8XX, ZS, W, 2AGH: O4AFE, DL, UB5EF, VP7NB, 2AMB: CN8JX, CN8GL, KG8AG, VK0CS, 4X4DK, VS4JT, IIBT, IPAC, CT1DU, HK5CH, ZS8SD, HBBHM, KR6BN, KRAAM, HP1GD, 2YL: 4X4BL, 4EL: I1HH, OK1KAA, ZP5CE, 4X4HI, OA4H, I1CC, VR2BC, VS4JT, VP5AR, 5WO: OZ1K, VP6WR, HS1A, VS4JT, 7LZ: CR5SP, ZS6SG, ZS5DQ, IIBFS, I1GFT, VP7NV, VP7NB, VP1EE, Rod de Balfour: HRIAB, EAIJH, CN8GL, SAITG, MP4KAC, ZS5NZ, ZS8BV, VQ4AQ, 457YL, BVIUS, HS1A, DUTSV, VS4JT, FK8AC, VK0AB, VK0CJ, CR5SP, VP1EE, VP5EM, HH3DL, VP7NB, VP7NV, VP2AD, HP3FL, TI2EO, TI2OA, HC1JL, CE3MJ. A nice list Rod.

28 Mc. Phone: 4XJ: W, KH6, ZS4PB, ZS1B, ZS8AP, ZS8ZF, ZS8SO, ZS8AIA, ZS5MP, ZS5NZ, ZS5KL, ZS3L, VQ8VA, OQ8RU, OQ8EU, CO8JK, VP1EE, 5WO: ZS6OQ, ZS5CU, ZS8AIA, ZB3JU, ZS5NZ, ZG2DP, 7LZ: ZS8UR, VQ2, Rod de Balfour: 457YL, ZSAHW, ZS5NZ, ZS2OV, ZS8UR, XE1PY, HP1GD, VR2BC, FK8AC, KL7.

QSL SITUATION

2ACX has received cards from OH3AA/OHO and CE0AC. 2AIR: H18BE, AP2RH, CE0AC, 3W8AA (7, 14 and 21 Mc.), 2QL: H18BE, 3W8AA (7, 14 and 21 Mc.), U1KAA, UAOKCA, LZ1KNE, 5WO: VE3CMP/VO1, ZS9P, ZD2WAF, VS8AD, 7LZ: H11HB, VK0AB, FM7WR, GC6FQ, GC2FZC, VS4JT, VR3F, HK3AB, EAIJH, BERS195: CX2AM, EA8EF, EA8BK, FK8AT, IS1FIC, KW6CM, OQ8BB, U1A6AF, U1A6CD, YC6AL, ZCAAM, ZD6RM, 3V8AC, Rod de Balfour: CR5SP, ET2US, 9XK: UC2AA, GDSUB, OY7ML.

QTHS OF INTEREST

VP7NB—C/o. A.A.F.B., via Patrich A.F.B., Florida (2AGH).
HS1A—QSL via W6FKH.
VP6CS is WASSN.
HK7LX—Bucaramanga, Colombia (5WO).
VS9AD—Sgt. Mess, R.A.F., Aden (5WO).
ZD2WAF—"Red" Fenton, C/o Nigerian Broadcasting Service, Lagos, Nigeria (5WO).
W7FNK/KP6—Via KH6 Bureau.

By the good graces of the Magazine Committee, I have received a copy of the late American Call Book (and the VK). Each month when somebody lists one of the lesser heard calls, if the call is in the book, I propose to list it in this part of the notes. Russian stations are not listed. So we commence with—
VR8TC—Via Post Office, Balboa, Canal Zone.
FS7RT—D. R. Tibbetts, Bellevue Plantation, Marigot, French St., Martin, F.W.I.
TG9 Bureau—P.O. Box 12, Guatemala City.

SPECIAL FOR THE V.H.F. DX'ERS

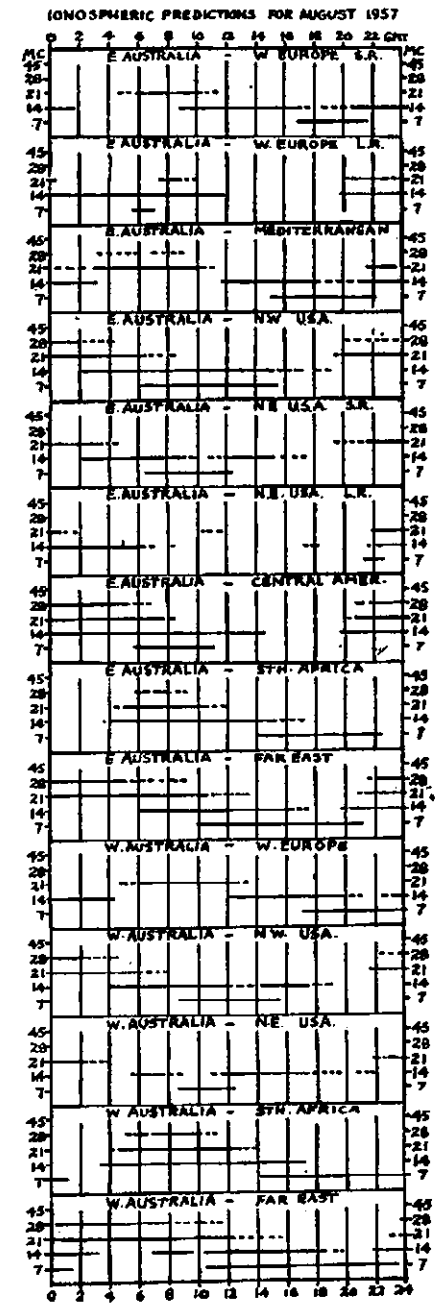
VK9XK has a daily call on m.c.w. on 8016 Mc. at 0915z and hoping to get a QSO with the mainland.

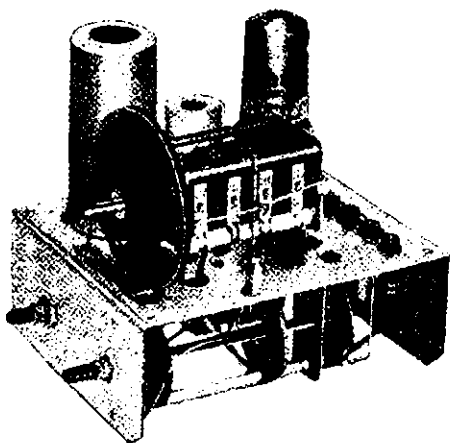
And once more my thanks to 0AB who has come closer to his goal with 93 countries, 2ACK with the fine total of 254 worked, 2AGH who is chasing the DX a little more these days, 2AIR on the air again and finding the new QTH to his satisfaction, 2AMB complains of the lack of the "hard to get" QSLs at his shack, 4EL with his GZGA contacts now numbering 728, 4XJ who hopes for better conditions for all continents soon on 28 Mc., 5BK (QSP 5HI) in the throes of re-building and like 5HI somewhat inactive, 5WO also on the inactive list, 6EJ who did not get his full QSP to me due to rig trouble and hasn't been heard since,

Rod de Balfour finding 21 Mc. the best band at present, and BERS195 who received the grand total of 80 QSLs for the month. Continued good hunting you old?? stalwarts.

I feel that the time is now due for some rationalisation of the method of counting "DX countries." There are a number of anomalies these days, one being that mentioned in the early part of these notes regarding Ghana. Another difference which exists in recognition between "CQ" magazine and the A.R.R.L. My thoughts are, whether practical or not I am not in a position to say, that it should be the prerogative of this I.A.R.U. to lay down an official list or principle for the recognition of countries for certificate purposes. 3W8, for example, cannot be counted for A.R.R.L. DX C.C. solely by reason of the restriction that U.S. Hams cannot work them, but we can. What are your thoughts? Let's start something eh?

2YL and 9XK managed to get in under the slip rolls, Russ with the interesting info for the DX on v.h.f. band. 2YL has found 14 Mc. the best band.





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The variable frequency oscillator that Geloso have designed for their transmitter type G310-TR is now available as a separate unit. The importance of a stable oscillator in a transmitter is well known to Hams, for on it depends the stability of the transmitted signal which is a very necessary requirement of all transmitting stations. In order to obtain such stability one may resort to the use of multiple quartz crystals, but it is easier, cheaper and more convenient to use a Variable Frequency Oscillator. This oscillator also provides a means of quick frequency changing to any part of any Amateur band so as to avoid interference, etc. Amongst the types of circuits available for Variable Frequency Oscillators, the best known is possibly the "Clapp," and this is employed in the GELOSO SIGNAL SHIFTER.



**AFTER STOCKTAKING
SPECIALS**

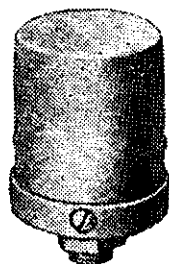
Few only, "Labgear" Wideband Couplers, 3.5-3.8 Mc. and 28-29.7 Mc. 31/6 each
 Few only, "Labgear" 3.5 Mc. Tank Coils, complete with swinging link 35/- each
 Eddystone Silver Plated V.H.F. Coils 3/- each
 T.C.C. "Hikonol" 33 mfd. 2 kv. Photoflash Condensers £10/6/-
 Davenset 2, 6 or 12v. Battery Trickle Charger, £6/9/6
 Eddystone R.F. Insulating Shafts. Ideal where voltage is applied to condenser rotors and stators 1/9
 Z969 Chokes, die cast cased, 25 hen. 80 Ma., 500 ohms D.C. resistance 35/- each
 Z956 Chokes, 30 hen. 200 Ma., 160 ohms D.C. resistance 1,000 volts insulation £3/10/- each
 Few only, OT796 Plate-to-Line Transformers, 30w., ideal remote audio installations. Prim.: 6600 c.t. and 3800 c.t.; Sec.: Com. 100-125-167-250 ohms, £4/5/-
 AT1204-11 240v.-110v. Auto Transformers, 100 va. £3/15/- each
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 American G.E. Miniature Fluorescent Tubes, perfect R.F. Indicators:
 110v. G.E. 6w., 9 inches long 11/- each
 110v. G.E. 8w., 12 inches long 9/9 each

GERMAN CERAMIC PI-COUPLER SWITCH
 2 Pole 6 Position 2 Bank. Can also be used for other r.f. switching purposes where the switch sequence is suitable. Rated for 2,000 volts at 2 amps.
 £3/1/- plus 12½% Sales Tax.

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 72 ohm Co-Axial Cable 2/3 yard
 50 ohm Co-Axial Cable 2/1 yard
 72 ohm Twin Flat Line 1/- yard
 300 ohm Twin Flat Line 1/3 yard
 Beehive Stand-Off Insulators, suitable for 10, 15, or 20 metre beam arrays:
 Eddystone Type 916 4/- each
 Aegis Type BH2 9/8 each



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 ★ Easy to solder heavily silver plated tags.
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List No.	Audio Watts	Max. Sec. RF In.	Sec. Current	Overall Size L.	W.	H.	Weight lb. oz.
UM1	30	60	120 Ma.	3¾	x 3½	x 3½	5 8
UM2	60	120	200 Ma.	5½	x 4½	x 5½	11 8
UM3	120	240	250 Ma.	5½	x 5½	x 5½	14 8

Price: UM1 £7/9/9 inc. Sales Tax
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FEDERAL

RESIGNATION OF VK2 FEDERAL COUNCILLOR

Federal Executive has been notified of the resignation of VK2ASW, Don Pollard, from the position of Federal Councillor of the New South Wales Division.

Although Don did not hold this position for a great length of time, he became well known to those outside his own Division because of his frequent journeyings Interstate. Besides this it was during his term of office that he made a trip overseas. Now that he has more time for Radio, it is hoped that the call VK2ASW will be heard regularly on the bands.

AMATEUR STATION AT JUBILEE JAMBOREE

Federal Executive has been notified by the Boy Scouts Association in England that during the Boy Scouts' Jubilee Jamboree (August 1 to 12) at Sutton Park, Sutton Coalfield, an Amateur Radio Station under the call of GB3SP will be in operation.

Special facilities have been granted by the British Postmaster-General including permission to radiate a "News Bulletin." This news service will be radiated on various frequencies "on the hour" between 1000 hours and 2200 hours G.M.T.

As the station will be carrying out the normal operating activities at other times, the Scouts are looking forward to making contacts with DX stations. They hope by means of special radiations beamed to suit conditions to reach Australia. All interested are asked to listen for the call GB3SP on bands from 3.5 to 30 Mc.

FED. CONTEST COMMITTEE

REMEMBRANCE DAY, 1957

This month, once again, we are celebrating Remembrance Day with the Contest founded to bring friends together, old with young, to honour our Friends who died in Active Service for us all.

Surely a sobering thought, when one recalls that V.P. Day was twelve years ago and that many of our present Amateurs were too young to appreciate the joyous relief that we older ones felt when victory was proclaimed.

Federal Council's decision to ask for a period of quietness and an appropriate address from the President of Federal Executive prior to the commencement of the Contest should place the Contest in its right setting—A Memorial.

The checking of the logs last year disclosed that some contestants were not operating "in the true spirit of the Contest."

Surely the greatest joy comes from working with and meeting again as many old friends as possible; from welcoming to our ranks all those whom we have not had the opportunity of meeting before; of giving to our younger generation the feeling of unity that is Amateur Radio; and above all from keeping alive the memory of those whom we honour, and of whom we may truly say,

Greater love hath no man than this, that a man lay down his life for his friends.

ROSS BULL MEMORIAL CONTEST RULES 1957-58

These have been changed following the discussions which took place at the Federal Convention. The draft has been based on the recommendations made by Federal Council and on suggestions received per letters from those who have been active v.h.f. participants for many years.

As the 1957-58 period is likely to have conditions which will favour distant contacts of over 1400 miles, your Committee decided to encourage overseas participation by making awards for meritorious efforts by contestants outside of Australia and its Territories.

Not all the suggestions received were able to be incorporated and the Committee was once again faced with the hard task of making suitable compromises. They follow the standard procedure now adopted.

PLEASE GIVE THESE RULES A FAIR TRY-OUT FROM ALL DIVISIONS.

Copies of the Rules will be sent overseas in time to make sure of some activity there.

G. M. Bowen, VK5XU, Chairman.

FEDERAL AWARDS

W.A.V.K.C.A. AWARD

Latest additions to list are: W3OP, G3AIM, WZEN, CT1PK, JA1AG, JA1ACA, FK8AL, and W3GAD. 59 certificates have been issued to date.

G. Weynton, VK3XU, Awards Manager.

FEDERAL QSL BUREAU

A new world map for Amateurs and S.w.I.'s adapted to the latest conditions has been issued in the practical size of 98 x 80 cms., coloured in blue, rose and black. The map contains call sign prefix of each country, as well as all zones. It has many other features. It is printed on first class white paper and was produced by Fritz Luthi, HB9GJ, Kochstr. 3, Zurich 4, Switzerland. It retails for 5 Swiss francs plus postage.

A par in the July issue is already out of date. I refer to the information regarding VK9AJ, Cocos Island. During end of May, VK9AJ was suddenly recalled to the U.K. and left by air early June. All his equipment has been left at Cocos and it is hoped that there will shortly be another Ham on the air from this location.

Another new or amended certificate is W.A. D.M. (Worked All DM). It is issued by the Central Board of the Society for Sports and Technics, through the DM Contest Bureau, DM2ABB, Postbox 185, Schwerin/Meckl, German Democratic Republic. There are 15 DM districts to contact. As the rules are too lengthy to quote here, full details may be obtained from this Bureau or from the Awards Manager, W.I.A.

The Society for Sports and Technics of the German Democratic Republic has arranged a friendship voyage of the sailing-training ship Wilhelm Pieck during the period 1st May to end of August or beginning of September, 1957. During this voyage an Amateur Radio station will be carried with the call sign DM5MM. The operator is DM2ACB. The cruise will be from Grefswald in the Baltic Sea, through the North Sea, the Atlantic, the Mediterranean to the Black Sea. An award styled the Worked 3 Oceans Award (W3O) will be issued from the District Radio Club of Schwerin for the first-named society. Requirements are to contact DM5MM during their passage of at least three of the oceans traversed. For contact during 4 or 5 oceans, special awards will be issued. Contacts with the vessel while it is in the Straits of Dover, Straits of Gibraltar, the Dardanelles, the Marmora Sea or the Bosphorus will be valid for either the ocean just left or the ocean they next reach. For further information contact this Bureau or the Awards Manager, W.I.A.

The Diploma YV3 has apparently been revised, but my lack of knowledge of Spanish prevents me from quoting same. Anyone interested may obtain the required info (in Spanish) from this Bureau or the Awards Manager, W.I.A.

During a long contact with Phan 3W6AA, the QSL situation was discussed at length. Phan states that the Postmaster at Saigon will not handle any letters addressed to him (Phan), and either destroys or returns them. He requests all QSLs be sent via OK1FF or the Czech Bureau. Cards from Phan are routed via the same circuit and are coming to hand regularly now.

In a note to BERS195, ex-VS9AS (G3ANK) informed Treb, that he expected to reach VK3 as of 30th June and plans to stay awhile. The reason for the visit was not stated and it is also not known whether he is still in the R.A.F. or in civvy street.

From 24th to 29th January, 1957, Captain Ron Egon, of the Israel Signal Corps, operated as 4X5RE/Sinal, from Sharm-el-Sheikh, during the Israeli occupation of the Sinal peninsula. He used 160w. into a long wire. He contacted 800 stations in the period including a few VKs. A special QSL card was printed for the occa-

sion and Capt. Egon requests VK QSLs be sent him care Box 792, Haifa, Israel.

Yet another DL award has come to light. It is the W.X.H.S. issued by the OV Hagener Sendeamateurs. Full information may be had from this Bureau or direct to the W.X.H.S. Manager, DL1MS, Hermann Zimmerhocker, Hagen/Westf, Lutzowstr 58, Germany.

Information has just been received from Stan Chapman, FJ2AE, ex-WHITE, of Aruba, Netherlands West Indies, that Don Kurtz, FJ2AJ, who was very well known to VK DXers, had passed away at the end of May after a sudden heart seizure. Stan says he has acquired Don's complete rig and hopes to be on the air frequently and to become as well known and as highly respected in VK as the previous owner of the station.

Ray Jones, VK3RJ, Federal QSL Manager.

NEW SOUTH WALES

The Annual General Meeting of the N.S.W. Division was held at Science House, Gloucester Street, on Friday, 28th June.

This meeting was preceded by a Special General Meeting to consider the adoption of amendments to the Divisional Constitution. After several members among the 53 present had spoken on the legality of the proposed method of voting, the Chairman ruled that no vote would be taken because taking a vote of those present would not be fair to those who, in good faith, sent in postal votes. The matter was adjourned to a later date.

The Annual Meeting was then opened and after receiving the President's Report and a short discussion on the Balance Sheet, the nominations for the ensuing Council were announced. These were Messrs. B. Godsall, 2ARG; R. Hart, 2HO; M. Sobels 2OT; P. Healy, 2APQ; N. Beard, 2ALJ, and K. Woodward, 2ZAU. As there were only six nominations for the Council, these members were automatically elected.

The notice of motion regarding the restriction to be placed on disposal of the Divisional property at Dural was discussed at length, several speakers pointed out that the motion as it stood would mean that it would be impossible to dispose of the property even if it were in the best interest of the Division to do so. An amendment to the effect that it would require three-fourths majority of the members voting to carry such a motion was accepted and was subsequently carried as the motion by those present.

During general business, matters of Divisional interest were discussed and a hearty vote of thanks to the retiring President, Jim Corbin, for his work in institute affairs over the year, was moved. After several members spoke very highly of the work he had done on members' behalf, the motion was passed with acclamation and the singing of the appropriate chorus.

At the concluding portion of the meeting a statement was made by Jim expressing his thoughts on several matters. The Chairman then closed the meeting.

In accordance with the Divisional Constitution, at the first meeting of the new Council, the following office-bearers were elected: President of the Division, Perc Healy, 2APQ; First Vice-President, Bob Godsall, 2ARG; Second Vice-President, Roy Hart, 2HO; Secretary, Keith Woodward, 2ZAU, assisted by Norm Beard, 2ALJ; Educational, Max Sobels, 2OT. The seventh member of Council has not yet been co-opted, nor has a Treasurer been appointed. Until this appointment has been made the retiring Treasurer, V. Cahill, 2VC, has offered to carry on his duties.

It is the intention of the new Council to review all administrative functions in the Division including the necessity for the appointment of a paid Secretary to handle the increasing amount of correspondence and to provide better service to members.

It is proposed to include a technical article in your monthly bulletin. These articles will be on subjects requested by members. Council would be pleased to have your ideas.

The duties allocated to Councillors are: Bob Godsall, 2ARG, Public Relations Officer; Roy Hart, 2HO, C.D.E.N. Co-ordinator, and Councillor in charge of Dural; Max Sobels, 2OT, Councillor in charge of Education—Lecturers, Technical Articles, etc. Ex officio officers who have been appointed are: Dave Duff, 2EO, Traffic Manager and Chief Engineer; Frank Hine, 2QL, Manager QSL Bureau. Several members have offered their services to assist these officers in carrying out their duties.

SILENT KEY

It is with deep regret that we record the passing of:—

VK3JD—Jack Davies.

VK6RT—Len Trunfull.

HUNTER BRANCH

The June meeting of the Hunter Branch was held at the University of Technology, Tighes Hill, on the second Friday of the month. A fair gathering of members were present with Lionel 2CS as Chairman. Treasurer Bill 2XT and Zone Correspondent Les 2AOR were absent at the VK4 Palm Beach Convention.

At the VK4 Convention, with Bill using his mobile rig and Les acting as log keeper, the boys won the All-Band Scramble with a score of 19 contacts, and again on the following day won the "Bob Campbell" Memorial Contest with a score of 39 contacts. Bill and Les thank all Hunter Branch stations who exchanged reports with them during the contests.

Varley 2SF is very pleased with results from a new monitor using two xtal diodes. 2CN avoiding possible strife in future by getting YL interested and training her as a 2nd op: wise move Rodney. The new harmonic has not prevented John 2XQ from working a bit of DX on 20 mc c.w. Bob 2AQR at "Westie" and Bill 2ZL at "Phenyle". Bay are helping to make life happier for a blind Ham 2AHL by keeping regular skeds. "Pop" is an ex-Novocastrian and would be pleased to QSO local Hams. Nil heard of Ernie 2FP on 10 mc, so hope all is well with the old boy.

Associate Sid Daniels spent few days at Coles Harbour and "Do Me" with that friend of all Hams, Crieff 2XO, the subject was photography of course (blondes mostly), but had time for a 40 mc phone/c.w. QSO with 2ASJ who got his foot key off 14 Mc. especially for the occasion. 2AMM has been transferred at work to near his home at Matland, so Bill hopes to use time saved in getting his rig on air again. Postal authorities seem to think 2ASJ only Ham in Newcastle as all QSL

cards, etc., not fully addressed go to Ron, hl. Ron Bishop, 2WB, has returned to G land and leaves his best wishes and thanks to all those in the district who assisted him with gear to get on the air.

On the last Wednesday of the month a meeting was held at Bill 2XT's place of business and the programme for the Blackall's Field Day to be held on October 5 and 6 was finalised. The programme for the benefit of interested members is printed elsewhere in this issue.

SOUTH WESTERN ZONE

The preliminary meeting on 9th June at Coolamon to arrange this year's Convention, to be held at Coolamon, was very well attended by the following members: 2PL, 2AXD, 2ACS, 2ZOM, 2ZCJ, 2RS, 2ZAA, 2PN, 2AJO, 2ASocs, J. Ashley, L. Ashton, O. Clethero, R. Grieves, I. McMahon, L. Abbey, O. Bestead. It was decided to hold the Convention on 26th and 27th October, 1957.

The Griffith gang (10 in all) invaded Coolamon on the Saturday afternoon prior to the meeting and on that evening your scribe had to sit in the back; the walls have just started to come back upright again, must be the rain. Alf 2BW came over on Saturday evening, but unfortunately was taken ill on Sunday and could not attend the meeting. However, Alf is OK; must have been the transmitting oil from Griffith, Alf.

Have had a couple of visits lately from Lyn 2AQE, who is having a re-build, also going mobile. Eric 2DY also called again and with Arnt, Stan, Jock and your scribe a real rag-chew was had. Les 2ZCN, from Ballarat, spent the last week of June as our guest at Coolamon; much gear was re-built and re-hashed, so it looks as if 2AJO will be on 56 Mc. as soon as a beam is erected. That 2ZCN bloke is a real arm-twister. Les was also given the job as Class Instructor on the Tuesday class night at Coolamon. Jock and Stan say their heads are still buzzing.

COALFIELDS AND LAKES

Still very little to report from this area. Geoff 2VU from Singleton is active, as well as v.h.f.; Geoff is working 7 Mc. Alex 2JZ was telling me in person that he gets on 14 Mc. now and then but does not burn midnight oil these days! Duncan 2MC is at last operating on 7 Mc. phone and talking of 144 Mc. working. 2YL working 7, 14 and 21 Mc. when time permits and hoping to get going mobile before long.

VICTORIA

The July meeting was held at the usual place, usual time, after one of the coldest days we have had for some years. Needless to say the night was very raw and the attendance suffered accordingly. However, the Radio Theatre was at a very comfortable temperature and the business of the night was not detracted from.

Following the usual preliminaries the lecturer, Squadron-Leader While, was introduced to the meeting by the President. The lecturer then proceeded to enlighten us on the intricacies of "Ground Control Approach." In brief this is a method used by the R.A.A.F. for talking its pilots down to a safe landing through conditions which would not permit of a normal landing. Quite obviously this is of inestimable value in times of war, as planes can be used to meet the enemy in almost any weather, and thus eliminate the advantage that the enemy would otherwise have.

As is to be expected the equipment is very complex and exceedingly expensive, but a very accurate and utilitarian set of equipment.

In the Services, the equipment is made mobile to enable rapid movement between air strips, and incredible as it may seem it can be set up at a strip and be ready for action well within half an hour. The advantages of this are, of course, that the one unit can be moved rapidly from place to place to suit the weather, or the movements of war. Costs are also kept to a minimum.

As far as the Services are concerned this equipment has its greatest benefit in the fact that, as its name implies, the system is a ground control and functions with ground equipment only, instructions being given to the pilot through normal telecommunication equipment. This means that the system is operable without the addition of equipment in planes, and in the case of fighter aircraft, which are already crammed with apparatus, is the only practicable system.

As is to be expected, the system is based on the principle of radar. That is, an extremely short pulse of radio energy is broadcast and the energy or echos reflected from objects are presented on a cathode ray tube for

interpretation and appropriate action by a control officer.

In the early stages of development after the last war, it took six operators to handle the equipment, but today the same function is carried out by one man. By virtue of this simplification, it is now possible in the latest equipment for three operators to bring planes into land in rapid succession, and if the need arises to bring planes in two at a time, one on each side of the strip. This is a particularly valuable feature for fighter control.

Following the introductory address on the principles of the equipment, a film showing how the equipment functions and is set up and an actual demonstration of the equipment in action then followed.

Finally, the lecturer covered the technicalities of the equipment in greater detail, and answered a number of questions.

In principle, all aircraft within a given radius of the airfield are displayed on a P.P.I. (Plan Position Indicator) tube. The information for this tube is gathered from a continuous rotating aerial which sends out pulses and receives echos through 360 degrees of travel. The time base on the P.P.I. tube is triggered by the tx pulses, and follows the direction of the antenna and appears on the P.P.I. tube as a rotating line. Echos received then appear on this line as dots and through the persistency of the screen material, these dots appear as continuous spots or areas of light depending on the size of the target. If the object is moving the dots move also and to avoid the confusion which arises when the dots move through a stationary light area, the latest equipment has been designed to eliminate all echos from fixed objects such as hills, buildings or the like and only show moving objects.

To talk an aircraft down from a number in flight it is necessary first to identify the craft from the ground so that the necessary landing instructions may then be given. To do this the ground operator calls a particular aircraft; as soon as this aircraft replies it is automatically d.f.d. and its direction shown on the P.P.I. tube as a line of light. Having identified the plane on the P.P.I. tube, the operator can then issue homing instructions without further delay.

As the plane approaches the airstrip other more sensitive equipment, which gives very accurate information as to the height of the plane and its bearing to the airstrip, is brought into play. From this information the pilot is directed to bring his plane along a predetermined glide path which will bring him to a position where a visual landing is possible.

Many thanks are due to Squadron-Leader While for a very interesting night.

The lecturer at the next meeting to be held at the usual place on 7th August is Graham 3ZAA and his subject: "The Construction of a Television Receiver from Disposals Equipment."

New members admitted—Full Members: G. F. Jenkinson, D. Hull; Associates: G. J. McDonald, R. J. Abell, and H. L. Meyer.

We are happy to advise that Phyl Moncur (XYL of 3LN) and Betty Cuthbert are both now gold medallists. Phyl has been kept on the run by Len for a long while, but we were surprised to find it was for gold and not running that the award was made. The joke is that Phyl thinks its easier to win medals at golf than radio. Ham golfers please note. Congrats. Phyl.

80 METRE TRANSMITTER HUNT

The 80 metre tx hunt was held on Sunday, 16th June last, in delightful sunny weather. The tx was hidden on this occasion by Len

WIRELESS INSTITUTE OF AUS. HUNTER BRANCH, N.S.W. DIV.

SIXTH ANNUAL
FIELD DAY
BLACKALLS PARK
SATURDAY and SUNDAY,
5th and 6th OCTOBER, 1957

★

PROGRAMME

- Saturday Afternoon, 5th Oct.—**
3.30-4.30 p.m.—Heats of the 144 Mc. Blindfold Tx Hunt.
4.30-5.30 p.m.—Technical Lecture.
5.30-6.30 p.m.—Tea.
6.30-7.30 p.m.—144 Mc. Hidden Tx Hunt.
7.30-10.30 p.m.—Films.
- Sunday, 6th Oct.—**
9.0-11.0 a.m.—144 Mc. Hidden Tx Hunt.
11.0-11.30 a.m.—Registration and VK2WI Broadcast.
11.30 a.m.—12.30 p.m.—7 Mc. Scramble.
12.30-1.30 p.m.—Lunch.
1.30-3.0 p.m.—Heats and Final of the 144 Mc. Blindfold Tx Hunt.
3.0-4.0 p.m.—All-Band Scramble.
4.0-5.0 p.m.—OMs' Races.
5.0 p.m.—Prize Giving.

★

During Sunday, Races and Competitions will be conducted for the XYLS, YLs and Jnr. op's.
Speed Boat Trips for junior ops. on Sunday afternoon.
Prize for the best fish caught on Sunday between 9.0 a.m. and 4.30 p.m.
Boiling water available free.
Registration: 12/6 OMs, 2/6 XYLS, Junior ops. free.

OBITUARY

JACK DAVIES, VK3JD

It was with great regret that the Victorian members learnt on 11th July of the death of Jack Davies, VK3JD, at the age of 46 years. He passed away very suddenly from a heart ailment. He will be well remembered by the 10 and 20 metre phone gang who recognised him as the leading DX phone man in VK; he was the first winner of the Phone DX C.C. in VK. Jack worked very hard for the Institute during the Models Exhibitions, taking charge of all low frequency transmissions. With his wife, Phyl, who has always shared his interest in Amateur Radio, operating the controls of the remote receivers, Jack made his section one of the outstanding ones at the Exhibition.

He made Radio both his work and his hobby and his wide technical knowledge was always readily available to both old-timer and newcomer alike.

The Institute extends sincere sympathy to his wife and three children.

3LN and was located near the ford of the Maribyrnong River, a distance of approx. four miles from the G.P.O. Although the signal was weak in at the starting point, Tom 3AOG and his navigator, Maurice 3MS, arrived on the site within 20 minutes, but another hour and 40 minutes passed before they located the exact spot. The tx was buried in a steel earthed box in a field three feet under the ground with a co-ax line going underground to some box thorn bushes with the aerial going away from that point. However, just as Tom and Maurice started digging, the rest of the competitors, who had been wandering around in the vicinity for some time, arrived on the location simultaneously to see Tom and Maurice dig the tx up.

The next tx hunt will be held on Sunday, 4th August, when the winners, Tom 3AOG and Maurice 3MS, will be hiding the tx. Come along and bring the family and friends and a picnic afternoon tea and join in the hunt.

EASTERN ZONE CONVENTION

The Eastern Zone Convention, held at Moe, on June 23 and 24, went off very successfully indeed. The dinner, provided by the Methodist Ladder Guild, was enjoyed by the 36 who sat down for it, including four Melbourne visitors and their wives, and Councillor Gregory. After the enjoyable dinner and the usual toasts, the women folk departed to the picture theatre, whilst the OMs got down to business, electing to the chair Ian 3AAV as President; George 3ZCG, Vice-President; David 3DY, now as Secretary and Treasurer; Graham 3QZ, Zone Organiser; Cliff 3AIT, Official Zone Station and call up station for the Sunday night Eastern Zone Hook-up on 80 mx. A lot was discussed in the few hours, such as future activities, C.D.E.N., etc., before the YLs and XYLs returned, and supper put on.

On Sunday morning a 2 and 80 mx hidden tx hunt was held. There was no entries for the 80 mx section, but quite a few joined in the 2 mx hunt, which was found by 3ZAT planted in the hills at the back of Hernes Oak, with many roads around and to it. Second was 3ARY and third place went to 3LN. After lunch at Telray, Moe, the 2 mx fox hunt was put on for young and old, the visitors without rx's went with the hounds or followed them in their own cars, seeing the surrounding countryside, as well as joining in the fun of fox hunting, and once again Len 3LN put on a very good show, which we thank him greatly for, and I believe everybody enjoyed themselves. At one stage, Jack 3AJK stopped and asked a farmer who was feeding his cattle near the roadside had he seen a yellow Zephyr, but got no where, as the farmer's only reply was "What! Have I seen your yellow heffer?" George 3ZCG was the winner of the fox hunt.

The Eastern Zone boys decided to hold a fox hunt in Gippsland once a month from now on; this will be held on Sunday afternoons.

After having afternoon tea and inspecting the television aerial assembling line, our Melbourne and Ferntree Gully visitors left for home after a very enjoyable week-end, and looking forward to our next Convention to be held next March at Sale.

NORTH EASTERN ZONE CONVENTION

The North Eastern Zone Annual Convention was held on 12th May as an open-air function on the camping area where Lake Nagambie joins the Golburn River. Unfortunately only a very small proportion of our members were able to turn up, but quite a large number sent apologies. For some it was a little far, while Des 3CO had to look after the XYL recovering from severe shock as a result of a motor accident the previous week-end. Associate Jim Harrington had to return home as soon as he had arrived because of illness in the family, and still others again were on duty at their employment that day.

However, 3ASF, 3AGG, 3ALE, 3PF, 3APF, 3CI and Associate Bill Hempel were able to attend. State President, Fred 3YS, and former members, Dick 3DG and Doug 3LJ, of Macquarie Island fame, were visitors. Quite a number of XYLs and harmonics made up the party. Bruce 3AGG was re-elected President, Des 3CO was re-elected Vice-President, and Andy 3FD was appointed Secretary. Brian 3ASF is now Zone Correspondent, and as a compliment to the excellent job he does, Frank 3ZU was re-appointed in his absence to do the replies to the 3WI broadcasts if he can see fit to continue in that capacity.

Zone hook-up time has been changed to 3.7 Mc. on Wednesday 2000 hours. This time was chosen at the recent Zone Convention to try and stimulate some interest in the Zone, but as the Convention was rather poorly attended, it is not known whether this time will be suitable to most members of this zone.

It has not been possible to collect much news of the members and associates for obvious reasons, but included are some items of news concerning the members near Shepparton. Ray 3FI and Les 3ALE have been receiving cards from the Bureau for DX contacts which they personally have not had, but apparently pirates have been working their calls on the bands. Ken 3KR is now using a cubicle quad antenna on 20 mx. Bryan 3ASF has been devoting his time to things other than Amateur Radio, in effect he has recently become engaged. Les 3ALE contemplating full re-build of all his gear. John 3ACK adding to his residence-increasing space.

No communication from Wangaratta and Benalla areas, so how about dropping us a note chaps on your activities until such time as we can talk to you on the new hook-up time and learn something about the doings over your way? Murray 3HZ very busy with the new m.f. station, where, by the way, is situated a very nice high beam tower. Peter 3APF seen about town often; his interest, along with Ted 3AQB and Syd 3CI, seems to be centred on t.v. activities. George 3GD heard now and again on 10, 15 and 20 mx by Bruce 3AGG who has been busy modifying his Quad, appears to be working well by reports received. Well chaps, let's have some news, also not forgetting our associate members.—3ASF.

SOUTH WESTERN ZONE

The Geelong Radio Club held its annual meeting this month and the main office bearers resulted as follows: Jim 3AGT, President; Vic Clarke, Treasurer; Keith Vrines, Secretary. The ladies' night was quite a success. Noel 3ANS gave us a nice annotated set of convention shots. Bill 3BU showed some colour film and Jim 3ABT showed slides of general interest. The retiring President, Bill 3AWZ, thanked all for their co-operation during the year. An interesting new syllabus has been drawn up and these will be posted to members soon.

There has been no sight of Mart 3AKU, of Colac, since the Convention; we hope all is well. Kevin 3AKR has no time to chase DX (although working some Ws), he is tied up with t.v. preselectors. John 3AGD is using 6J6 with "fantastic results" on t.v. preselectors. Neil 3HG is going in for long yags with t.v. and doing some DX. Jack 3JA is doing well on 21 Mc. DX and John 3ARJ has troubles—the tx blew up.

The Secretary for the Zone hopes soon to have zone minutes available to all members from the Geelong Convention.

WESTERN ZONE

Merv. 3AFO, of Horsham, is at present assembling a stacked beam array on a 40 ft. tower, so when this is completed Merv. expects better signal reports on the higher frequencies. Herb. 3AJJ has recently moved into a new residence and having the a.c. power will soon be on the air. His tx consists of Gelo or xtal, switched to either 807 or 813 for 3.5 to 28 Mc. work. V.h.f. rig is VT501, VT501, 2 x 2E26s for 56-286 Mc. Modulation full clamp on h.f. with a.m. or f.m. on v.h.f. Rx: modified-RA1B with double conversion covering 580 Kc. to 40 Mc.

Herb. is also a keen television enthusiast and has obtained some very good results. Sometimes when conditions are good the reception is as good as it is in Melbourne, however at other times the signal fades and at times is a washout. Antennae in use are yagis, series rhombics 144 and 286 Mc., also cylinder slot for 286 Mc.; on the lower bands at present using XYL's clothes line which is cut for 14 Mc., centre fed.

MIDLAND ZONE

This month's notes start with a timely reminder to all interested that the zone hook-up takes place at 7.30 p.m. on the second and fourth Mondays of each month, freq. 7120 Kc. Unfortunately most members were conspicuous by their absence during the first two hook-ups in June, some being heard working DX on 20 and on 40 mx.

It was pleasing to hear of the interest shown by St. Arnaud members and Neville 3ACN is arranging to gather them into the fold. Jim 3SV thinks that t.v. might have claimed a few victims through t.v.i. or t.v.v. (t.v. viewing) in which case a lot of sympathy will go out from the Bendigo gang where t.v. looks like becoming a problem to all very shortly.

To follow in Dale Carnegie's footsteps, Neville 3ACN is busy working on an all-band t.v.i. proofed a.m. s.s.b. rig with a heterodyne unit to end all heterodyne units. This may turn out to be the little black box the s.s.b. gang has waited for, but even if it isn't, it still provides a lot of enjoyment and will stop the receipt of QSL cards from t.v. viewers.

Speaking of enjoyment—in large quantities, mainly liquid—Bill 3AMH, who has been semi-resident in Bendigo for some time, was fawelled on Friday, 5th July, prior to leaving for Colac, which is nearly as far as Bendigo from these mighty towers and carpet of wires in Ballarat. Cheers William, and thanks from all for your assistance in the past, particularly in the erection of that mast at 3FY's QTH.

Now that 3FY has his new mast holding a G4ZU beam 62 ft. in the air through the able assistance of 3ACN, 3AMH and other friends in need, he can recommend the extra 40 ft. for its DX-getting ability. If any one would like information on how not to erect a mast, a stamped self-addressed envelope to 3ACN or 3FY will bring a 30 page reply based on very sad experience acquired the hard way.

Rex 3UR has just returned from holidays in Adelaide where in addition to finding out how VK5s live he probably enjoyed himself. Peter 3APJ is playing with Rothman modulation, but whether success or failure has attended his efforts, we don't know. But it's good to have someone around who has tried these ideas and knows the answers.



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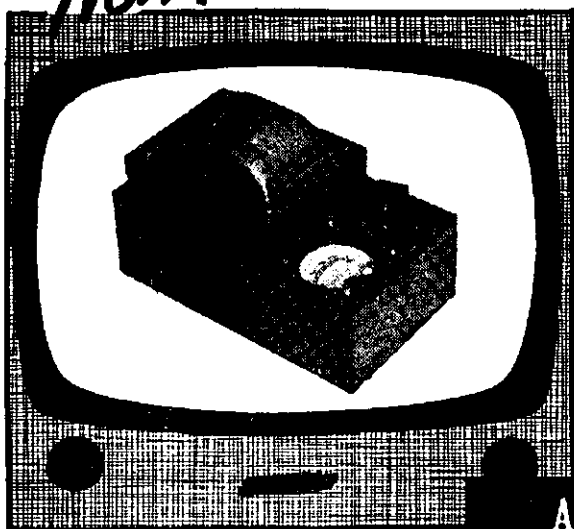
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QUEENSLAND

Since the last general meeting in May the Queensland Division has sailed through a very busy programme. Speaking as a sober participant and observer, I know that everyone who travelled to our Annual Convention at Palm Beach really had a time! However, reverting to last month's Council meeting, which was held on 13/6/57, final arrangements were made and all the loose ends were tied up for the Palm Beach Convention which followed on the 15th, 16th and 17th June.

On behalf of Council and all the fellows who enjoyed themselves at the Convention, I would like to pass on their vote of thanks for a tip-top job of organising by Aussie 4TN.

At the Council meeting, Paul 4UJ presented his resignation as Federal Councillor. Unfortunately his transfer to another State had "come off the ice" and concluded a pleasant association with many VK boys. Too bad we had to lose you Paul, but all the best in your new QTH. The Council members appreciated your companionship as well as the services you willingly rendered to this Division. Well that leaves a vacancy on Council. As a majority of Council members already serve on one or more other W.I.A. committees, it would be truly appreciated if some city Ham would fill the breach. Arthur 4AW, in an unofficial capacity, has generously stepped into his old position. What about it boys?

At the same time we would like to wish Charlie 4NC the prospects of a peaceful existence now that he has climbed out of harness. He, too, has put endless years as Treasurer into the W.I.A. and I know that Council is sincerely grateful to you Charlie for a job well done. Fortunately, Jim 4OB has signified his willingness to fill this position and we all wish you every success as Treasurer.

After the Council meeting Councillors were invited to remain for the Emergency Committee meeting. Vince 4VJ was in the chair, and after considerable discussion, many problems were brought to light. The emergency boys, quite wisely I thought, formulated a plan to be presented in three separate stages. The policy is, in detail, complicated as it embodies the vast problems of Civil Defence.

The boys concerned closely examined the results of the Convention competitions and it was noted with interest, after considering the widespread communication offered by the Camp Hdq. Station, by all the 14 h.f./v.h.f. mobiles operating and by the numerous personal receivers, that stage 1 of the W.I.A. Civil Defence Emergency Plan was an unqualified success. It was also noted that general operating procedure would have to be modified and that some measure of air discipline would have to be maintained. It is hoped at a later date to present a general meeting a tape recording of 67 armoured tanks in battle. ALL operating on the SAME frequency! I have been told that the operating procedure is some of the best ever heard. Keep it in mind, boys. It should be very interesting as well as instructive.

The only way that we can find a practical plan for Civil Defence is by supposition and argument, and subsequently at the last general meeting in June, the boys in three different groups, under the guidance of Evan 4EF and John 4FP, tried to resolve the pattern of such a practical plan. The Emergency Committee, in stage 2, has decided that these discussions, of which there is to be another, puts the Amateur in the picture and lets him know just what the picture is about.

Stage 3 will then be the first trial run amongst ourselves. A simulated emergency, requiring h.f. and v.h.f. mobiles, low power v.h.f. transceivers and perhaps one or two relay stations working into a central hdq. (which in this case will be 4WI) should then reveal any possible weak links that we may have overlooked.

The Emergency Committee has put a great deal of thought and effort into the preparation and presentation of the Amateur C.D.E.N. and they should be thanked, as well as encouraged in undertaking such a task. We, the ordinary Amateur, can do this by just making that little extra effort and extending our co-operation wherever possible.

Our general meeting on 5/7/57 was one of the liveliest we've had for many a long day and quite high in entertainment value, if you sat on the sidelines! A circulation rumour has stimulated some members to object to the possibility of W.I.A. disposals gear quickly reaching the hands of non-members, particularly when the gear went to ballot. Long discussion finally resolved the matter to the statement: "A successful member in a disposals gear ballot can sell his gear only to another member, and any member who does otherwise,

without the consent of Council, will not be allowed to ballot for future disposals equipment." It is only fair, as there are always many more unsuccessful members in these ballots than successful ones.

After the air had cleared, the ballot for 20 f.m. transceivers took place. Winners' names have been broadcast over 4WI and will appear in "QTC." Five extra names were drawn out of the hat should any of the successful members not claim their gear. Members are requested to pay for their gear and effect transport for same within one month. Failure to do this will lose you the gear which will go to the five extra Hams whose names were drawn at the ballot.

A lecture on mobile gear is to be given at the next general meeting. Several Hams will present their views on the subject of mobile gear and the operation of same. Should be quite an interesting evening.

Well it certainly pays to advertise! We had over 70 Hams and friends at the June Convention and a varied programme kept them all busy! Hams from Sydney, Newcastle, Coff's Harbour, Brisbane, Gatton, Gympie and Townsville rubbed shoulders for three days at the National Fitness Camp, Palm Beach. The boys chin-wagged on Saturday morning, until most of the travellers had arrived at the camp. Dinner more or less officially opened the long list of activities.

On Saturday morning the camp rig, operated by Aussie 4TN and our President, Frank 4ZM, was set up in the main office. Recordings were made for re-broadcast purposes over 4WI.

The 7 Mc. scramble was won by John 4FP with 23 contacts. John also captured the first prize in the 2 m. Hidden Tx Hunt on Monday morning, located the tx 7 miles away in 13 minutes. The Bob Campbell Memorial Contest was won by Bill 2XT with 39 contacts. Bill also scooped the pool in the All-Band Scramble with 19 contacts.

One of our 2 m. experts, Jack 4JO, romped home in the first 2 m. Hidden Tx Hunt, having found the tx across the river at Upper Currumbin in 12 minutes. Jack, after many Blindfold Tx Hunts were run off, emerged first, followed by John 4FP. Congrats. Jack on becoming the 1957 Blindfold Champion.

On the Saturday night we had a very pleasant barbecue supplemented by a keg of that amber stuff. It was held at Morrie's home and of course Morrie, our cook, officiated. We had another informal barbecue on Sunday night by the banks of the river. Thanks once again, Morrie, those steaks were delicious. Earlier we had a film show, which was put on by Harry Peel, and the presentation of prizes to contest winners. We were paid a visit by two gentlemen from the R.I. Dept., Messrs. P. Andrews and Monroe, and it left quite a nice feeling to know that they were visiting us socially rather than officially.

The latest news on our disposals tubes is that we have them and they are on their way up from Sydney. They are 6V6Gs and 6X5GTs. Instructions on price, etc., have yet to be issued. "QTC" will contain all the necessary information as it comes to hand.

TOWNSVILLE

The last usual monthly meeting took place at the residence of 4PX and quite a number of the fellows turned up together with a few prospective Amateurs. Our Secretary, who has returned from a working holiday to the capital city, gave a resume of his doings there, also a report on the monthly meetings of the W.I.A. he attended whilst there. Rex 4LR, who attended the Palm Beach Convention over the last long week-end, came back quite thrilled with it all, especially the hidden tx hunts and is quite enthusiastic that same be held here; his report was well received.

After the usual minutes being read and disposed of, quite a lengthy discussion took place on spending of the club funds. It was realised that it would be in the dim future before enough funds could be accumulated to obtain grounds and a building for the club. It was also pointed out that the W.I.A. in Sydney, with such a large membership, has just accomplished same after many working bees to get the job finished. After a lot of cross-firing, the President halted discussion and allowed each in turn to give his views, so that everybody was quite clear in his own mind just what he intended to vote for. It was then resolved that again the matter be left till next meeting, when a vote will be taken re the funds in hand. Main points being raised whether to build and buy testing gear or purchase technical books for a library and who would hold and be responsible for same.

Ted 4EJ's many friends in the south will be glad to hear he has built a doover to plug in first r.f. valve socket and boost all signals

to S8 plus so will in future enjoy a QSO! Pressure of work stopped Allan 4PS, just back from a business trip to Sydney, from attending the last meeting. Don 4PW in Collingwood has managed to work yours truly on 7 Mc. and hopes to have Jim 4XO re-building shortly. John 4DK heard on 3.5 Mc. with Vern 4LK. Sorry boys power line QRM prevents me working in 7 Mc. hook-up midday; try night time. Hal 4HF in daily communication with Macquarie Island. Andy 4BW bobs up unexpectedly on all bands, 3.5 through 21 Mc. Bob 4TK in Innisfail heard in skeds at night time with the boys in Cairns.

The gang in the Townsville area quite jubilant with the W.I.A. news that the following were successful in the ballot for the transceivers: John 4DK, Ted 4EJ, Rex 4LR, with Arthur 4FE on Thursday Island. So it is anticipated that 144 Mc. will get quite a lift when these transceivers are modified and pumping out signals. Also congratulations to Vern on his 144 Mc. article in June "A.R."

MARYBOROUGH

4AI is busy building a new shack under his house. A beam will be manually rotated from the shack. 4DJ is re-building again. This time it's the Mark 3 model based on a Geloso. Much hard work has been done building an enclosed rack and panel job. Grahame also built a 3-tube converter for 15 mx and has been heard on that band.

4CB having heard some Africans on 10 mx on his 5X28 is thinking of returning to his old 10 mx stamping ground. 4BG still plugging along on 20 and 15 mx, phone and c.w. At Gympie, 4HZ has improved the landscape by putting up a steel tower.

SOUTH AUSTRALIA

Our new programme committee, Lloyd 5OK, Bob 5PU, Jack Watts, Des Kelly, Neil 5ZAW, presented their first programme at last month's get-together, being a film night showing a very good film on Arnhem Land. The film was in excellent colour and was projected professionally from two projectors (yes, they obtained synchronisation after the first try). The programme was well received by the near record assembly and at the conclusion Lloyd and Jack, who did the work, were suitably thanked for their splendid effort.

Amongst the many visitors present, 4JW was from the most distant parts; hope you enjoyed your evening with the boys OM, come again for we like to see our "air friends" when possible. It could also be said we had a "visitor" from the Murray Valley area in Hughie 5BC, who was holidaying in Adelaide at that time and dropped in to see the boys. Hughie being a v.h.f. type, will reserve report from him for that section.

Some new members were accepted, two full members being R. L. Umbarger, 5UM, and J. B. Hawke, 5BH, with associates P. I. Woodlands, M. J. Dew, and L. J. Ernst. Welcome fellows, hope you enjoy your membership. A transfer to us from ex-4EW, E. H. White, who now becomes 5OW and stationed at Darwin, also adds to our membership. Do you intend working 56 Mc.? The boys will be waiting on you if you do.

Only one (repeat, one) item of correspondence cleared the "Mail" for Brian 5CA, he has been singularly lucky recent months in that most of the correspondence (or envelopes addressed to him) have been of such a nature that the Treasurer has to handle them.

Gordon 5XU concluded the evening by giving us a run through on matters relating to moon watch and so on, and has further information for those who want to go more fully into the matter.

Basically, a 108 Mc. continuous c.w. signal will be listened for and due to the doppler effect will require a receiver band width of 6 Kc. The satellite will (or should) be visible for 15 seconds only each time past, the visibility will be mainly confined to early morning and late evening.

Quite a few more G4ZU beams are functioning over this way, including Jack 5LR and 5JO, in fact Joe was carrying a list of 21 Mc. calls worked first up to prove his was worth while. By the time you read this, Les 5AX will have his up and working atop his new 40 ft. tower and no doubt will have worked W.A.C. on each band—at least that's what he reckons it should do for him after all the work he has put in to it. In the meantime Les has been using a bodgie antenna which is fed at point X with Y length of feeder that has proven a very successful noise receiver.

Our next picnic has been fixed for the January holiday and this time will be held at Teatree Gully—more of that when details are worked out.

There have been a few enquiries of late for slow morse transmissions and it is now learned that in addition to Tom 5TL on 3504 Kc. 7 p.m. Thursdays, Doc 5MD will be on the same frequency from 9 to 1.30 p.m. each Sunday. If you make use of these transmissions let them know, drop them a line or phone, for if no comments are received they are apt to think it's not being used and could be excused for dropping it off. It's up to you to help keeping it going by this means.

Have heard the VK0 boys calling CQ on 10 mx quite a few times lately, so you 10 mx boys should make some interesting contacts there. It's worth watching.

Talking of interest, now polish up the gear or operating procedures for R.D. Contest this month, give the present holders a run for their money or even see if we can get that trophy back this way—long time no see.

Sacrilege, that's the word, yes sir! Had a contact with John 5JW last week, on 40 mx, he stepped down from 15 mx long enough to natter locally, nice to hear you John. Des 5DK also was heard on the same band and getting out well. John's antenna was described by Des as needing a set of sails only to complete the illusion of a windjammer in the Watson backyard. It matches the fishing habit.

Lance 5XL has been having a bit of modulator trouble lately and discovered that it (the mod.) works better on its side. OK Lance, do like Doc 5MD did and build it on its side anyway, and tell everyone it was meant to be that way all the time. Burnie, 5WC's main op., advises us it's warm up there whilst we freeze down here. Good to hear you are getting steamed up for R.D. Burnie, good luck to you.

Col. 5RO has broken the ice again lately, and has appeared on 80 mx, that's a slow down from 2 mx Col., but it sounded good. Chas. 5ON (Wandering Chas.) has been doing great things with a new pre-selector and now works more than ever. Keith 5KH has at last met Chas. 5ON mainly I think as a result of Chas. wandering nearer him.

Dave 5BF has a much improved signal as a result of a pre-amp. re-build, Wal 5DF really stirs the ether each Sunday with a 5 x 9er, Bob 5BQ has made a return to 40 mx after a long spell too, his very fine signal indicates no loss of technique as a result of the spell.

The latest Grey Beard is Claude 5CH, grab him! Gambler gang, it's worth something surely to have such a distinguished gentleman amongst you. Col. 5CJ has pushed up his new shack some more and now has line to drop the solder on. Tom 5TW is rushing two new poles up to be good and ready for R.D. day, whilst Erg 5KU keeps 20 mx going very actively with Stuart 5MS very silent, warm it up now and again Stuart. The one-eyed monster continues to engage John 5JA. Congrats Bram 5AB, a new daughter no less, who with a new tx for 20 and 15 mx makes two new babies, good luck Bram.

Quite a lot of interest is being shown amongst the boys on double sideband reduced carrier, so don't be surprised if you hear a funny sounding signal or two soon. The arguments that are going on between the two ideas of s.s.b. and d.s.b. indicate more interest in this new subject than any other idea for a long time, and at least will promote some hasty re-builds. Added to this "CQ" has come to light with a really smart idea to receive it, so there is no excuse to hold back now. Anyway, whichever way you may argue on its merit, if d.s.b. is generated at low level and linear amplified to what you fancy, it only needs a sideband filter later on and the whole argument can be proved.

WESTERN AUSTRALIA

We are very sorry to report this month the loss of Len 6RT, after a spell of illness. Len will be missed by his many friends. The Division has lost a valued member, and we all extend our sympathy to Mrs. Trunfull.

OBITUARY

LEN TRUNFULL, VK6RT

VK6s will regret the passing of Len Trunfull, VK6RT, an Amateur of many years standing. He was buried in Karrakatta Cemetery on June 21. The W.I.A., W.A. Division, extends its sincere sympathy to his widow, Enid, in her loss. VK6RT was all that an Amateur should be, friendly always, anxious to help others, and grateful for any suggestions.

VK6WI made the announcement on the News a couple of days after his death and maintained one minute's silence on an unmodulated carrier.

The regional meeting for June was held on 18th and 6HR gave a very interesting talk and demonstration on Thyatron Control of Motors.

During the month local activity was apparent on 40 mx on most days at some time or other, and 80 mx showed increasing activity, several new calls and some old ones rarely heard on the i.f. bands these days being noticed.

John, whose voice is familiar from the club station at Pierce (6AF) is putting out a good sig on 80 mx with his new call 6JM. 6MO is very solid with 25w, to a 2E26, a re-built modulator and new mike, and 6HK has been heard again on the band. Stan 6AH, now out of Wiluna and on a sheep station out that way, is on 40 mx c.c. with low power on i.f. end. Another surprise on 40 was 6CN. Judging by Cyril's sigs he should really "go to town" when his new rig is completed. 6RB was on c.w. 6TR is putting in a very good sig from his new QTH in Vic. Park. 6BE is busy getting a 40 ft. tower transported and re-erected. 6EJ worked 3FC with his 106 running half a watt c.w. on 40 mx for RST 558. 6DJ is still pounding the key and very nice too! 6BO has also been heard on the i.f. bands, a change from v.h.f., Rolo? 6JR makes occasional appearances, likewise 6WS and 6BB.

6AG, Wally Coxon, celebrates this year, 50 years in radio. Back in 1907, before the days of crystal reception, with two or three others in W.A. and a dozen or so in Australia, Wally started on his work in radio. Ignition coils from Ford cars provided a means of transmission in the first days. With ventures into commercial interests, from building broadcast stations, to conducting a radio business, Wally has always found time to devote to Amateur activity, and says that whilst the first 50 years was the most thrilling, the next 50 will provide some new avenues for investigation!

Wally has been associated with the Royal Flying Doctor Service for 23 years, much of the radio development of bases and outposts being due to his work.

To his early associates still on deck, Wally sends his greetings per medium of "A.R."

TASMANIA

Ah, the unaccountable irreverences cast by the Northerners upon these countable grey hairs. Sull—

Wot boots it that the voltage lingers on, Somewhere in the chassis' dark expanse? Wot sort of bloke will never take the chance And hope it's gone?

He's the bloke wot has already give two hoots, And whipped his paw out hot an' tingling— He's cautious 'cos he's found the very thing Wot boots.

At the July meeting another good lecture, this time from Joe TBJ who modestly dubbed it "Bits and Pieces," dealt with the intriguing possibilities of double sideband suppressed carrier. You know, stereophonic static. And it's heard that one or two of Joe's hints and kinks on rx technique have been tried already, with happy results. Rumour has it, too, that he has been furtively trying EL32s in the FRONT end of an AR7.

Len 7LE plans a telling blow for 144 Mc. with a fox hunt scheduled for the evening of 9th August. This is worth support, the more so because those who grill their batteries can console themselves with the prospect of grilling some chops and things afterwards on the 7LE estate.

The Sunday morning round-up gets more and more of them out of bed by 10 a.m. despite the temperature, as witness one sampling: 7BI, 7BJ, 7BT, 7CA, 7CT, 7JO, 7KA, 7KC, 7LE, 7LL, 7LS, 7LZ, 7OM, 7PF, 7RM, 7RX, 7RY, 7SM, 7TY. For some reason connected with a counter-rotating clock, the calling in has proceeded from the northwest around to the south on most occasions. Now it is to go the other way for a while, which will at least rescue poor old 7CT from his customary spot on the end of the queue.

7RX and 7LZ are to be heard on their patient job of QSL-sorting. It's believed that 6CJ in the municipality of Esperance proposes trying his luck some Sunday, while the northern limit appears to be marked by 3JF. Jack expects to resume his better-known call 7JB for good in October.

A thought for the R.D. Contest: It's all right to get excited about the rules and one thing and another. But if we can't win it, there is precedent enough in those we commemorate . . . and it's only for a day . . . to lose it as actively as possible.

NORTH WESTERN ZONE

I trust that by now you will have all given a true and faithful record of your income for the year. As far as I know it is not permissible to claim capital cost on that new rig!

And how's about all those little old sunspots—looks as though old Sol must have measles or perhaps chicken pox—ask Dennis 7DR about that, although they'll all be gone by now—the chicken pox, I mean. I haven't seen any of these Roarin' Australians in spite of persistent reports, but I hope those active boys with Z calls made use of them to bounce a u.h.f. wave over vast distances.

One of our latest additions to the North West, Lee, is no longer a VK6 working portable VK7, but has now been operating as 7KC for a month or two now. I'm told there is room for a buffet and lounge chair in lounge, er, shack, beside the rig, Lee.

We have another very keen type transferred into our area, Pat 7PM from Kelso. He has been banished to Stanley to watch over the U.h.f. Radio Link. Pat seems concerned about the fact that he cannot bring his rhombic with him, unfortunately it covers about an acre of ground. Pat had received some nice QSL cards last time I was there—all DX, of course. Incidentally, Pat had news of Reg 7WN, who at present is recuperating at Beaconsfield. Best regards to you and yours Reg.

The really big item for July was the zone meeting held at Roy 7RN's, and it appears that everything about it was colossal. The numbers present, the amazing amount of junk sold for phenomenal prices, and the supper provided by Joyce, 7RN's KYL. Sorry I could not make it, Joy but I was told by Sid 7SF that he couldn't eat another mouthful.

No. 11 sets are in the news again. One has appeared on King Island, Naracoopa, to be precise. Owned by Myles MacGinnis, who boasts a 2nd Class Commercial, so we should here a sig from the cable station there soon. Another member too, do you think?

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

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SELL: Pair "Reycos" multiband dipole coils (see "QST," Mar. '55). Labgear Wideband Multiplier, switched 80 thru 10, new, with pair 12BH7 tubes. Johnson Viking SWR Bridge (new). Pair 4-125A tubes, one new, other used few hours, with sockets. One 4-65A tube, new, w/socket. Tx-exciter for 20, 15, 10, uses 3 x 6AM6, one 5763, one 6146 or 2E26, complete with tubes; has v.f.o. w/Eddystone f.v. dial, calibrated; in black metal case, wired w/shielded hook up and ceramic disc by-passed; a gift for less than cost of parts. Kit of parts for Edmonds Xtal s.s.b. filter exciter, includes 13 x FT241A xtals. (455 Kc. carrier), U & L s.b. reject, with xfomers, ceramic switches and slug tuned formers for converter stage; all new and first quality; anyone want them? Write for further details. J. K. Herd, P.O. Box 73, Wangaratta, Vic.

SELL: Type 3 Mk. II, Heising scr. mod., xtal mike, xtal, spkr. Good condition. £40. P. Davies, 31 Jackson St., Toorak, Vic. (LA 8899).

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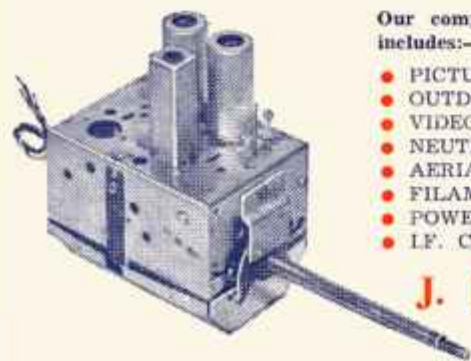
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2103.1 Kc.	5437.5 Kc.	6200 Kc.	6800 Kc.	7165 Kc.
2112.5 Kc.	5456 Kc.	6225 Kc.	6825 Kc.	7174 Kc.
2150 Kc.	5530 Kc.	6250 Kc.	6850 Kc.	7175 Kc.
2208.1 Kc.	5633.333 Kc.	6275 Kc.	6875 Kc.	7200 Kc.
2442.5 Kc.	5655.333 Kc.	6300 Kc.	6900 Kc.	7225 Kc.
2443 Kc.	5700 Kc.	6325 Kc.	6925 Kc.	7250 Kc.
2732 Kc.	5722.222 Kc.	6350 Kc.	6950 Kc.	7275 Kc.
2760 Kc.	5725 Kc.	6375 Kc.	6975 Kc.	7300 Kc.
2979 Kc.	5744 Kc.	6400 Kc.	7000 Kc.	7325 Kc.
2990 Kc.	5750 Kc.	6425 Kc.	7002.5 Kc.	7350 Kc.
3380 Kc.	5775 Kc.	6450 Kc.	7003 Kc.	7375 Kc.
3500 Kc.	5825 Kc.	6475 Kc.	7005 Kc.	7400 Kc.
3533 Kc.	5850 Kc.	6497.9 Kc.	7010 Kc.	7425 Kc.
3535 Kc.	5852.5 Kc.	6500 Kc.	7011.75 Kc.	7450 Kc.
3537 Kc.	5875 Kc.	6522.9 Kc.	7012 Kc.	7475 Kc.
3892 Kc.	5900 Kc.	6525 Kc.	7018 Kc.	7500 Kc.
3925 Kc.	5925 Kc.	6547.9 Kc.	7021.7 Kc.	7525 Kc.
4096 Kc.	5950 Kc.	6550 Kc.	7025 Kc.	7550 Kc.
4172 Kc.	5975 Kc.	6561.111 Kc.	7032 Kc.	7575 Kc.
4205 Kc.	6000 Kc.	6575 Kc.	7032.6 Kc.	7600 Kc.
4285 Kc.	6025 Kc.	6600 Kc.	7050 Kc.	7625 Kc.
4445 Kc.	6050 Kc.	6625 Kc.	7075 Kc.	7650 Kc.
4600 Kc.	6075 Kc.	6650 Kc.	7100 Kc.	7675 Kc.
4815 Kc.	6100 Kc.	6675 Kc.	7125 Kc.	7700 Kc.
4930 Kc.	6125 Kc.	6700 Kc.	7145 Kc.	7725 Kc.
5000 Kc.	6150 Kc.	6725 Kc.	7150 Kc.	7750 Kc.
		6750 Kc.	7155 Kc.	7775 Kc.

AMATEUR RADIO

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WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI: Sundays, 1100 hours EST, 7146 Kc.; 2000 hours EST, 144 Mc. No frequency checks available from VK2WI. Intra-state working frequency, 7050 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 57.5 and 146.25 Mc. Intra-state working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5MD and VK5WI by arrangements on all bands to 56 Mc.

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VK8WI: Sundays, 1000 hours EST, simultaneously on 3.5, 7, 14 and 144 Mc. Individual frequency checks of Amateur Stations given when VK8WI is on the air.

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EDITORIAL



BOOKS

Books, children of the brain.—(Swift, "The Tale of a Tub")

Accustomed to being told of the modern miracles of Television, Atomic Power and Space Rockets, the average person is inclined to forget some other wonders which have been close at hand for centuries. In this sphere the book is an interesting example.

By means of a book, we are able to know the thoughts of a person long dead. By means of the written word and the printed page, we are able to preserve for posterity much of that which is worth while in our own time.

But the book has an immediate function as well as being a preserver of knowledge. The book is a teacher.

In spite of modern facilities, it is not always possible or convenient for us to attend the classes and lectures of the men with knowledge to offer. But the words of those men on the printed page can speak

to us whenever we are willing or have time to listen.

The world of electronics is an everchanging one. Those who can speak authoritatively on a particular subject soon place their thoughts in book form and those books soon find their way into libraries.

It is most important that the modern Amateur keeps abreast of his hobby and here at least is one way. Use the Divisional Library, the Public Library, and above all make sure that your own personal book-shelf is well stocked.

One word from the research engineer, a circuit drawn by an expert can save hours of frustration.

The solution to many a thorny problem is often a simple matter on which our memory has played us false. We only require that tiny spark and all is simplified.

That tiny spark, the answer, is found by opening a book.

FEDERAL EXECUTIVE.

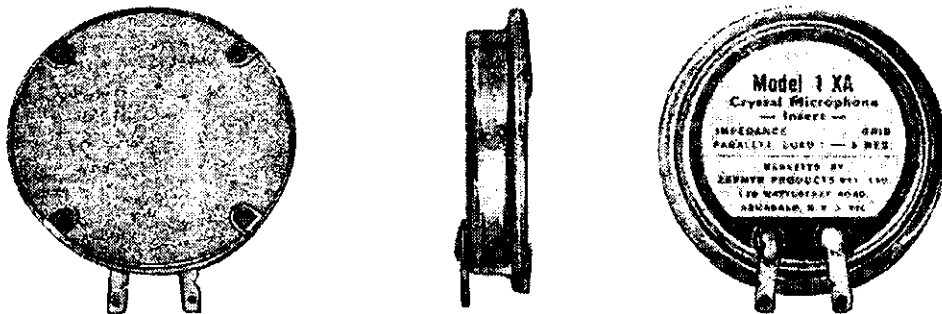
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MODEL "1XA" CRYSTAL MICROPHONE INSERT



AUSTRALIAN MADE — — FOR AUSTRALIAN CONDITIONS



FITTED WITH PLATED REAR SHIELD TO ELIMINATE HUM PICK-UP

- Patented crystal unit guarantees outstanding efficiency and performance.
- Protected against ingress of moisture with approved moisture sealed crystal element.
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- Precision engineering ensures realistic reproduction and high output with long life and dependable operation.
- The only unit available with a genuine sintered metal filter.
- Good high frequency response ensures excellent speech reproduction.
- Aluminium diaphragm mechanically protected and frequency controlled by "Zephyrfil" filter.
- Australian made throughout.
- Only carefully selected cements used throughout, to suit Australian climatic conditions.

TECHNICAL DETAILS

Rochelle salt crystal microphones are perhaps the most widely used for all types of service where quality speech and music reproduction at high output levels is a requirement. They are dependable in performance and when fitted with the appropriate "Zephyrfil" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved.

Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars, being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case $1\frac{1}{2}$ " diameter (rear), $\frac{3}{8}$ " thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
 Output Level = -45 db (0 db = 1 volt/dyne/cm²)
 Impedance = Model 1XA Grid 1 — 5 megohms.



Approximate Frequency Response Curve

AVAILABLE FROM ALL LEADING TRADE HOUSES

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All-Band Preamplifier Without Band-Switching

BY L. H. DUNCAN,* VK5AX

MUCH has been written from time to time about the advantages of using a pre-selector or R-9'er in front of the station receiver, but not all Hams realise that these advantages are very real.

The pre-amplifier will improve the overall gain of any receiver considerably and, what is more important, it will give the whole set a greatly improved signal-to-noise ratio, and will enable weak DX stations to be copied that before could only just be heard.

Most of us use an aerial matching device between the transmitter and aerial as a matter of course, but in the usual Ham shack very little consideration is given to the problem of accurately matching the receiver to the aerial. On this score alone the text books promise a gain of up to 30 db.—five S points.

Having seen the light and decided to build one of these magical devices, we are immediately faced with the problem of how to cover all the popular bands and it is at this stage that the interest generally wanes. Therefore, many will be interested in the following design which covers all bands from 80 through 10 metres without any form of band-switching and uses only one coil!

Reference to the circuit will show that an all-band tuning arrangement has been used in the grid circuit of a 6AC7 or similar tube which is aperiodically coupled to another 6AC7 wired as a cathode follower. A most efficient form of output coupling which matches the impedance of the aerial terminal of the set to which it is attached without causing any loss of signal voltage. The output lead should be reasonably short and shielded.

The tuning condenser is a broadcast two-gang of almost any type. Naturally the better the insulation, the better the results. Because of the large capacity range, the size of the coil is not at all critical. Too many turns and you won't cover ten metres—too little and you miss out on 80 metres. Twenty turns of about 20 gauge wire on a 1" former has proved to be about right. The coil is centre-tapped. The aerial winding, of six turns, is wound on at the earth end of the tuning coil.

Screen voltage of the pentode 6AC7 is variable so that the gain of the tube may be run as high as possible without instability. (It is also of help in reducing cross-modulation when the 100-wattier next door starts up!)

In the interests of stable operation, it is advisable to isolate the grid and plate circuits of the first tube as much as possible by placing a shield across the socket. It is also an advantage to mount the coil and condenser above the chassis and to make connection to the 6AC7 grid via a small feed-through insulator—but don't get the idea that the unit is in any way "cranky." These are just precautions one would take with any high gain r.f. stage. The rest

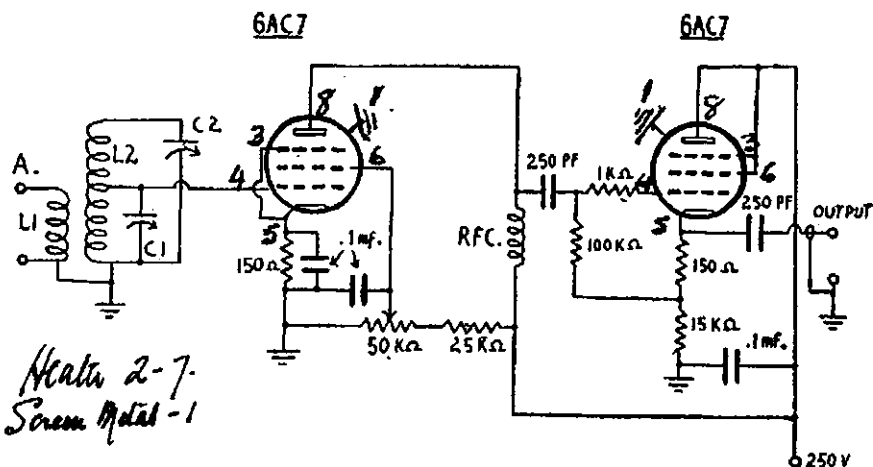
of the circuit is straight forward, but if you use any other tube for the cathode follower, use one in which the suppressor is not connected internally to the cathode.

Several of these units have been built up over the last six months and have greatly improved the performance of the receivers, including a "640", BC342, Hallicrafter, and 75A3.

As usual with these all-band tanks, the bands do not appear in orderly pro-

gression across the dial, but no confusion should result from this. While proving the design, slight trouble with self-oscillation at one frequency near 7 Mc. was encountered. This was traced to an undesired resonance in the r.f. choke in the plate circuit of the r.f. stage and changing this to another type effected the cure.

Any queries will be gladly answered by letter. Good luck, and better listening.



*Heater 2-7.
Screen Grid - 1*

An All-Band Pre-Amplifier Without Switching

C1/C2—Broadcast two-gang.
L1—6 turns.
L2—20 turns, 1 inch former, centre-tapped.

VALVE DATA

12AU7

MEDIUM-MU TWIN TRIODE

The Radiotron 12AU7 is a miniature 9-pin valve containing two similar medium-mu triodes in one envelope.

Either of the triodes may be used in a television receiver as a vertical or horizontal deflection oscillator or as a synchronising pulse separator and amplifier.

Base: 9-pin miniature.

Socket connections:

- Pin 1—Plate of Unit No. 2.
- Pin 2—Grid of Unit No. 2.
- Pin 3—Cathode of Unit No. 2.
- Pin 4—Heater.
- Pin 5—Heater.
- Pin 6—Plate of Unit No. 1.
- Pin 7—Grid of Unit No. 1.
- Pin 8—Cathode of Unit No. 1.
- Pin 9—Heater centre-tap.

Electrical Data

	Series	Parallel
Heater voltage	12.6	6.3 volts
Heater current	0.15	0.3 amp.

CLASS A1 AMPLIFIER (Each Unit)

Maximum Ratings:	
Plate voltage	300* volts
Plate dissipation	2.75* watts
Cathode current	20* Ma.
Grid voltage:	
Negative bias value	50* volts
Positive bias value	0* volts

Peak heater-cathode voltage:

Heater negative with respect to cathode	200* volts
Heater positive with respect to cathode	200*† volts

Characteristics:

Plate voltage	100	250	volts
Grid voltage	0	-8.5	volts
Amplification factor	20	17	
Plate resist. (approx.)	6500	7700	ohms
Transconductance	3100	2200	μmhos
Grid bias (approx.) for plate current of 10 μA		-24	volts
Plate current	11.8	10.5	Ma.

OSCILLATOR

(for operation in a 625-line, 25-frame system)

Maximum Ratings (each unit):

D.c. plate voltage	300*	300*	volts
Peak negative-pulse grid voltage	400*	600*	volts
Cathode current:			
Peak	60*	300*	Ma.
Average	20*	20*	Ma.
Plate dissipation	2.75*	2.75*	watts
Peak heater-cathode voltage:			
Heater neg. with respect to cathode	200*	200*	volts
Heater pos. with respect to cathode	200*†	200*†	volts

Maximum Circuit Value:

Grid-circuit resistance, 2.2* megohms
* Maximum.
† The d.c. component must not exceed 100 volts.

* 16 King Street, Gawler, S.A.

90° R.F. Phase Shift Networks

PART TWO

BY N. L. SOUTHWELL,* VK2ZF

QUARTER-WAVE CO-AX LINE NETWORK

In Fig. 7 is shown what is probably the simplest, and at the same time, the most bulky 90° p.s.n., a quarter-wave-length of co-axial line.

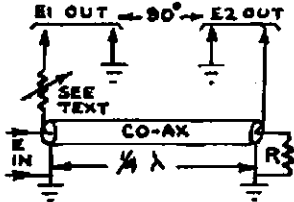


Fig. 7.—Quarter Wave Co-ax Line Network.

Quarter Wave of Co-ax Line at the Operating Frequency.
R = Co-ax Z.

Calling to mind transmission line theory, it will be remembered that points a quarter wavelength apart on a line differ in phase by 90°, also when a line is terminated in its characteristic impedance, the s.w.r. along the line becomes 1:1. Hence the voltages measured at points quarter-wave apart will be 90° apart in phase and be very close to the same amplitude. The loss in the line would cause a small drop in the amplitude of E2 compared to E1. Should it be found necessary to compensate for the amplitude difference, a small carbon pot. can be included in the circuit where indicated.

To efficiently adjust the network, a g.d.o. is required and also some means of measuring r.f. resistance, such as a bridge or an antennascope. Alternatively, a v.t.v.m. could be used in place of the bridge or antennascope. The writer used a Maxwell Bridge which is simple and quite satisfactory.

The line is grid dipped to the operating frequency, or slightly higher, by means of the g.d.o., whilst the line is terminated by the input capacity of the bal. mod., to be fed from the line. Do not use any resistive termination on the line while grid dipping.

The g.d.o. and the bridge are then used to determine the actual characteristic impedance of the cable used. To do this some non-inductive carbon resistors are required, their values can be determined by the bridge.

If using a v.t.v.m. the actual value of the resistors will be unimportant, but they should be approximately that of the cable impedance. The g.d.o. is set to the frequency used above and coupled to the line. The terminating resistance at the far end is varied until the voltage measured at both ends of the line is the same.

The termination then in use is the correct one for the line.

Using the bridge and the g.d.o. set to the previous frequency, the line is terminated at the far end by one of the available resistors and a reading obtained on the bridge. It is more than

probable this reading will differ from that of the terminating resistor. The line impedance can be found from the formula:

$$Z_l = \sqrt{Z_b \times Z_t}$$

where—

Z_l = line impedance in ohms.

Z_b = reading obtained on bridge in ohms.

Z_t = value of termination in ohms.

From this point it is a matter of using the bridge to build up a termination of that value, and then as a double check, test it, using it as a termination for the line.

The fact that both the velocity constant and the line impedance cannot be taken for granted may seem strange to some, but the velocity constant of co-ax varies from batch to batch and from one make of line to another, a difference in length of 1 foot has been observed in the length of quarter-wave lines used on the 14 Mc. band. Likewise, the impedance also varies between batches of manufactured cable, and from one manufacturer to another.

The voltage available from this type of network is somewhat restricted unless a fair amount of power is used, as the impedance of all types of co-axial cable is not great.

The cable length may be tied up in a coil without detriment to its performance.

Both ends of the sheath should be grounded and the end of the co-ax should be brought out as close as possible to the balanced modulator feed points.

If the co-ax is cut a little on the short side, it is possible to lengthen the line electrically by means of a small trimmer condenser connected across the output of the line and in parallel with R in Fig. 7. High stray capacity in the equipment may necessitate a slight shortening of the line, as stray capacity across the terminating resistor would have the effect of lengthening the line.

DELAY LINE TYPE OF NETWORK

Fig. 8 shows yet another circuit of an r.f. p.s.n. This type of network is a distributed constant delay line.

These lines are being manufactured in the U.S.A. commercially in values up

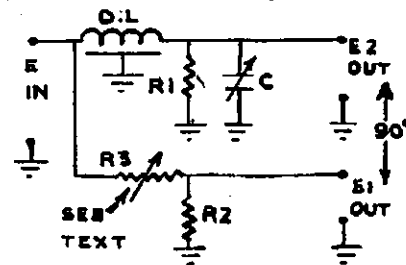


Fig. 8.—Delay Line Type of Network.

D.L. = Delay Line.

R1 = R2 = Delay Line Z.

R3 = Variable resistance to equalise E1 and E2 amplitudes.

C = Small trimmer for vernier adjustment of phase shift.

to around 2,000 ohms, and a few s.s.b. stations in America have used them on 3.5 Mc.

The lines are widely used and well known in commercial radio circles, but Amateurs have never bothered about them.

The commercial article is made up as follows: A fine gauge insulated wire is wound onto a piece of tubing which serves as a former. The whole is then wrapped with insulating tape of high quality which later becomes the dielectric of the line. Over the tape is woven a braided screen of insulated wires, forming the outer conductor of the line, the whole is then covered with a layer of p.v.c. for protection.

The physical sizes of the elements making up the line determine its impedance.

The time delay required to give a 90° phase shift at any given frequency is obtained from the formula:

$$T = \frac{10^9}{4F}$$

where—

T = time delay in millimicroseconds.

F = operating freq. in megacycles.

The manufacturers of commercial delay lines quote a definite time delay figure for a given physical length of line and, after calculating the delay time required from the above formula, it is a simple matter to determine the length of line required. It works out to a matter of inches at the normal Amateur band frequencies, for lines having a phase shift of 90°.

The line is cut to have slightly less delay than is required, and the delay time is increased over a small range by a small trimmer condenser placed across the end of the line, as indicated by C in Fig. 8. This condenser acts in the same manner as the trimmer condenser mentioned in connection with Fig. 7, to lengthen the electrical length of the line, and hence the delay time. This enables the delay time to be adjusted to the exact value required.

There is a loss of energy in the network, and to enable the amplitudes of E1 and E2 to be balanced, a voltage divider comprising a carbon pot. and a non-inductive resistor are used in the E1 voltage feed circuit. These components are shown as R3 and R2 respectively in Fig. 8.

Alternatively the E1 feed circuit may have the carbon pot. (R3) inserted in series with the lead and R2 dispensed with, both methods have been satisfactorily used. To obtain the best results from this network, the effect on the phase shift of all components and circuit strays, between the common r.f. voltage source and the two bal. mods., additional to the delay line, should be taken into account.

Distributed constant type delay lines are relatively easy to make for use on Amateur frequency bands. The writer is using one at the present time on 14 Mc.

The subject of delay lines is too involved to be gone into in this article, but the experimentally inclined may be

* 90 Dutton Street, Yagoona, N.S.W.

interested in the following brief description and information regarding some of the lines used.

The lines were constructed from short lengths of co-ax cable as follows:

Slit the outer p.v.c. sheath carefully lengthwise with a knife, and slip it off. Compress the outer metal braiding of the co-ax which is then exposed, from both ends towards the centre, this action causes the diameter of the braid to increase and loosen on the core of the cable. The metal braid is then slipped off the core and carefully placed on one side.

The centre conductor of the cable is not required, it can be withdrawn if such action is possible; if not, the ends of the conductor can be cut off flush with the ends of the cable poly. core, and its presence ignored.

The next step is to close wind a coil of fine wire on the poly. core of the co-ax cable for a length of several inches.

The start and finish of the winding can be held in place on the core with adhesive tape. The completed winding and the core are then given a good coating of clear lacquer. When the lacquer has almost dried a layer of empire cloth, cut to size, is wrapped around the winding and tied in place until the lacquer has completely dried. Then the ties can be taken off and the co-ax metal braiding previously removed is slipped back over the coil with its empire cloth covering. The braid is stretched to make sure it is firmly against the coil over the whole of its length and then securely taped in place.

It will be found that up to $\frac{1}{2}$ " of the original length of the braid will be lost due to the fact that the braid now fits over a core of larger size than previously. The loss in length is no cause for worry, as at least a $\frac{1}{4}$ " or so is required at each end of the coil for the securing tape, placed there when the coil was wound. The braid should, however, cover the full length of the coil.

In operation, the braiding is grounded and the two ends of the coil are the input and output of the line.

The time delay per unit length of this type of line is less than that of the commercial lines because the outer braid is not composed of insulated wires woven together and grounded at the ends of the line.

Having constructed a line, one must find out (1) its impedance, (2) its electrical length or delay time.

The test equipment required is, again, a g.d.o. and a bridge or an antenna-scope, and some non-inductive resistors of various values up to around 600 ohms.

The electrical length of the line is found by coupling the line to the g.d.o. in the same manner as when grid dipping a quarter wavelength of co-ax, however in the case of co-ax we already have a fairly accurate idea how long the line is electrically, in this case, we initially have no idea. Tune the g.d.o. over a wide frequency range and jot down all the frequencies at which a dip is registered on the g.d.o. meter, due to the presence of the coupled line. These dips will occur at frequencies where the line is $\frac{1}{4}$, $\frac{3}{4}$, $1\frac{1}{4}$, $1\frac{3}{4}$ wavelengths, etc., long.

After four or five frequencies are listed, it will be apparent what the approximate frequency is where the line is quarter wave long. Check around this frequency to obtain the exact figure. If the line is too long, unwind turns from the line until the required frequency is obtained. If you find the line is too short the best plan is to wind up another longer one; joins in the line coil are not recommended. Naturally during the above process the far end of the line is open circuited. You may have to tune carefully for some of the dips indicated on the g.d.o. meter, as not all of the points required for an initial tabulation of the resonant frequencies give a large dip.

The impedance of the line is found in a similar manner to that described when dealing with the co-ax line network of Fig. 7. One word of warning though. Delay line can have a fair loss, and it will not be satisfactory to use a v.t.v.m. in place of a bridge to find the line impedance.

When the line is terminated in its correct impedance, tuning the g.d.o. over a wide frequency band will produce no change in the reading of the bridge.

A number of lines have been built with impedances ranging from 300 ohms to 115 ohms. Details of two of the lines are as follows:

90° electrical length	2.4 Mc.	25 Mc.
Impedance	800 ohms	315 ohms
Type of cable used	"PT29M"	"Uniradio 70"
Wire, B. & S. enamel close wound	36 gauge	36 gauge
Length of winding	5 $\frac{1}{2}$ inches	1 $\frac{1}{2}$ inches

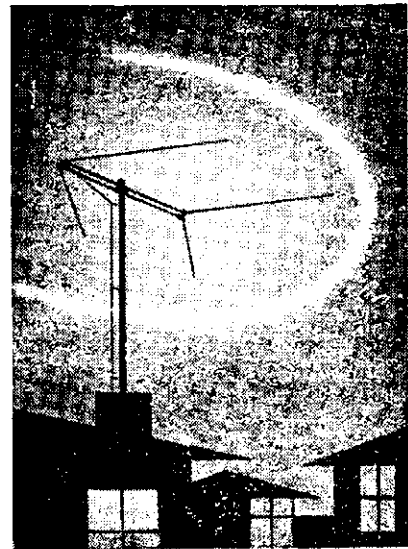
In case the cable types are unfamiliar, the outside diam. of the original co-ax cables were (approx.): PT29M, 7/16 inch; Uniradio 70, $\frac{1}{4}$ inch.

Remember, the capacity across the termination of the cable will tend to stretch the line electrically; on the 3.5 Mc. band, each 1 pF. of capacity increases the delay by about 1 millimicrosecond. From experiments conducted on 14 Mc. it would appear that a greater capacity than the above is required to effect a similar change in time delay there.

Now, having completed the description of the various types of r.f. p.s.n.'s. that have been used, we are in a position to consider more fully some of the factors, covered earlier, that determine the details of an r.f. p.s.n. for use in any given circuit.

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Modifying the AR7 Receiver

PART FIVE

BY G. M. BOWEN,* VK5XU

BAND SPREADING THE BAND E COIL BOX

For this procedure it will be necessary to refer to the previous article Part IV. In that article the coil connections, the placement of the trimmer and series condensers are shown by diagram so that there should be no trouble in identifying the components as they are referred to.

In coil box E the range has been restricted to a 2:1 ratio (from 12.5 to 25 Mc.) by including a variable capacitor of about 70 pF. in series with the main tuning gang to obtain electrical band-spread. As a general rule this arrangement does not alter the upper frequency range since the capacity of the series capacitor will be large compared to that of the tuning gang. At the lower frequency end the series capacitor, having the smaller capacitance, will have maximum effect on the frequency, raising it as the capacitance is decreased.

The series capacitor therefore reacts in this coil box in the same way as the padder does in the usual b.c. receiver alignment.

Hence by decreasing this capacitor value the band coverage can be adjusted for any number of degrees. At this stage, if you have not already worked on the 28 Mc. band coil box, you are advised to study carefully the alignment procedure set out in that text.

The 14 Mc. band, fortunately, comes on the higher half of the dial readings and it is not necessary to alter the coils. In some coil units, in order to bring the frequency of 14200 Kc. onto the 250 degree mark, it may be necessary to add a further capacitor across the trimmer. If so, choose a silvered-mica or a zero-coefficient ceramic, or if you really wish to do the job, play around with the correct negative coefficient ceramics in the oscillator section until no temperature change drift occurs. This modification is a worthwhile addition if you have the time—and the patience!—to spend many hours at the game. But remember, you can overdo the size of the capacitor and make the drift reverse, so check carefully against a standard that you know cannot drift—and I don't mean a crystal oscillator either! WWV or Radio Australia, or some equally good standard must be used.

The value of the additional capacitance required will depend upon the amount of bandspread required, and also of course on the type of air trimmers in the coil box for these vary in make and capacity. My AR7 drifts to a lower frequency as it warms up and about 5 Kc. compensation is required at 15 Mc.

In Band E the coils have no slugs, and it is better not to try to include them to lower the frequency. If an aerial trimmer capacitor has not already been included in the modifications it should be done, as described in

an earlier article. The exclusion of this control was a bad mistake for it is virtually impossible to align four stages and maintain the same sensitivity over such a wide range of frequency. This is especially so where different antenna systems are used.

ALIGNING PROCEDURE

Centre frequency 14200 Mc. Start with the oscillator coil L4A. Short out the tuning gangs for aerial, r.f.1 and r.f.2; connect the Modulated Oscillator, or Signal Generator, to the grid of the converter valve with a 500K resistor to ground (having removed the grid cap connection to start with)—Mod. Oscillator on 14.2 Mc. with the crystal filter off, tune in signal which should appear at about 370 degrees.

Alter C8 to a smaller value and to hold the signal, the dial reading will have to be increased, i.e. more capacitance is added by the main tuning gang. Adjust C7 trimmer to return the dial reading to 370 degrees. N.B.—C8 should be moved a very small amount each time.

Gradually work back and forth now from C8 to C7 until the required band-spread is obtained, with the dial reading for 14.2 Mc. on 250 degrees. If C7 will no longer bring the upper frequency of 14.4 Mc. onto the dial reading, then open the box and add approximately 50 pF., reducing the capacity of C7 accordingly to approximately a quarter into mesh.

Put the box together again and without touching the dial adjust the trimmer C7 until 14.2 Mc. again appears at 250 degrees.

At this stage, it is a good plan to check that the oscillator is on the high side of the signal by swinging the mod. oscillator to at least 13 Mc. If no signals appear then you are correct.

Continue this jiggling process of C8 versus C7 until the coverage is approximately 200 degrees of band-spread for the 400 Kc. For general band coverage this seems to be adequate but if you are a c.w. man, then go the limit, for the low frequency end is the one which is most affected by this type of band-spreading system.

So much for the oscillator coil box. Remove each of the others and modify them to correspond approximately to the oscillator box. **Note carefully that the stud numbers are in a different sequence for each box, so refer to Part IV.**

The settings for C1 to C6 inclusive should be approximately that for C7 and C8. Fit the coil boxes together and the unit should be ready for aligning. **Don't touch the oscillator section.**

In coil box E the series capacitors are adjusted first, at the low frequency end of the range with the trimmers C1, C3 and C5 receiving second preference at the high end.

Set the mod. oscillator output to maximum and after removing all the

shorting devices from the tuning gang, proceed to the usual two spot alignment process.

Mod. oscillator on 14.0 Mc.; adjust C6, C4 and C2 for maximum signal after picking up signal with main tuning; across to 14.4 Mc. and adjust C5, C3 and C1 (note the order of working towards the antenna input with the mod. oscillator output, from the r.f.2 box); back to 14.0 Mc. and so on gradually decreasing the signal from the mod. oscillator (see Part IV.).

Final adjustment of the capacitors should be made with the antenna noise input only.

If after a couple of weeks you have not succeeded with this modification, you won't need the receiver for you will have given Amateur Radio away together with the hair you have torn out!

So, good luck!

Next part will be on crystal filters and the AR7 filter in particular, so until then, I'm back to the pick and shovel.

COLUMBUS MARATHON CONTEST

To commemorate the famous voyage by Christopher Columbus, during which he discovered the American Continent, the Istituto Colombiano di Genoa is inaugurating an annual contest for Radio Amateurs. A gold medal and a certificate will be awarded to the Italian Radio Amateur who in the 70 days preceding 12th October of each year, establishes contact with the greatest number of Amateur Radio Stations outside Italy. A second gold medal and a certificate will be awarded to the non-Italian Amateur who contacts during the same period the greatest number of Italian stations including those in Trieste, Sicily and Sardinia. Briefly the rules of the Contest are as follows:

Licensed Amateurs in all parts of the world may participate. Foreign Amateurs are to work as many stations as possible in Italian territory.

For the purposes of the contest the frequency bands on which valid contacts can be made are divided into three groups: Group A includes the 3.5, 7, 14, 21 and 28 Mc. bands. Group B the 144 Mc. band and Group C the 420 Mc. band. The Contest starts at 0001 hours G.M.T. on 3rd August and ends at 2359 hours on 12th October of each year.

Any two-way contact between an Italian station and one outside Italian territory will count. Signal report must be exchanged using the RS(M) 33 (5) for telephony, and RST 338 for telegraphy. Each valid contact on the bands 3.5 up to and including 28 Mc. (Group A) will score one point. Contact on 144 Mc. will score two points, and on 420 Mc. four pts.

Candidates for the awards must forward to the promoting Committee before 31st July of the following year a claim indicating the score obtained in the contest. The committee, on the basis of the claims submitted, will request the Radio Amateurs with the highest score to send an extract from the station log giving the following information: Date, hour G.M.T., frequency band, type of emission, power input to the p.a. of the tx, call sign of the station worked, signal report transmitted, report received, points claimed. The extracts from the station logs must be certified as true copies of the logs by two licensed Radio Amateurs of the same country as the claimant.

In the event of a tie in the scoring, the winner will be the station using the lower power in transmission. Judging: the decision of the Judging Committee is final. The address of the promoting committee is: Civico Istituto Colombiano, Premio Radiomatori Columbus Marathon, Palazzo Tursi, Genoa, Italy.

* 73 Portrush Road, Toorak Gardens, S.A.

NATIONAL FIELD DAY, 1958

The Federal Contest Committee of the Wireless Institute of Australia invites all operators of portable, mobile and fixed Amateur stations to participate in the 1958 National Field Day Contest.

Objects: The operators of portable and mobile stations within the Commonwealth and its Mandated Territories will endeavour to contact other portable, mobile and fixed stations, both within their own State and in other parts of the Commonwealth.

Date of Contest: The Contest will be held on the Sunday preceding Australia Day, that is 26th January, 1958.

Duration: The Contest will commence at 0001 hours and end at 2359 hours E.A.S.T. on the above date, and operating time will be restricted to any nine (9) consecutive hours during the above period.

RULES

1. There shall be five sections to the Contest:—

- (a) Transmitting phone.
- (b) Transmitting c.w.
- (c) Transmitting open.
- (d) Fixed stations working to portable and mobile stations.
- (e) Reception of portable and mobile stations.

2. All Australian Amateurs may enter for the Contest. Mobile or portable stations are limited to an input power, with aerial connected, of 25 watts to the final stage. This power shall not be derived from either private or public mains.

A portable or mobile station shall not be located within a radius of one mile from the home(s) of the operator(s), nor be situated in any occupied dwelling or building.

No apparatus shall be set up at the site selected for portable operation earlier than 24 hours before the commencement of the Contest.

A portable station may be moved from one site to another during the Contest.

More than one transmitter may be used provided that only one transmitter is used at a time.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. Amateurs may enter for one of the above sections listed in Rule 1. An "open" log will be one containing both phone and c.w. contacts.

5. Only one contact per station per band is allowed and arrangements for schedules for contacts on other bands is not permitted.

6. More than one operator may participate in the operation of the portable

or mobile station provided that all operators are licenced Amateurs. (Refer also to Rule 14.)

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of 5 or 6 figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures which may begin with any number between 001 and 100 for the first contact and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number is 054, for the third 055 and so on. If any contestant reaches 999 he will start again at 001.

For checking purposes only, the location of the portable or mobile station worked should be shown alongside each contact in the log.

9. **Entries** must be set out as shown in the example, using only one side of the paper. Entries must be post-marked not later than Saturday, 15th February, 1958, and addressed to the Federal Contest Committee, W.I.A., Box 1234K, G.P.O., Adelaide, South Australia.

10. **Scoring** will be based on the table shown.

Scoring Table

Portable and Mobile Stations:

- (a) For contacts with fixed stations within the Commonwealth, including the competitor's own State 1 point.
- (b) For contacts with other portable or mobile stations within the same State 5 points.
- (c) For contacts with other portable or mobile stations outside of the competitor's own State 10 points.

Fixed and Receiving Stations:

- (d) For contacts with portable and mobile stations in the Contest within the same State 2 points.
- (e) For contacts with portable and mobile stations in the Contest outside of the State 5 points.

The following constitute call areas: VK1 (A.C.T.) and VK2 combined, VK3, VK4, VK5 (South Aust.), VK5 (Northern Territory), VK6, VK7, and VK9.

11. **Logs:** All logs shall be set out as in the example shown and in addition will carry a front sheet showing the following information:

Name.....Section.....
Address.....Call Sign.....

Call signs of other operators.....
Location of portable station.....
.....from.....hours to.....hours.
.....from.....hours to.....hours.

Portable or mobile stations to include on this front sheet a brief description of the equipment used, including the h.t. voltage and power input to the final amplifier of the transmitter.

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.

Signed.....
Date.....

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics. Portable procedure must be used at all times.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards:** Certificates will be awarded to the highest scorer in each section set out in Rule 1.

Certificates will also be awarded to the highest scorer in each State in each section if the scoring is considered adequate.

Further certificates may be granted at the discretion of the Contest Committee.

In the case of a winning station being manned by more than one operator, each operator will receive a certificate provided that he has contacted at least 25% of the stations submitted on the log, and that he has signed the log declaring this to be true.

RECEIVING SECTION

1. The rules are the same as for the transmitting fixed station section, and it is open to all Short Wave Listeners in the Commonwealth and Mandated Territories.

2. Contest times and logging of stations on each band are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section, but will omit the serial number received. Logs must show the call sign and location of the station heard (instead of worked), the serial number sent by it and the call sign of the station being called.

Scoring will be on the same basis as for transmitting stations. It is not sufficient to log a station calling CQ.

4. A station heard may be logged only once for each band.

5. **Awards:** Certificates will be awarded to the highest scorer, and the higher scorer in each State.

EXAMPLE OF TRANSMITTING LOG

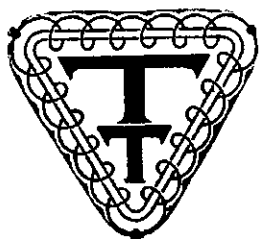
Date/Time E.A.S.T.	Band	Emission	Call Sign	RST/NR. Sent	RST/NR. Rcvd.	Location Station Worked	Points Claim.	Blank

NOTE.—The standard W.I.A. Log Sheet follows the above form.

EXAMPLE OF RECEIVING LOG

Date/Time E.A.S.T.	Band	Call Sign Heard	RST/NR. Sent	Station Called	Location Station Worked	Points Claim.	Blank

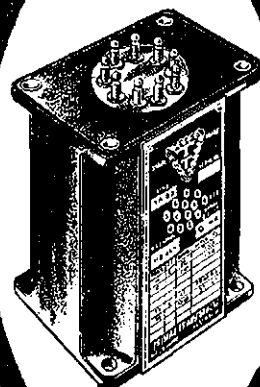
NOTE.—The standard W.I.A. Log Sheet follows the above form.



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A TWO METRE LONG YAGI

BY I. F. BERWICK,* VK3ALZ

OVER the past few months the writer has been using an 18 element long yagi on 2 metres. The results have been highly satisfactory and so much superior to the previous 5 over 5 that he feels that this type of beam is a distinct step forward.

The writer claims no credit for the design of this beam, full marks go to WZNLV and W6QKI, who did the original work, however the method of matching is the writer's own and he feels that it is superior to anything used previously at his QTH.

Anyone interested in the development of the long yagi should read the January 1956 issue of "QST."

This antenna, being a high Q type, is effective only over a bandwidth of 2 Mc., i.e. 1 Mc. each side of the frequency for which it is cut. Also the presence of any metal objects in the immediate field of the antenna distorts the pattern and ruins its performance. So it is preferable to site the antenna ten feet or so away from any other antenna system.

The aperture of the long yagi (sometimes known as the captive area) is not the frontal area (which is quite small), but is calculated from the beam widths in the E and H planes. This calculation is given in "QST," January 1956. For the 32-ft. model, it is approx. 20 ft. in diameter. A low Q array would require to occupy the same area to give the same performance.

So for 2 metre DX the long yagi wins on all counts—

- (1) High gain.
- (2) Low frontal area, hence less wind resistance.
- (3) Simpler construction, no phasing sectors, one driven element, etc.

Details of element lengths and spacings are given in the chart. These figures are critical and must be strictly adhered to. Note that three reflectors are used in a triangular arrangement. This system is highly recommended, as a large improvement in front-to-back and minor lobe reduction is achieved with this.

MATCHING SYSTEM

The matching system is a modification of the well known gamma match, suitable for 50 or 70 ohm co-ax feeders and plumbers' delight arrays.

In the gamma match an air spaced variable is used to cancel out the reactance of the gamma section.

In the VK3ALZ system the air spaced variable is replaced with an o.c. stub one-quarter wavelength in length, which of course has a capacitive reactance.

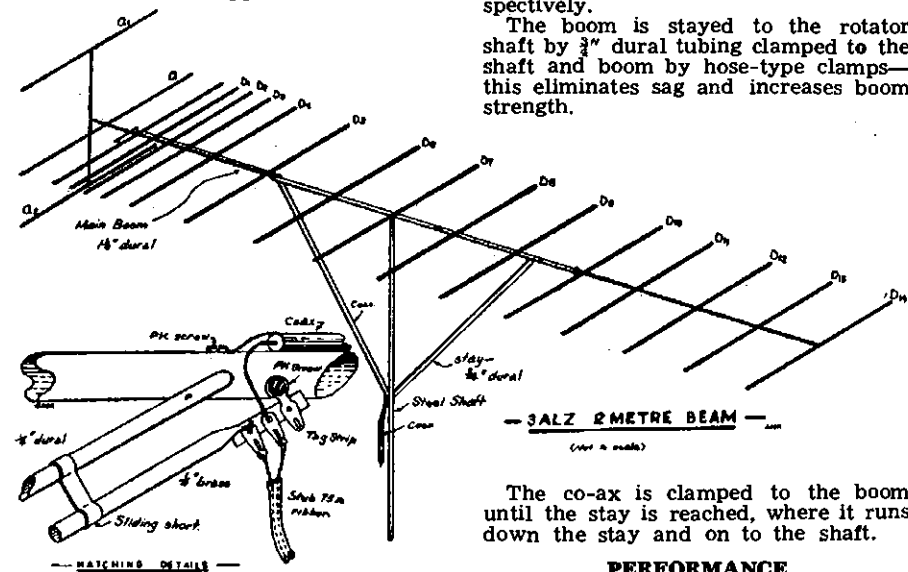
Advantages of the latter system are: (1) Simpler construction, no condenser housing to construct; no chance of condenser break-down due to moisture; more compact; light weight (an important consideration as the matching

system is out on the end of 16-ft. length of boom). (2) Once the matching is completed, the adjustment is permanent—the writer has detected no change in s.w.r. over a period of three months.

In practice, the stub is made out of 75 ohm ribbon. Its final length being approx. 5 inches; more of this later.

MATCHING PROCESS

With the s.w.r. bridge in the line and the transmitter on the frequency you propose to use for DX work, and a stub of 10 inches of 75 ohm ribbon connected, also the sliding short of the gamma section at about 4 inches out from the centre of the boom, start pruning the stub, watching the s.w.r. drop, until say a 4:1 s.w.r. is reached. Then adjust sliding short for an s.w.r. minimum. Proceed now to prune the stub, readjusting the short as you go, until a final minimum is reached. This should be 1.3:1 or better. The stub length for RG8/U is approx. 5 inches. The short setting, approx. 4 inches.



Element	Length Inches	Spacing Inches
Reflector a(1)	40 1/2	5
Reflector a(2)	40 1/2	
Reflector b	42 1/2	
Driven*	38 1/2	7
Director 1	37	7 1/2
" 2	36 7/8	7 1/2
" 3	36 7/8	16
" 4	36 1/2	32
" 5	36 1/8	32
" 6	36	32
" 7	35 7/8	32
" 8	35 7/8	32
" 9	35 7/8	32
" 10	35 7/8	32
" 11	35 7/8	32
" 12	35 1/2	32
" 13	35 1/8	32
" 14	35	32

* Use 1/4" dural.

If you go too far and cut too much off the stub, just solder a new length on and start again.

The radiation resistance is quite low, probably in the region of 10 to 12 ohms, so make a good job of all connections. With 100 watts input the currents are quite high.

CONSTRUCTIONAL DETAILS

The boom is 33 feet long, using 1 1/2" dural tube; the centre 10 feet being reinforced with 1 1/4" tubing. The full length of tubing is unlikely to be available, but shorter lengths can be spliced with no loss in strength. See sketch for details.

The elements are of 1/4" dural wire mounted in 1/4" holes drilled in the boom and held in place with binding of nylon fishing line.

The two rear reflectors are mounted on a minor boom of 1/2" dural tube which passes through the boom vertically. These reflectors are spaced 20 inches above and below the boom respectively.

The boom is stayed to the rotator shaft by 3/4" dural tubing clamped to the shaft and boom by hose-type clamps—this eliminates sag and increases boom strength.

The co-ax is clamped to the boom until the stay is reached, where it runs down the stay and on to the shaft.

PERFORMANCE

Horizontal beam width to the half power points has been measured at 26°, using an accurate S meter. According to the designers, the beam width should be also 26° in the vertical plane. The writer has been unable to measure this accurately, but it is very sharp, as on the ground under the antenna no field strength worth mentioning is detectable, but 50 yards out an 0-2.5 Ma. field strength meter goes hard over.

The beam is 40 feet high.

Gain: Db. figures are always open to argument, but using the formula and assuming E and H plane beam widths are identical, gain comes out at something over 18 db.

Front-to-back at least 30 db. on the S meter.

Minor Lobes: The two largest minor lobes occur at about 30° each side and are at least 15 db. down.

* Lot 35 Loongana Avenue, Glenroy, Vic.

AMATEUR CALL SIGNS

AMENDMENTS TO JUNE, 1957

NEW CALL SIGNS

- VK— Australian Capital Territory
 1VP—E. Penikis, Station: Reid House, Canberra, A.C.T.; Postal: 42 Kennedy St., Kingston, A.C.T.
- New South Wales
 2ND—J. B. Deering, Oak Rd., via Gosford.
 2NF—R. Innes, C/o Dixon, "Piccadilly," West Market St., Richmond.
 2NN—T. Preece, "Bonnie Doone," Kurrajong Heights.
 2TQ—T. T. Tatham, 1359 Pacific Highway, Turramurra.
 2AFS—Home Command Amateur Radio Club, C/o. F/O. W. E. Dixon, Home Command Hq., R.A.A.F., Penrith.

Victoria

- 3BN—H. C. C. Hargraves, 2 Graham St., Albert Park.
 3LW—L. M. Stone, 18 Douglas St., Rosanna.
 3SJ—S. D. Wheeler, 31 Barnard Gr., Nth. Kew.
 3AEO—A. E. Finch, C/o. Radio Australia, Shepparton.
 3AHO—W. R. Hempel, Kyvalley Rural Delivery.
 3APJ—P. J. Dettman, 45 Hutton St., Kyneton.
 3APT—G. W. Glover, 5 Miller St., Alphington.
 3AWD—W. D. Mather, 79 Carrol St., Gardiner.
 3ZCY—J. H. Ely, 15 Sharp St., Northcote.
 3ZEC—R. H. Hall, 6 Service St., North Essendon.
 3ZEP—D. C. Paton, 20 Scotts St., Bentleigh.
 3ZFH—B. R. Harris, 49 Havelock Rd., Hawthorn.

Queensland

- 4GX—F. Barroclough, 16 Gall St., Kedron, Brisbane.
 4WA—W. J. Barker, 14 Whish St., Windsor.
 4ZAX—D. R. Horgan, Park Rd., Yeerongpilly.
 4ZAY—R. J. Conway, Anne St., Aitkenvale, Townsville.

South Australia

- 5FY—R. A. Catmur, C/o. A. V. Ferguson, 8th St., Gawler West.
 5HA—S. G. Hart, 20 Whitford Rd., Elizabeth.
 5SA—T. Grierson, 108 Diagonal St., Somerton Park.
 5ZCV—L. F. Choate, 20 Sizer St., Lower Mitcham.

Western Australia

- 6AD—A. W. Stewart, South Western Highway, Armadale.
 6JM—J. A. Moran, C/o. Base Squadron, R.A.A.F. Pearce.

Tasmania

- 7WY—J. F. Westley, Rosebery.

Papua-New Guinea and Other Islands

- 9DX—Rabaul Amateur Radio Club, Park St., Rabaul, N.G.
 9JF—J. M. Fulton, Station: Direction Island Cocos-Keeling Group; Postal: C/o. Cable and Wireless Ltd., Cocos Island, Indian Ocean.
 9NM—N. O. Myers, C/o. Dept. of Posts and Telegraphs, Lae, N.G.

CHANGES OF ADDRESS

New South Wales

- 2DX—C. E. King, 14 Burrell St., Beverly Hills.
 2KL—H. A. Preston, 99 North Rd., Ryde.
 2WI—Wireless Institute of Aust., N.S.W. Div., Quarry Rd., Dural.
 2ZN—J. Brand, 4 King Edward St., Rockdale.
 2ADH—F. C. Dearman, 11 Brothers St., Dundas.
 2ALX—D. S. Kirby, 59 Dalton St., Orange.
 2AOQ—D. F. Lloyd, 18 Cox Ave., Bondi.
 2ATT—J. C. Treby, Charles St., Tweed Heads.
 2AUS—S. S. George, 8 Woodbury St., Marriickville.
 2AVJ—W. B. Jones, 30 Little Rd., Bankstown.
 2AWI—Wireless Institute of Aust., N.S.W. Div., 10 Clarence St., Sydney.
 2AWZ—D. Andrews, 21 Warwick St., North Ryde.
 2ZAC—W. R. Cox, 28 Gardinia St., Narwee.
 2ZAU—K. Woodward, 26 Collins St., Belmore.
 2ZBF—J. K. Doherty, 1/11a Slex Rd., Mosman.
 2ZCR—R. M. Marsden, 43 Houston Rd., Kingsford.
 2ZDB—A. J. Bowman, 55 Curtis Ave., Taren Pt.

Victoria

- 3BL—W. T. Lucas, 2 Ellen St., Parkdale.
 3CD—J. Rich-Phillips, Station: Narre Warren (Temp.); Postal: C/o. M. Chaffey, 18 David St., East Preston.
 3GE—G. E. Every, 15 Shenfield Ave., Bonbeach.
 3KO—M. A. O'Keefe, 429 High St., Golden Square, Bendigo.

- 3MI—W. A. McLeod, 42 Capon St., Chadstone, S.E.10.
 3NZ—R. H. Hall, 17 College Gr., Black Rock.
 3OM—R. S. Fisher, Station: Fairview Ave., Wheelers Hill; Postal: 758a Glenhuntly Rd., Glenhuntly.
 3QM—B. I. Leamonth, 5 Sutton Ave., Portland.
 3RF—R. F. Miller, 28 lawn Rd., Noble Park.
 3UG—N. Culliver, 11 Bay St., Queenscliff.
 3VR—J. H. Dexter, 143 Pallatt St., Beaumaris.
 3ACX—D. H. Davis, Lot 25 Tram Rd., Doncaster.
 3AGE—M. G. Esam, 103 Kepler St., Warrnambool.
 3ALO—A. L. Lowe, 28 Ramsay Ave., East Kew, E.5.
 3AMP—T. M. Palmer, 223 Henty St., Casterton.
 3AMZ—B. G. Powell, C/o. I. McGuffie, Camp St., Beechworth.
 3APH—P. E. Playsted, 26 Kooyong Koot Rd., Hawthorn.
 3AYW—K. Y. Wenborn, 38 Waverley Rd., Chadstone.
 3ZCA—R. J. Skevington, Hunter St., Kellor.

Queensland

- 4LE—L. H. Cox, "Adventure Downs," Springsure, via Emerald.
 4NP—N. F. Wilson, 11 Orari Road, Yeronga.

South Australia

- 5DL—T. P. Drake, 13 Lindley St., Greenacres.
 5NB—R. E. Bell, 328 Brighton Rd., Hove.
 5OP—P. S. Roper, Devonshire Rd., Hawthorndene.
 5VC—J. G. Mason, 39 Fuller St., Parkside.

Western Australia

- 6CF—C. L. Farkas, 11 Recreation Rd., Kalamunda.
 6GY—T. F. Gardner, 35 Bedford Rd., Mt. Pleasant.
 6HT—H. A. Tarbottom, Station: Lower King River, Albany; Postal: 184 York St., Albany.
 6JR—J. R. Wood, 1031 Wellington St., West Perth.
 6OY—T. H. Mitchell, 27 Oxford St., Kensington.
 6QO—F. R. Gray, 69 Duff St., Merredin.
 8ZAA—W. J. Howse, Flat 3, 51 Outram St., West Perth.

Papua-New Guinea and Other Islands

- 9EB—K. S. Mullan, C/o. Mandated Airlines, Lae, N.G.

CANCELLED CALL SIGNS

- VK— Australian Capital Territory
 1AVP—E. Penikis, Now VK1VP.
- New South Wales
 2RX—S. W. Owen.
 2VD—C. M. Barnett.
 2AMZ—H. S. Young.
- Victoria
 3AJM—J. G. Moss.
 3AKC—G. J. Griffiths.
 3ARR—R. W. Binks.
 3AUW—S. D. Wheeler, Now VK3SJ.
 3AVJ—J. E. Lewis.
 3AVP—P. H. Lewis.
 3AWT—C. J. Waterlander.
 3ZCO—L. M. Stone, Now VK3LW.
- Queensland
 4DW—C. D. Wright.
 4SE—S. E. Molen, Transferred to N.S.W.
- South Australia
 5EQ—A. W. Baker.
 5NC—R. G. Clayton.
- Western Australia
 6TM—F. Wiseman.
- Tasmania
 7CI—A. E. Finch, Now VK3AEO.
 7IB—I. G. Gillies.
- Papua-New Guinea and Other Islands
 9OG—D. F. Lloyd.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

- VK— New South Wales
 2AT/T—L. Altman, 132 Sproule St., Lakemba.
 2AFK/T—F. H. Kenny, 13 Fuller Ave., Earlwood.
 2APQ/T—P. J. Healy, 69 Taylor St., Bankstown.
- Victoria
 3SM/T—A. M. Crewther, 26 Reynolds Pdc., Pascoe Vale.
 3AJJ/T—H. R. James, C/o. Station 3LK, Lubeck.
 3ZBU/T—N. R. Dench, 27 Glenbervie Rd., Strathmore.
- Queensland
 4JE/T—J. G. McIvor, 21 Hurd Ter., Morning-side.

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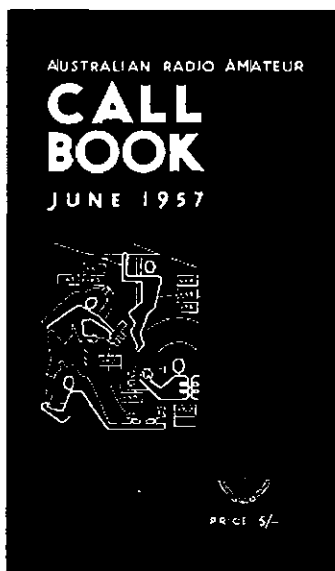
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BY PHYL MONCUR*

This month we have the story of another YL of quite long standing, namely, 3HQ, Mrs. Marg. (formerly Hutchings) Williamson. Marg's connection with Amateur Radio dates back to the 1920's when her brother, Alan, who holds the call 3HL, and her mother, Mrs. Elizabeth Hutchings, who at that time held the call 3HM, were both DX enthusiasts and the Hutchings family were famous for their family activity on the bands from their station at Callawadda. Mrs. Elizabeth Hutchings, who passed on in 1943, was one of the very earliest YLs in VK to receive her licence and most certainly the first in Victoria. Alan 3HL is still of course very active and also takes a great interest in the rural fire brigade network.

Marg's interest in Amateur Radio developed quite slowly, however. At first she was content with two licensed operators in the house and just occasionally listened in. One day after enjoying a programme of music from W land she tuned into a c.w. signal and found herself feeling quite irritated that she could not understand it and her mother and brother could and this is where her career as an Amateur really all started. She then set forth to learn the code, this was followed by the theory, which she found quite fascinating, and in 1932 she herself received her licence.

With her mother she shared a 3-stage xtal controlled rig and during the 1930's she was very active working all hours late into the night and then up again early in the mornings to capture the DX and this went on until the war came. Then, as a war effort, she took up nursing with the R.A.A.F. nursing service, and at one time was stationed at "Frognaill," where, because of her qualifications in radio, she managed to get some practice with the code. Later she was posted to Japan. Through the R.A.A.F. she met her husband, Flying Officer Clive Williamson, and they were married in Japan. Today they live in a comfortable modern home in Bentleigh and Marg has her hands well and truly full running her home and caring for their three young children, two girls and a boy aged 4, 5 and 7 years, and so radio must bide its time for a while.

However, she has lots of memories, among which is a large silver cup presented to her by the Victorian Division of the W.I.A. as winner of a 5-point relay contest which she won in 1933. Also there's her radio snap album in which I found photos of several well known radio personalities, both from DX countries and nearer home. There was one of a good looking curly headed youth and underneath the call 3KR, Ken Rankin, and another of a debonair gentleman sporting a very smart moustache and you don't need three guesses to know who this was—why Max

Howden, 3BQ, of course. There was also a photo of her original rig which was on show at a hobbies exhibition in 1932.

Although she hasn't been active on the air for a few years, she still corresponds and exchanges photographs with several of her old DX pals. W2CC and CR7AD are among these and she also has a card which she prizes greatly. It is from Prince Tungku Ahmad, VS3AE.

She recalls an early radio convention which was held at the Hutchings' homestead on their property at Callawadda where they accommodated a large number of Hams for a week-end and they had make-shift beds made up in every available corner in the house. Probably many of the old-timers will remember this week-end.

As we chatted a light came into her eyes, a light of very pleasant memories and although home and family keep her too busy to take an active part in Amateur Radio at present, I'm sure the time will come when Radio will come into its own again and we'll be hearing that once familiar call of 3HQ going flat to the boards calling CQ DX once again.

S.W.L. SECTION*

NEW SOUTH WALES

Stan Abbey writes again to let us into the secrets of the boys in Coolamon. Since purchasing a car he has been very busy building a garage and, yes, he's also built it to allow for the inclusion of a shack. Another addition to his gear is a 109 rx covering from 2.5 to 5 Mc. Stan intends to build up some converters to feed into it. Jock Ashley and Stan recently helped Jim 2AJ0 extend his tower up about five feet and were almost as agile as monkeys when the job was completed. No doubt Jim is teaching them Amateur Radio the practical way. Study for the ticket under Jim's supervision has been progressing steadily for both of the boys and the big day comes up in about two months' time. Best of luck fellas.

VICTORIA

Dave Jenkin, WIA-L3039 writes and tells me he has now gone back to using his t.r.f. rx, having pulled his superhet to pieces and thrown the chassis in the river. Recently, due to heavy rain, Dave was cut off from the town, but managed to carry on cheerfully. He says it doesn't worry him as long as he has plenty of tobacco and batteries. Dave states that he considers his t.r.f. rx as good as any for 14 Mc. c.w. in which he is mainly interested.

I have received a short note from a s.w.l. in Healesville by the name of G. Weber, asking for details of our Group. By the time he reads this he should have the required information.

* Compiled by Ian J. Hunt, WIA-L3007, 211 St. George's Road, Northcote, N.16, Vic.

Recently several members of the Group paid a visit to Mr. R. V. Wilson, 3SD, to see his station. The boys found it most interesting, the tx being located in his garage and remotely controlled from the house. Those who went on this visit said they really enjoyed themselves, and we thank Mr. Wilson for having some of our members along.

July Group Meeting.—At this meeting we enjoyed having Mr. R. Gillies, of the Dept. of Defence Production, to talk to us about Japan. Mr. Gillies spent some time in that country working for the Australian Government just after the war. His talk was most varied, interesting and often most amusing. He kept us so entertained that the meeting was in danger of running on into the small hours of the morning. Possibly the best compliment we could pay him would be to re-iterate the suggestion of one of those present, that he should come back again soon and tell us even more of his experiences. We thank you very much indeed, Mr. Gillies, for coming along to speak to us.

Future Programme.—On Sept. 2 we are holding a visit to TV Station HSV7. This is being looked forward to with much interest by members. We hope to tell you more of our visit next month. We will also have had our trip to the Newport Power Station by the time that this is read.

As office-bearers for the Group are not re-elected until the end of August no further arrangements have been made for visits and lectures. However, you can rest assured that an interesting and full programme will soon be lined up for you, so come along to the Group meetings and find out all about it. We meet at the W.I.A. rooms, 191 Queen Street, Melbourne, at 8 p.m. on the last Tuesday of each month.

As my current term as Secretary of the Victorian Group has now ended, I wish to thank all those who have assisted the Group in any way and those who have written to help keep these notes going, and I hope you will continue doing so in the future. Remember, it is only through your co-operation we can keep Short Dave Listening to the fore.

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VK3PG	5 3	VK3XA	11 1
VK3VW	9 3	VK3GM	12 1
VK4RY	2 2	VK3ACL	14 1
VK4HR	4 2	VK3ED	16 1
VK5LC	1 1	VK2HO	17 1
VK6DW	3 1	VK2ABC	8
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FIFTY-SIX MEGACYCLES AND ABOVE

56 Mc. NOTES

"Numbers, Numbers, Numbers and Try, Try, Try."

This motto sums up all that is necessary to make the 56 Mc. band tick, particularly during this, the Geophysical Year. The numbers must be there to keep a close active watch on the band during as many of the 24 hours as possible. Openings beyond the normal ground path range run to no predictable timetable though a broad generalised but inaccurate pattern may be plotted as to when the band should come good. Here we have the seasonal peak coming with the spring, here with us now, with pre-noon, early evening and moonrise breaks. In between is the unexpected during any of the 24 hours, though midnight until 0600 is an unplotted sea in this part of the world.

Numbers active would create more opportunity for DX contacts provided that signals were put on the air in preference to a continuous listening watch. A dead band is never as dead as it appears to be until it has been proved that way by making one or two calls, allowing transmitter warm-up time to the fellow who hears the end of the CQ. And what is the use of contemplating the use of this or any other band if the will to try is not there. Objection could be raised that too much time could be wasted on this band waiting for signals to come up, there is too much else to do around the average Ham shack. That argument carries no weight. There are various methods by which a receiver can be automatically and continuously tuned with the refinement of relays being used to trip the tuning when a carrier is received. That would leave the operator free to do what he liked, whether it be working on his equipment, operating another band, or just plain relaxing. One method of auto tuning has already been described in "A.R."

Sked Time and National News

Reg 2ATS, of Inverell, 56.500 Mc., has just about settled down in his new home and most evenings finds him in the shack by 2000 E.A.S.T. listening for calls from the south until 2015. Then calling until 2030. Reg does not guarantee to be there every evening, but from past experience he shall not be missing too often. For the benefit of the boys in Melbourne and VKs-VKs, the husband and wife team of 3VL-3US, of Leongatha, on 56.560 Mc. comes on each Sunday evening at 2030, and as soon as the t.v. problems of the locality ease off and there is not so much call on his time. Rex will be on more frequently. From Peter 3APF, Shepparton, 56.250 Mc., comes the news that he still runs a daily sked with Alan 3UI, 56.040 Mc. and located at Tatura, at 1900. Their beams aim south to favour the Melbourne and VK7 gang. Occasionally Sid 3CI, Nagambie, 56.005 Mc., joins in with his beam north, so firing a signal straight up the Eastern seaboard direct at VK9 with the JA country as a backdrop should that wonderful moment come.

Vern 4LK, Charters Towers, last heard JA 50 Mc. signals on 13th July at 1915, a couple of them averaging 58, apparently having a ragchew, with a third calling CQ DX, very weak and fluttery as though off the side of the beam. Vern uses a quad for reception on 50 Mc., with a 4 element job for 56 Mc. Recently, using a 16 element beam he has been trying to establish a link with the Townsville gang on 144 Mc., but up until the time of writing (July 22) had not succeeded in bridging the 63 miles. It is only a matter of time.

Your Quiz for the Month

What is your interpretation of Para. 112 of the P.M.G. Handbook for Amateur Operators, which can be read to indicate that unmodulated and so unidentified carriers may, on frequencies from 56 Mc. upwards, be emitted for any period of time whilst tests are being carried out (or, as in some cases, background noise is provided by natter in the shack, a prevalent habit on 144 Mc. in some localities). Perhaps Federal Executive could clarify the point seeing that the Reg. was initiated at the 1953 Federal Convention. But whether your study of the Handbook finished at para. 112 or not, bear in mind that para. 136 emphatically states that an Amateur Station shall transmit its call sign at least once every five minutes during each session.

—Frank O'Dwyer, VK3OF.

NEW SOUTH WALES

Meetings.—The annual meeting of the V.h.f. and T.v. Group was held at Gore Hill Technical College on Friday, 5th July. The new Chairman, Bob 2OA; Vice-Chairman, Dave

2AWZ; Secretary, Jim 2ZBD, were elected without opposition. Successful (?) candidates for the remaining three Committee vacancies were John 2ANF, Charlie 2NP and Phil 2ER.

Bob 2QZ then treated those present to an exhibition of colour films concerning his recent trip to Africa and other places. Our thanks to Bob for this most entertaining evening. We think we might buy a "box Brownie" too.

At the August meeting held on Friday, 2nd, a lecture on Panoramic Reception was given by Max Riley, 2ARZ. Max fully explained the theory of operation, and supported this with meticulously prepared circuit diagrams and a demonstration with a Panadaptor he had built himself (and very nicely built too). A vote of thanks was moved by Bill 2ABZ and passed in the usual fashion.

2ER explained that although it was not anticipated that the first I.G.Y. satellite would be launched before early 1958, interest in the project, both from a radio and astronomical standpoint, would be maintained. Assisting to this end, full scale rehearsals would be held at intervals of from six to eight weeks. The first of these would commence on Sunday, 1st September, and continue for one week.

The newly appointed contest sub-committee (2AWZ and 2ANF) submitted several suggestions concerning the Spring Field Day and invited comments from members. This matter was discussed at length and is to be finally resolved at the next meeting of the management committee.

Monthly Night Fox Hunt was held on 24th July. The starting place was at Ryde and the fox, 2OA, hid himself in the Bradfield Park area. Records were broken that night (we think) and when 2ZBD with 2ANF and 2ER as passengers located that . . . Pilot in 23 minutes they were justly proud and elated until they discovered that the job had been done by that master hound 2AWZ in 18 minutes. Third in was 2ZBB in 64 minutes.

Midwinter Contest, which was in the nature of a scramble, took place on 13th and 14th July between 2000 and 2300 hours each night. Stations operating on both 5 and 2 mx were eligible and points were awarded for both inter-band and intra-band contacts. The winner was 2OA (133 points), with 2ZAV (129 points) second, and 2ANF (120 points) third.

The Monthly Day Fixture commenced on Sunday morning, 21st July, when members visited the C.S.I.R.O. Research Station at Fleurs and inspected the Radio Astronomy Installation there. We are indebted to 2NP for this most interesting visit. Thanks Charlie!

Our thanks also go to John 2WJ who spontaneously invited all those present to inspect the Overseas Telecommunications Installation at Bringley; an invitation accepted by all with alacrity.

During the month of July five metre activity has increased. Stations known to be operating include 2ZAL, 2ZBG, 2ZAV, 2ZBB, 2ARG, 2OA, 2ASA and 2ZDC. 2ZCF and 2ZBB, both mobile in Sydney, were heard in Singleton by 2VU at good strength on 2 mx. 2ZB (Blayney) was in demand on 2 mx on Friday 28th, when, with a signal peaking up to 58, he worked six stations in the Sydney area. 2ANU (Muswellbrook) was heard and worked in Sydney by 2HE and 2ER the following night. Also a fine (58) 2 mx signal of 2ATS (Inverell) has been working 4CU 138 miles to the north. Jock 2GM, an old hand on other bands no doubt, has been heard on 2 mx for the first time; welcome to 2 mx Jock. 2ZBD worked several Sydney stations with 2ANF's walkie-talkie from his hotel bedroom at Katoomba. 2ASA and 2ON have been pointing their beams Sydneywards on Sunday mornings from 1030 hours onwards.—2ER.

VICTORIA

The turn up for the July V.h.f. meeting was very disappointing—a mere 20 arrived where a sit-down supper for 40 had been catered for. Because of the supper and the interesting evening organised by Mr. Stearman, Tom SAOG and George 3ZEH, all of T.A.A., everybody enjoyed themselves immensely. Perhaps July could have been called "Apathy Month." As well as the poor attendance at the meeting cum excursion, there was also a poor turn up for the fox hunt. In fact only two people turned up—1 fox 3ZBU and 1 hound 3ARY. Because of insufficient starters and the wet weather, the hunt was called off. Let's hope some fox hunters of the past and some new ones as well become interested, otherwise it would be a pity to see fox hunts end through lack of support after going for so long.

Activity on 144 Mc. has not died out as much as usual this winter, but unfortunately most of the active stations are suburban and don't appear to be interested in DX. Eric 3ANQ at Warrambool has been active, but apart from SRK he cannot get Melbourne QSOs. To make matters worse, Eric can hear stations talking amongst themselves. This sort of thing doesn't encourage the country v.h.f. boys, so next time you are on 2 mx tune carefully—your signal may be going further than you think.

Glenn 3ZBJ has been very quiet of late, partly due to a car accident and partly because of his job. Recently he spent some time at Ararat and whilst there heard Melbourne stations on 144 Mc. The most consistent was 3ZFH—usually about strength 5 and quite readable. 3HW at Ballarat is really making an impression on the band. On the occasion of his first QSO, David 3ZAT at Maffra heard him quite well 3ZAT, by the way, has got a new beam up—a 5/5 nearly 80 ft. high. Other stations with new beams are 3ZCG, a 32 el. phased array; 3DY, with a 16 el. array up 50 ft., and 3TH with a quad yagi. All stations report much improved results with their new "signal squinters" and 3ZCG in particular has a much stronger signal now.

These reports highlight the necessity for large beams if you wish to be a successful v.h.f. DX operator. It would pay dividends, particularly for country ops., to put up large beams, at least a 6/5, as high as possible. Don't mess about with folded dipoles, or yagis 10 ft. high, or other such beams—they won't get your signal through. If you wish to experiment with aerials, at least get a proven "big un" up for those DX QSOs.

Ian 3ALZ has been having some success on 56 Mc. He has had a number of fine QSOs with 3ZL and 3ZCN at Ballarat and he has heard 3ZCG at Newborough East. Peter 3ZAF has a xtal locked converter going on 5 and he hopes to have his 815 delivering the goods shortly. This same 3ZAF character was adopted by some American ships visiting Melbourne recently—he even got his photo in a local rag. Despite this adoption and the radio gear he saw whilst on board, he decided to remain in VKs—because somebody has to give a report on the 258 Mc. relay—or so he says.

A few more stations with 5 mx gear that I have recently learnt of are 3JM, 3UI (Tatura), 3APF (Shepparton) and 3ATN (Birchip). 5BC at Renmark also has gear for this band. Some new stations on 144 Mc.—and there seems to be more coming on each week—are 3ZDW, 3ZDJ, 3SF (ex-3ARI), and 3ZEN. Bob 3ZAH now has his hopes realised as he is now a going concern. Welcome to the band gents; may your stay be a long and happy one.

Vippland stations are very active on Thursday nights. They have their zone hook-up at 2100 hours on 144.18 Mc. and at 2030 3ZCG has a sked with 3ZDB, and at 2200 hours with 3BN. The boys are keen and looking for contacts so don't disappoint them.

This month I'm going to end on a sour note. None of us are perfect in our operating practice, but some of the current practices on the v.h.f. bands could be dispensed with without much trouble on the part of the offenders. My remaining remarks apply only to these "bods". If you use a v.f.o. use it properly and with discretion. If you must overmodulate and splatter, shift up to 147 Mc. and give other people a go. If you are in contact with a station, don't have private conversations with someone else in your shack; it's rude and an insult to the other station. If you must speak to somebody else, excuse yourself, that's plain ordinary good manners. Finally, how about giving your full call sign at the beginning and end of EACH transmission—it is required by Regs., you know.

Remember, there are other people who share the band with you—make your presence welcome.—3ZAQ.

SOUTH AUSTRALIA

A great sport of building activity on 56 Mc. seems to be the order of the day, for apart from items published last month from VK2 and 3 most of the gang here seem to have deserted the 2 mx band in favour of screw-driver and soldering iron at present, so there is a fair promise soon of a bunch of 56 Mc. sigs this way.

The 5WC boys are amongst it too, so will look for something special from there soon. Bill 5ZAX another one with Neil 5ZAW already there; get that tower up Neil and let's hear more from you.

George 5GB, John 5ZBA, Keith 5MT appear to be the mainstays on 2 these parts, with Col 5CJ, Claude 5CH down Gambler way, not

(Continued on Page 14)

DX ACTIVITY BY VK2QL†

Some of the regulars are missing this month and judging from the comments of those I did hear from, it is probably due to their inactivity. Not a word from VK5 and have not heard any of them on. Probably getting organised for the R.D. Contest.

NEWS AND NOTES

The **Aland Islands** are well in the news at present with activity by **OH0NB**, **OH2RD/0**, **OH2KQ/0**, and **OH3UI/0**. Their period of activity in some cases has finished (2ACX).

VR6TC will send QSLs and is reported to be building a beam (Rod de Balfour).

ZAZACB should be heard on the air this month and is **DM2ACB (7LZ)**.

LA2JE/P has been operating from Spitzbergen. Don't know of his being heard out here.

KP6AL has no regular postal services or Post Office facilities at his QTH.

KW8AB has sent out a big batch of cards to VK Bureaux and they date as far back as August '55.

ACTIVITIES

8.5 Mc.: **BER8106**: **VK9AD** (Norfolk Is.) and **W5PDO**.

7 Mc.: **2AIR**: **FK8AT***, **2AMB**: **VK9NT***, **DU7SV***, **JATBE***, **KR8AC***, **PY8YS***, **HP3FL***, **6EJ**: **V5ZER***, Rod de Balfour: **W, KH6, VE, JA, HP3FL, BER8106**: **FK8AT, JA, FA8BG, 4X4HK, KM8AK, VP8CW, ZS8CH**.

14 Mc. C.w.: **0AB**: **CE4AD***, **KC4USV***, **CX8CM***, **XZ2TH***, **VP8CC***, **CR7BN***, **KW8AB***, **ZC5AL***, **UH8KAA***, **ZS1NG***, **ZS1RM***, **FE8AE***, **2ACK**: **OH2RD/0***, **OH2RD***, **OHSUI/0***, **2AIB**: **FY7YF***, **VP5BL***, **VR3E***, **ZC5AL***, **KP4CC**, **2AMB**: **KC4USV***, **F08AC***, **KW6CM**, **HL2AM**, **3QL**: **EA8DF***, **ZL5AA***, **KP8AL***, **TI2VA***, **VK0AS***, **FB8XX***, **ZC5RF***, **XZ2TH**, **FF8BZ**, **ZD4CM**, **VP2LU**, **OHSUI/0**, **8EJ**: **VQ5GC***, **KL7WAF***, **VR4JB***, **G***, **SM***, **7LZ**: **PX1FC***, **FB8XX***, **FB8Z***, **3W8AA***, **H18BE***, **FP8AP***, **VP5BL***, **VP9Y***, **P21BS***, **9XK**: **H18BE***, **ZC5AL***, **W1A-L8089**: **KC6UZ**, **EA8BH**, **PA0CE**, **H18BE**, **XZ2TH**, **VP5BL**, **VU2RC**, **TI2AA**, **BER8106**: **FK8AC**, **CESRE**, **CX1BO**, **KZ5LE**, **OQ5GO**, **PY3DB**, **PY8MO**, **PYA4JD**, **VK9AD**, **VR3G**, **VP8CC**, **ZK2AD**, **YV5HL**, **YV4AU**.

14 Mc. Phone: **0AB**: **KC4USK***, **ZL5AA***, **2AMB**: **EA8CC***, **I1BEQ***, **EA7AI***, **EA9BK***, **OA4AW***, **VU2JD***, **YV5BL***, **HL2AM**, **TI2RC**, **VR2AG**, **HP1CC**, **2AQJ**: on s.s.b., **W***, **KG6***, **KL7***, **KA***, **KC4***, **ZSSJZ***, **V56**, **G**, **DU7SV**, **DL**, **KV4AA**, **F**, Rod de Balfour: **G, DL, EA, G2DFR, EI, I1BFS, F, CT, LA3G, SV0FR, EA8CC, ZS6OV, 43TYL, BVIUS, ZK2AB, XE2DO, HP3FL, YU5EC, OA4EI, LU6H**.

21 Mc. Phone: **0AB**: **ZS6DT***, **ZS4FD***, **2AMB**: **KP4AEQ***, **FS1RT***, **VK0CJ***, **F08AC***, **KP4ADX**, **FK8AC**, Rod de Balfour: **EA, G, CT, OZ, OH, F, I, CN8GR, ZCAEN, ZS8BW, ZS6UR, VQ4RF, 43TYL, HS1A, VS4JT, VR2AG, KZ5UJ, V1EE, VP7NB, VP6ZX, FS1RT, 7LZ**: **VK0CJ, VK0AB, OH2OF**.

21 Mc. C.w.: **2QL**: **CN8BQ***, **F08AC***, **UA0CI***, **VK0AB***, **2AIR**: **KG4AN***.

28 Mc. Phone: **4XJ**: **KH6***, **VR2AG***, **KP4UY***, **XE1BX***, **ZS5XX***, **ZS6AJV***, **ZS5RE***, **ZS6AIA***, **ZS6JL***, **OQ5BK***, **FB8ZZ***.

28 Mc. C.w.: **2QL**: **VK0AB***.

QTHs OF INTEREST

ZC5RF—Via **V52** Bureau.
XZ2TH—75 Boykoek Street, Rangoon.
FB8XX—Via **FB8CC**.
TI2VA—Box 441, San Jose.
FF8BZ—Box 49, Dakar.
KP8AL—Via **KP8AK** or **KH6** Bureau.
PX1FC—Via **U.B.A.** (7LZ).
ZAZACB—Via **DM2ACB (7LZ)**.
SP7HX—P.O. Box 424, Lodz.

QSL SITUATION

Some interesting QSLs have been received for this month, with the resultant satisfied feelings of the recipients.

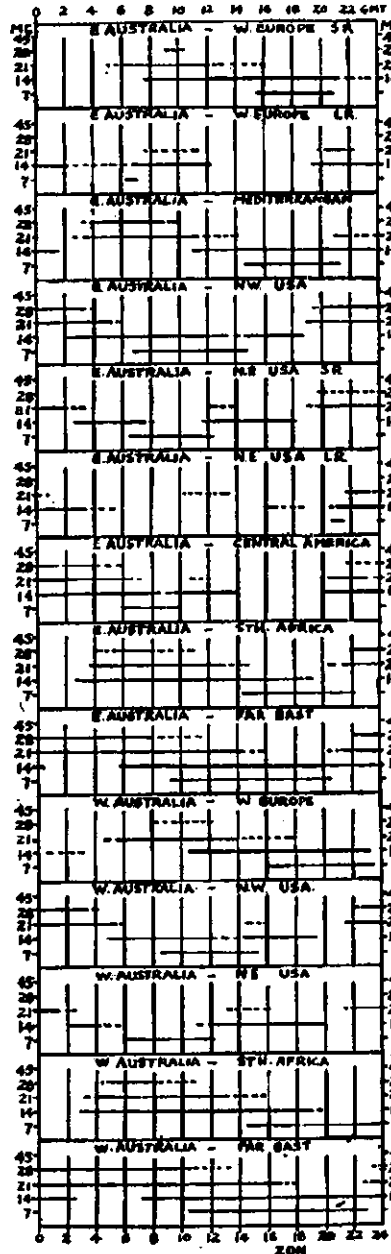
† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.

* Call signs and prefixes worked.

z—zero time—G.M.T.

2EG, who is looking after **0AB's** QSLs has received for Chas: **KW6, KL7, GMS, UI8, FB8** (bringing confirmations to 44). **2AIR**: **EA8DF, UB5CJ, 2AMB**: **UR2AK, 4S7MR, SPIKAA, CR7CI, CN8JX, LUSAQ, LU8ES, H18BE, VR3B, FY7YF, 8X4AX, PZ1AH, TG9AD, PY2BC, FM7WR, FM7WP, ZD6RM (7 Mc.), 4X4HK, ZS2EN, 2DI**: **VR7CT, CE0AC, 2AQJ**: **F9MS, G6CJ, H89NB, KL7KK, KP4CC, OZ3FI, SM3QJ, UA3BN, UA9VB, VESPK, ZS8ALU, 2OW**: **PY1HQ, LZ1KPZ, CX1BZ, UC2KAB, UA0KQB, U18KAA, VR3B, UJ8KAA, AP2RH, VO3X, 2QL**: **VP8CC, PJ2ME, FG7XC, FM7WR, FM7WP, VU2KL, SP3HC, ZC5AL, FY7YF, W7EMY/KJ6, UA0SB, XW8AB (7, 14 and 28 Mc.), UB5BK, UR2AR, UB5LC, 6EJ**: **YAIAM, FB8ZZ, VQ8LQ, I1BNU/Trieste, 3A2BH, 7LZ**: **KC4USA, YAIAM, ZS6SG, 1IGFT, HP1GD, VK0AB, TG7SQ, DUIAQ, 9XK**: **KP8AL, UC2KAB, UR2AA, ZC5AL, VR3F, ZP8AY, BE8185**: **FB8EP, KW6CE, KZ5BB, OA4FA, UA3NT, UA0KUA, UC2AA, VR2DB, ZD2DCP, ZESJA, ZK2AD, SV8AO**, Rod de Balfour: **SP8KAB, G13JXX**.

IONOSPHERIC PREDICTIONS FOR SEPTEMBER 1957



My thanks this month to **2EG** for the extracts of the log of **0AB, 2ACK** who keeps his beam pointed down in the direction of **VPE** in the hope of finding the missing ones, **2AIR** now very content at having completed his **W.A.S.**, **2AMB, 2AQJ** who is very keen on his s.s.b. work, **4XJ** still manages to find some **DX** showing on 28 Mc., **2OW** who after about 25 years has managed to reach his **DX C.C.**, **6EJ** not so active the last month and **9XK** who is another with subdued activity. Of the s.w.l.s. **BER8106** has been quiet this month by the 'flu bug, **Red de Balfour** who with his own activities report sends in **7LZ** also. **W1A-L8089** still trying to get the maximum out of his receiving equipment so as not to miss anything, and finally **Chas Therpe**, a listener from Rockhampton who went to the trouble of sending me the **QTH** of **SP7HX**.

FIFTY-SIX MEGS. AND ABOVE

(Continued from Page 13)

forgetting **Leo 5ZAG** who has successfully worked **Ballarat** lately, good luck **Leo**, keep up the good work. Understand the contact was made during the meteor shower in late July, so it pays to keep up with predictions on these things and gather in the advantages.

Had a very interesting note from **Hughie 5BC** on his doings up there, and quote verbatim from it. Conditions on the v.h.f. have been rather poor of late, with the cold weather about, but there was a high spot on 2nd July when working **3RH** on 80; he asked for a check on 2 and his carrier was **R5 to 6** at 1820 hours. Of course, I didn't lose any time in changing to 2. I had several contacts during the evening with **3RK**, also worked **3ALZ, 3ZCN** and **3ZCW**. The following evening we clicked again—although Melbourne carriers were present they were not workable by phone.

Since this break through the band has been very quiet, contacts have been confined to **5MT, 3ZCW** at **Ouyen** and **3GZ** at **Mildura**. **3ZCW** advised the other night that **3TY**, who has recently been transferred to **Swan Hill**, will be on 2 shortly, so looks like another station for me to work up here. Also another chap to go on 2 is **3HW** at **Ballarat**, had a check last night on his signal, was **S3-4** carrier. Understand this chap has a very good set-up with his beam up on a 100 ft. tower on top of a 150 ft. hill—with better conditions his signal should be workable on phone. Incidentally, I have my **38 Mc. tx** fixed up again, so if any of the chaps want a check I am available.

Thanks **Hughie**, it's some time since we had a run through from you and in your capacity of intermediary between **VKs (Central)** and **VKs (Northern)** any information like the above is useful to those of us who are trying for better things on 2.

It is hoped by next month to be able to give some details of the "Moon Watch" possible arrangements as they apply to **S.A.**, but of course, as the time when this is now scheduled is well into 1958 there is no urgency about planning. All the same, as soon as known it will be conveyed either direct to those who have indicated willingness to cooperate or through these columns. The **108 Mc.** is still the frequency so in building **144 Mc.** gear it may not be a bad idea to provide for a change to **108** in the design which will save major re-building of your converter if you take the "Watch" on.—**SEF**.

WESTERN AUSTRALIA

The June V.h.f. Group meeting was held at **Ralph 8ZAD's** QTH. The attention of the meeting was taken up with the constitution of the Group, as this has taken a long time to get together. It was a welcome relief to members when the last of the business was finally passed, so that in the near future we should be a fully constituted body. Since the meeting advice has been received that through the courtesy of **D.C.A.**, we have been granted the use of the training school lunch room for meetings. This will relieve members QTHs which have been sadly overcrowded by large attendance at meetings.

The **288 Mc. Tx** Hunt on 20th July was a great success, **8ZAD** being the fox, **Ralph** picked a good spot alongside the **Swan River**. The winner was **Don 6HK**, followed by **Rollo 6BO** and **Dennis 6AW** in that order. **Syd 6SJ** got in by the process of elimination with a rx that wouldn't work and **Don 6ZAV** struck trouble at the start when a faulty joint on the regeneration control came afloat. This was remedied in true Ham fashion—with twisted hook-up wire, only to finish up on the wrong side of the river. Well, well. Never mind, it was a good night.—**6ZAV**.

FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

Fed. President: W. T. S. Mitchell, VKSUM.
Fed. Secretary: L. D. Bowle, VK3DU, Box 2311W, G.P.O., Melbourne, C.I., Vic.

Federal Councillors:
New South Wales—Don Pollard, VK2ASW.
Victoria—Dave Wardlaw, VK3ADW.
Queensland—Paul Dubois, VK4DJ.
South Australia—Gordon Bowen, VK5XU.
Western Australia—Ron Hugo, VK6KW.
Tasmania—Doug. Fisher, VK7AB.
Papua-New Guinea—Doug. Lloyd, VK9OQ.

Fed. Contest Committee: Reg. Harris, VK5RR, Secretary, Box 1234K, G.P.O., Adelaide, S.A.

QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.11, Vic.
Awards Manager: A. G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Perc. Healy, VK2APQ.
Secretary: Ketith Woodward, VK2ZAU, Box 1734, G.P.O., Sydney.

Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.

QSL Bureau: Frank Hine, VK2QL, 30 Abbotsford Road, Homebush, N.S.W.

Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Newcastle: Les Spark, VK2AOR, 13 Kahibah Rd., Highfields, via Adams-town; Coalfields and Lakes: H. Hawkins, VK2YL, 9 Camford Av., Cessnock; Western: W. Sitt, VK2ZWH "Cambijowa"; Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxlade St., Warrawong; Sth. Western: J. W. S. Edge, VK2AJQ, Wallace St., Coolamon; Tamworth: F. W. Fowler, VK2APF, 4 Thompson Cres., Tamworth.

FEDERAL

CHANGE OF ADDRESS FOR VK9

VK9 Division advises that it has now secured a post office box and it is requested that all mail and QSL cards be sent as follows: Post Office Box 204, Port Moresby, Papua-New Guinea.

LIST OF PERSONS WHO QUALIFIED FOR AMATEUR OPERATOR'S CERTIFICATES

New South Wales

- E. M. Bailey, Eugella, via Murwillumbah.
- R. E. Birley, 101 Burns Bay Road, Lane Cove, Sydney.
- *W. B. Clarke, Harriott St., Waverton.
- *J. Dempsey, Farm 775, Leeton.
- N. T. Durham, H.C.H.Q., R.A.A.F., Penrith.
- G. G. Hoyle, 32 Manners St., Tenterfield.
- D. F. Klesewetter, C/o. Snowy Mountain Authority Communication Division, Cooma.
- D. A. MacAskill, 96 Vernon Ave., Eastlakes.
- *B. J. Starke, P.O. Box 8, Bellglen.
- J. V. Smith, Farm 937, Griffith.
- *R. R. Whitelaw, 85 Church St., Croydon.

Victoria

- *A. H. Anderson, 1a Little Osborne St., Williamstown, W.16.
- W. A. Ferres, 28 Jeffers St., Noble Park, S.C.S.
- *R. H. Hall, 8 Service St., North Essendon, W.8.
- H. C. C. Hargrave, 2 Graham St., Albert Park, S.C.S.
- *B. R. Harris, 49 Havelock Rd., Hawthorn, E.3.
- W. R. Hempel, Kyvalley Rural Delivery.
- *G. F. Jenkinson, 61 Wre St., Brighton Beach.
- A. Lock, Smoko, via Bright.
- *T. K. Long, 32 Bladen Ave., Brunswick.
- G. W. J. Mackay, 23 Gloucester Rd., Ashburton.
- E. Martin, 12 Scott St., South Caulfield, S.E.8.
- *J. L. Morris, 224 Burwood Rd., Burwood.
- *P. J. Newdick, 14 Rippon St., Footscray, W.11.
- *K. C. Oldroyd, 515 Waterdale Rd., West Heidelberg.
- *D. C. Paton, 20 Scotts St., Bentleigh.
- *M. A. Robinson, 43 Marina Rd., Mentone.
- *H. J. Simmons, 280 Gillies St., Fairfield.
- M. F. Spiller, 46 Maling Rd., Canterbury.
- L. M. Stone, 18 Douglas St., Rosanna.
- *T. C. Yew, 1517 Burke Rd., East Kew, E.5.

Queensland

- *T. H. Barber, 73 Horston Rd., Kelvin Grove, Brisbane.
- *J. L. C. Bickford, Dee St., Mt. Morgan.
- E. P. Bowdler, Pasture St., Jericho.
- *R. J. Conway, P.O. Box 296, Townsville.
- *A. J. Fuller, 31 Maple St., Wavell Heights, Brisbane.
- J. Kelly, 40 Payne St., Inderoopilly, S.W.2.

VICTORIA

President: F. G. Ball, VK5YS.
Secretary: J. R. Lancaster, VK3JL.
Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.

Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.

Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.

QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.I., Vic.

Zone Correspondents: Western: W. J. Kinsella, VK3AKW, Magdala, Lubeck; South Western: W. Wines, 48 Cranley St., Warrnambool, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; Far North Western: M. Folle, VK3GZ, 101 Lemon Ave., Mildura; Midlands: R. Jonasson, VK3ND, Farnsworth St., Castlemaine; North Eastern: L. Ellason, VK3ALE, 72 Orr St., Shepparton; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe.

QUEENSLAND

President: Frank Bond, VK4ZM.
Secretary: W. J. Rafter, VK4PR, Box 636J, G.P.O., Brisbane.

Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.

Divisional Sub-Editor: A. Simpson, VK4ZAE, Cr. Baden Powell and White Sts., Everton Park.

QSL Bureau: Inwards—J. Miles, VK4JF, Vanda St., Buranda; Outwards—Miss Clair O'Brien, 83 Jardine St., Stafford.

Zone Correspondents: Maryborough: R. J. Glassop, VK4BG, 80 North St., Maryborough; Townsville: R. K. Wilson, VK4RW, Hogan St., Stuart, Townsville.

South Australia

- *B. N. Dale, 40 Ballville St., Prospect.
- *R. L. Dyer, 81 Third Ave., Sefton Park, Adelaide.
- R. W. C. Kopp, 9 Matilda St., Eastwood.
- *K. L. Metcalf, 80 Castle St., Edwardstown.
- *J. B. Mitchell, 29 Manningford Rd., Elizabeth South.
- L. M. Mullins, 47 Robart St., Parkside.
- *A. C. Richner, 38 Payneham Rd., St. Peters.

Western Australia

- *S. E. Brewer, 95 Edward St., Osborne Park.
- J. Burrows, 140 Gloster St., Subiaco.
- *R. L. Holman, 11 Yalgoo Ave., White Gum Valley, Fremantle.
- *R. S. Milne, 55 View Ter., East Fremantle.
- *F. M. B. Paget, Upland St., Wagin.
- *G. C. Stables, 24 Park Rd., Mt. Lawley.

Tasmania

- K. Minck, 58 Risdon Rd., Newtown, Hobart.
 - *D. A. H. Thorne, 308 Park St., New Town.
- *Qualified for the Limited Certificate.

T.V. STATION OPERATOR'S CERTIFICATE OF PROFICIENCY

The Australian Broadcasting Control Board has notified the following candidates that they were successful at the examination held on 11th June, 1957, for the Television Operator's Certificate of Proficiency:

Melbourne: Russell Alan Bourne, John Alexander Garry.

Sydney: Michael John Altria, Cecil Thomas Amore, Roy Lemplere Belstead, Donald Albert Crowley, Alfred William Culloden, Warwick Mansell Davies, Colin Melville King, Edward Noel King, Robert Keith Munnings, George Philip Pearson, Vernon Alban Sinclair, James Douglas Stewart.

The examination was conducted by a Board of Examiners comprising officers of the Australian Broadcasting Control Board, Mr. R. H. Mondell, of the Dept. of Technical Education, Sydney, and Mr. F. A. Kempson, of the Royal Melbourne Technical College.

SILENT KEY

It is with deep regret that we record the passing of:—

- VK3QH—George Gurr.
- Ex-VK3SW—Stan Gadsden.
- VK6EL—Ernie Langenschied.

SOUTH AUSTRALIA

President: W. J. Bulling, VK5KX.
Secretary: B. W. Austin, VK5CA, Box 1234K, G.P.O., Adelaide. Telephone: UX 2821.
Meeting Night: Second Tuesday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor: E. C. Daw, VK5EF, P.O. Box 44, Gawler, S.A.

QSL Bureau: G. Luxton, VK5RX, 27 Belair Rd., West Mitcham, S.A. (Inwards & Outwards).

WESTERN AUSTRALIA

President: J. E. Rumble, VK6RU.
Secretary: J. R. Elms, VK6EE, Box N1002, G.P.O., Perth, W.A.

Meeting Night: Third Wednesday of month at Perth Tech College Annex, Mounts Bay Rd.
Divisional Sub-Editor: E. J. R. Cowles, VK6EJ, P.O. Box 11, Bencubbin, W.A.

QSL Bureau: Jim Rumble, VK6RU, Box F319, G.P.O., Perth, W.A. (Inwards and Outwards).

TASMANIA

President: F. J. Evans, VK7FJ.
Secretary: M. Hurburgh, VK7MH, Box 371B, G.P.O., Hobart.

Meeting Night: First Wednesday of each month at W.I.A. Clubroom, 147 Liverpool St., Hobart.
Divisional Sub-Editor: W. W. Watson, VK7YY, 58 Brooker Ave., Moonah.

QSL Bureau: K. A. Johnston, VK7RX, 34 Tower Rd., Newtown.

Zone Correspondents: Northern: K. J. Briggs, VK7LX, 18 Melbourne St., Launceston; North Western: L. S. Edgington, VK7LS, 3 Jenner St., Wynyard.

PAPUA—NEW GUINEA

President: W. C. Gee, VK8WG.
Secretary: H. S. Young, VK8AMZ, C/o. P. & T. Dept., Port Moresby.

QSL Bureau: R. Lloyd, VK9ZAL, C/o. Commonwealth Dept. Works, Port Moresby.

Examinations are conducted twice yearly, on the second Tuesday of June and December. Applicants who have passed any sections of the examination on a previous occasion will be exempted from those sections for a period of 12 months, that is two half-yearly examinations succeeding the passing of the sections.

The next examination will be held in Sydney and Melbourne on 10th December, 1957. Applications for this examination must be lodged with the Secretary of the Board, 497 Collins Street, Melbourne, by 15th November, 1957.

FED. CONTEST COMMITTEE

NATIONAL FIELD DAY RULES, 1958

As for the Ross Hull and the Remembrance Day rules, these rules have been re-written to follow the standard adopted by Federal Council. For example, Rule 2 in all the contests now refers to the terms of entry into a contest and Rule 8 to the cyphers, etc.

One major change has been made and asked for adoption by 30th September, 1957. The title of the Contest is that of "National Field Day" and does not, therefore, envisage contacts with overseas stations. In view of the emphasis now being given to C.D.E.N. and other emergency work within the Commonwealth, it was felt that no really good purpose could be served by including overseas contacts for scoring purposes.

All Contests now include a S.W.I.s. Section. This Contest has been extended to bring the Rules into line with the new P.M.G. Regulations on portable operation.

Please read the Rules through carefully, with thought not only of your own participation but of those in other Divisions. Let your Federal Councillor have any comments to forward to the F.C.C. by the above date. Since the rules have been based upon recommendations received from previous years' contestants and from Federal Council at the Convention, no major alterations should be necessary.

G. M. Bowen, VK5XU, Chairman.

FEDERAL QSL BUREAU

The Manawatu Branch of the N.Z.A.R.T., which covers the area within an approximate radius of 15 miles from Palmerston North, has instituted an Award known as "Worked All Manawatu." The rules require 12 contacts with different Manawatu Branch area stations on any or a combination of bands, made on or after 1st September, 1956. Application for Award to be in writing with a copy of logged contacts including the following details: Date,

time in G.M.T., readability and signal strength, christian names of operators of stations contacted. Applications are to be sent to ZL2HT, Mr. A. G. S. Bradfield, 70 Te Awe Awe St., Palmerston North, New Zealand.

VU2JA is the sixth call sign held by Joe Faithful in his 36 years as an active Ham, the others having been VUIHA, VS8AA, VU7AA, MP4BAF, and VU2BX. Joe has now "retired" to finish off his days at 18b Cubbon Road, Bangalore 7, India, where VU2JA is kept active. Joe worked many VK stations as MP4BAF, on Bahrain Island, and says not all contacts were QSLed by the VK operators. He would welcome those outstanding, if sent to his India QTH and will QSL himself any of the contacts for which cards have not been received. Joe used a 40w. two-stage rig at MP4BAF, coupled to a window aerial, and worked mostly 14 Mc. c.w. As VU2JA, he seeks contacts with VK stations, using both c.w. and phone on 14, 21 and 28 Mc. bands. Info supplied by BERS185.

R. Jones, VK3RJ, Manager.

NEW SOUTH WALES

The July meeting of the N.S.W. Division was held at Science House, Gloucester St., on Friday 26th. The meeting was the best attended for some time, 85 being present, among whom were many of the well known Amateurs who have taken an active interest in Institute affairs over the years.

The chairman was the recently elected President of the Division, Pierce Healy, 2APQ, who expressed his appreciation of the trust placed in him by being elected to that position, and indicating that the new Council will endeavour to foster the real Ham Spirit among all who are associated with Amateur Radio.

The lecture for the evening was given by Mr. R. Mondel, Supervisor of the School of Electronics and Communications. The subject, "The Importance of Impedance Matching," dealt with the following points: Mismatch of transmission lines, reflection co-efficient, standing wave ratio and power transfer, ghosting on t.v. signals.

Mr. Mondel gave a most enlightening lecture by explaining the make-up of a transmission line and formula used to calculate the power loss in transmission lines, showing how standing waves are produced and what standing wave ratio could be tolerated before severe losses became apparent. The discussion on ghosting of the t.v. picture by a mismatch in the transmission line brought many questions from members.

A hearty vote of thanks was given to Mr. Mondel for an excellent lecture.

Council were pleased to receive from the retiring Treasurer, Vince Cahill, 2VC, the offer to carry on for the next few months and have co-opted him as the seventh member of Council.

Our Engineer, Dave Duff, 2EO, has been rewarded for his efforts on the 2WI tx at Dural, from the number of reports received on the improvement Dave has made it appears that a very good signal is being radiated.

Roy Hart, 2HO, C.D.E.N. Co-ordinator, has been invited by the Director of Civil Defence to be one of the N.S.W. representatives at Macedon, Vic., in October this year. Roy will represent the N.S.W. Division at these discussions.

New members admitted at the July meeting were C. Fryer, 2NP; A. K. Hore, 2ZCH; W. E. Dixon, 2OZ, as full members; and L. E. Howard, D. F. Evans, A. Shaw, D. M. Grantley, D. W. S. Shephard, C. Foster as Associates.

HUNTER BRANCH

Fourteen members of the Branch attended the July meeting at the University of Technology, Tighes Hill. Various matters were discussed and it was unanimously decided that the Hunter Branch Field Day would be held on Labour Day week-end each year, as in the past.

The Branch President, Lionel 2CS, gave a lecture on Civil Defence as it affects Ham Radio.

Congrats to Harry 2AFA who has now only about 10 confirmations to get and 6 to work for his DX C.C. Bob 2AQR has had his Boy Scouts chasing over Mt. Sugarloaf after "flying saucers," but general opinion is that clouds are being ignited by r.f. from Bob's Tx at "Westie." Varley 2SF being congratulated on a nice drop of phone on 40 mx, real hi-fi. We don't hear much of 2DZ these days, but Johnny says he still gets on 21 Mc. at times. After a long absence, George 2AGD has his 40 mx rig going again, and up to his old standard. Treasurer Bill 2XT with Secretary Charlie 2ARV and Ernie 2FP to keep them on the straight and narrow, made a car trip to 2WI at Dural to meet new Div. Council and made some 7 Mc. mobile QSOs on way. Incidentally, Ernie 2FP with his pair of 24Gs is still working them on 10 mx but finds Southern Hemisphere DX is hard to come by. Preparing for holidays on VK4 Gold Coast, with short stay at 2XO's "Do Me," is Harold 2AHA and family. Another to leave is Assoc. Sid Daniels who is to forego his Uni. lab. for beauties (2 legged photogenic) at Cairns and Barrier Reef. Social Sec., Assoc. Gordon Sutherland, has acquired a Marconi B28 Rx and very happy with results. Dave 2BZ has been playing with t.v. antennae and his latest effort uses a copper mesh reflector which works i.b. Ron 2ASJ getting good QSOs and QSLs from Ws on 20 mx phone and c.w., a recent visitor to 2ASJ was "Bush Ranger" Ben 2ABT from Coonabarabran who stayed with brother-in-law 2ZL. Ben had misfortune to have a car accident. With car laid up for a few days, Jim 2AHT came to rescue and took Ben around. Most startling news for years was that Bill "Rembrandt" 2ZL has become a DX hound. Bill laid aside his paint brush and worked nothing less than HP3 on 40 mx phone, also received a s.w.l. card from OK.

The next meeting of the Branch will be held at the University of Technology at 8 p.m. on 13th September.

SOUTH WESTERN ZONE

Main activity here seems to be on 144 Mc. as John 2ZDM at Hillston and Jim 2ZBP at Illaboo have more or less nightly skeds with 2AJO. Both are talking 56 Mc., Jim 2ZBP has a tx working on that band on 56.475 Mc. Your scribe had the pleasure of his first 56 Mc. QSO on 31st July with Keith 2ZAA at Tumut, 2ZAA's freq. 57 Mc., 2AJO's 56.8 Mc. Many thanks for coming on Keith.

Don 2RS at Albury has been keeping skeds on 144 with VK5 and VK5 with fair success. Don is building bigger and better beams I hear, to offset opposition he is getting from 2QD, 2EU and 2AEM.

Stewart 2PL at Griffith had a short spell in hospital, nothing serious, used the Type 3 on c.w., said the curtain rod made a good antenna. John Smith now has full call, 2NV. Congrats John. John is active on 40 with ATS. 2AXD Ted also heard, still with gravel voice modulation (sit down, Ted). Lyn 2AQE at Wagga has been heard on 40.

Things are well in hand for this year's Convention at Coolamon. Programmes are being printed, the hall is reserved, and the caterers advised.

VICTORIA

On the last meeting night, 7th August, 1957, our President was laid aside with the flu, which is very prevalent at the moment, and Gordon 3TF, our immediate past President, took the chair. Every good wish for a speedy recovery Fred.

The meeting was well attended despite the wet miserable night and it was easy to see that the elements hold no terrors when a lecture on home brew t.v. receivers is in the wind.

Providing you were there early enough to miss the crowd, the first thing to greet the eye on entering the lecture theatre was a Loran c.r.o. giving forth a very creditable t.v. performance, a thing quite foreign to its normal role in life. However, as the crowd rolled up, the c.r.o. disappeared under a sea of heads and the performance was from outside appearances more akin to bees around a honey pot. Needless to say the acting President had his work cut out even starting the meeting.

The lecture was placed at the beginning of the meeting, a very wise precaution in this case, and we were soon on the way to hearing the ins and outs of the construction of a television receiver from disposals equipment.

With much foresight the lecturer had decided to launch his subject from the beginning to cater for the novice and the expert alike and by means of a block diagram he very skillfully steered his audience through the usual maze of t.v. circuitry with the greatest of ease. In fact, thanks to his artistry, those of us who had not previously studied the subject at length were saved much travel along blind alleys and many gallons of midnight oil.

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W.I.A.

SOUTH WEST. ZONE N.S.W.

FIFTH ANNUAL CONVENTION

at COOLAMON

26th and 27th OCTOBER, '57



Programme:

Saturday, 26th October—

Afternoon: 144 Mc. Tx Hunt, Sit-Down Dinner.

Evening: Amateur Hour, Films, Novelties.

Sunday, 27th October—

Morning: 144 Mc. Tx Hunts, All-Band Scramble.

Afternoon: Barbecue, Novelty Events, Auction Disposals.



Book Early for Accommodation

In addition to covering the theoretical side of his subject in much detail the speaker gave many worthwhile tips covering the selection of components and he also pointed out the short cuts available for adjusting the equipment.

Questions came thick and fast, both during the lecture and at question time, and all Loran c.r.o.s. which have enjoyed their last few years of life on the shelf or peacefully under the bench can now look forward to a proper trouncing.

Someone expressed the hope that the speaker would some day present the information he has gathered in an article for the magazine but Graham was non-committal. It is rather a tall order but would be very acceptable nonetheless.

At the conclusion of the lecture Col Churnside (3WQ) passed a very commendable vote of thanks to Graham (3ZAA) for his lecture to us on this subject and the vote was carried with a hearty round of applause.

A short break followed the lecture and on resuming the meeting the acting President called for a minute's silence in memory of those members who had joined the ranks of the Silent Keys since our last meeting.

It was announced that letters of appreciation had been received in connection with the slow Morse transmissions provided by the Victorian Division. This was very gratifying to the team responsible as the silent audience very seldom takes voice. Thanks chaps. By the way, you intending Hams don't forget that ZKF still transmits Morse daily at varying speeds on 3438 and 6885 Kc. using m.c.w. The transmissions commence at 1630 E.A.S.T. and conclude at 1845 hours E.A.S.T. It is also interesting to note that the VK5 Division has a slow Morse session on about 3520 Kc. This session starts at 2130 E.A.S.T. on Sundays only.

New members admitted: Full Members—A. R. Jarman (3AJX); Associates—K. H. Alexander and R. A. H. Blake. Visitors to the meeting were Messrs. Harding, Clarke, Vaile, Chamberlain, Mudie and Winkelkötter.

Since Les 3JH moved to Nunawading he has not been active owing to re-building. But a 3JH has been operating on 21 Mc. Amateurs will assist Les if they report and d.f. this pirate's signal.

The next meeting will be held at the Radio Theatre, Royal Melbourne Technical College, on the 11th September when the speaker will be an Army Signals Officer. He will speak on s.s. techniques, teletype, etc., in communication work. There may be a film and it is understood that arrangements for a visit to the transmitting station at Diggers Rest will be announced at the meeting. It should be noted that the September meeting is a week later than usual owing to the School holidays.

EASTERN ZONE

The 80 mx Sunday night zone hook-up is now being patronised more with 3AAV and 3AJK showing up, but no sign of the Bairsns-

OBITUARY

STANLEY W. GADSDEN

Stan Gadsden, who passed away on 25th July, 1957, at the age of 70 years, was well known to the older Amateurs and to many broadcast listeners. He held the call sign VK38W up until the early 30's and will be remembered for his phone transmissions on the old 200 metre band between 1925 and 1930. Stan had been a member of the Council of the Victorian Division and was responsible, in conjunction with the late Howard Love and other members of the Council, for the establishment of the old Aero Club transmitter VK8WU.

Upon his retirement from the Council he donated a perpetual trophy to the Victorian Division for "outstanding radio achievement or for service to the Institute." The current holder of the trophy is VK3EN and a previous holder was VK3HX. In both cases the trophy was awarded in recognition of their service on the Editorial staff of "Amateur Radio."

GEORGE HENRY GURR—VK3QH

George Gurr, VK3QH, who passed away on 31st July, was first licensed about 1933 as VK5GO. As an aircraft engineer with Westralian Airways at Parafield, George was well known to many VKs for his willingness to help new chaps in the game. After leaving South Australia he became an aircraft surveyor with D.C.A. in New Guinea and returned to Victoria about 1939. He was again licensed in 1946, under the call sign VK3QH. George leaves a widow to whom we extend our sincere sympathy.

dale-Sale area boys, except 3AIT who is very active. Graham 3QZ was heard on 40 mx the other Sunday morning, he also hopes to be on 2 mx in about two or three months' time. Gordon 3TH is quite active now whilst the crows are in their minimum cycle, he is operating both 2 and 80 mx. Gordon has just completed testing his new 2 mx cubical quad yaq, giving good results. He will pull down his 3 element yaq and replace it with the cubical quad. George 3ZCG now has his 32 element 2 mx beam in the air and is obtaining excellent results from it.

Jack 3AJX has now pulled down his tx to build it up again as an all-band rig. The Eastern Zone first monthly fox hunt was a great success, held at Traralgon, Sunday afternoon, July 28. Ian 3AAV and Graham 3QZ were fox, and put on a great show for the three hounds. Geoff Orton, Ron Gordon, and 3TH were the winners, with George 3ZCG, Reg 3ZCR and Jack 3AJK, Terry second. Stan 3ZAB and Cliff 3AIT stayed back as control station, Stan and his XYL put on a very enjoyable afternoon tea. Our next 2 mx fox hunt will be held at Sale, on the last Sunday in August, and all are welcomed to join in the fun with or without receivers.

FAR NORTH WESTERN ZONE

There is a prospect of increase in activity on 144 Mc. with 3MF returning to active Hamming on this band. Harry is at present collecting gear for this band. 3ZCW and 3GZ are on most nights on 144 Mc. working 5BC in Berri, and 3ZCW has been working 3TY in Swan Hill. 3GZ has managed to get contact with 3NN and 3ATN. Charles 3TI is overhauling his 2 mx gear in readiness for the summer season. At week-ends 3TI operated on 40 and is putting out a good signal. Pleased to hear John 3AKF has his rig working and hear him on 80 mx most nights. Nice signal John. Bill 3AJU has erected a vee beam and busy working DX on 20 mx. The old Type 3 is sure getting results. We will shortly be losing 3AFP who will be taking up residence in Ballarat. Jim is working hard on his triple conversion rx and has also t.v.i. proofed his tx. Noel 3AUG operates occasionally on 20 and 40 mx but is busy building xtal locked converters to work in front of a MN28 rx. 3FC in Ouyen working the odd DX on 20 and 40 mx bands. Fred, our Associate, hopes to sit for the next examination.

Last month we had a gathering of the boys in Mildura when 5BC, 3FC and 3ZCW arrived one Saturday afternoon from Ouyen. They visited some of the gang in Mildura and generally had a good afternoon. 3SN returns to the district from time to time and it is nice to see his cheerful face and hear some of the news of Hams in other parts of the State.

NORTH EASTERN ZONE

There is very little to report from this zone again due to complete lack of interest. The same reliable few still appear on the zone hook-up on 3.7 Mc. at 8 p.m. each Wednesday. If this time and frequency does not suit members who were unable to attend the last convention, please make a suggestion of a new time or band.

Allen 3AEO is now placed in portion of the house, but washing days may mean QRT. Les 3ALE has completed his re-build and a very nice job too. Heard Jim 3JK on 21 Mc. working VK0CJ. T.v. has claimed the interest of many members. The Shepparton area has several new associates and the coming examination for A.O.C.P. is being awaited. If the numbers keep increasing in this area the chances of forming a radio club seem very bright. Q multipliers are being talked about since 3AGG built his, looks as if a few rx's will be added to. Before next month, hope to have more news from the Eastern section of the Zone. How about it chaps?

SOUTH WESTERN ZONE

The weekly hook-ups on Thursday evening at 8 p.m. continue to obtain a good roll-up of zone members. Recent reports are that 3ADV is constructing an electric organ to keep him away from t.v. He is seeking burnt out speaker transformers in any quantity—so chaps please oblige. Neil 3HG has passed his 214th country in DX and this is a record in our zone hard to equal. At a recent tx hunt the Geelong members tested their gear to great advantage. Bill 3AWZ hid the gear at night and Vic Clarke, K. Mills, J. Barber, and G. Woods had a pleasant time finding the tx. Bill Wines is in good spirits and we hope he will have another attempt for the ticket.

John 3ARJ is still working the DX bands with good success. At a recent grid dip oscillator meeting in Geelong, members showed off their exhibits and demonstrated to viewers the faults in design and the uses of same. The

Geelong members are co-operating in an emergency capacity with the local Amateur Motor Cycle Club at a cross country trial this month. See you at the S.W. Zone Convention in November?

MIDLANDS ZONE

The notes start this month on a sad note following upon Bill 3AMH's move from Bendigo. Whether his present predicament—possibly a more suitable phrase could be found, but as an old married man I doubt it—is due to the absence of the restraining influence of 3ACN, or his impending visit to VE land, is difficult to say; but either way Bill looks like going the way of all good men. His YL has promised to become an XYL and festivities to celebrate the occasion were held in Ballarat. Neville 3ACN was in attendance with Joy, who was shown the wonders of that carpet of wires mentioned last month. As it is now too late to do anything else, allow me to congratulate you Bill, and assure you that the marital state is not as bad as it is so oft cracked up to be.

It is believed that 3IZ has acquired an expensive pastime by blowing up 6146s and other bits and pieces. The score is not known at present, but rumour has it that certain valve



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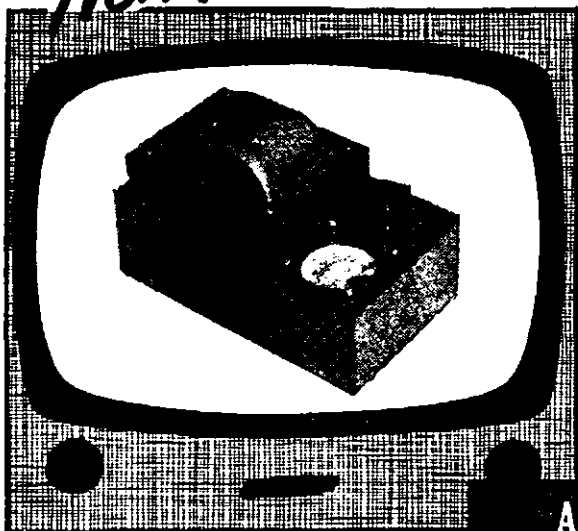
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manufacturers are quite happy about the sales return as a result. 3SV has made a heterodyne frequency meter and has ambitions to follow with an f.m. frequency meter. This desire is or was thwarted by the absence of a wobulator unit so if anyone can help—need more be said?

During the last hook-up your correspondent attended, Roy 3ND used his system of Rothman modulation running 7-15w. to a 6V6 807 combination with 1 volt on a carbon mike for sound. Whilst it would never have done for the Duke sir; it still did a remarkable job although the extra volt supplied later did help. 3ARS has been on 15 mx without much success, but in that he is not alone. Give old Sol a little time to settle down and we might all have some success on that band, which is desirable for its lack of kilowatt QRM.

Although t.v. has had many a cure heaped on its head by erstwhile DX'ers, it has been the means of bestowing blessings on Col 3FO, who has been busy installing many monsters around and about the fair town of Maldon. Visitors to that town may see an aerial which is obliquely polarised being somewhat off horizontal both ways, but which apparently works very well. Purely accidental I might add, but most great discoveries have arrived that way. If a spare moment offers itself Col delves into 40 mx with a small 6 x 8 inch rig. Any errors in this description may be attributed to journalistic license and a bad memory. Neville 3ACN is experiencing troubles with carrier on 20 mx s.s.b., having far too much left, but by the time these notes are printed that trouble should be cured. The home-brew slicer for reception is working very well, and certainly takes a lot of hard work out of making sense of s.s.b. signals.

QUEENSLAND

Since the last "A.R." notes went to press, we have had the usual Council and general meetings as well as the monthly hidden tx hunt.

At the Council meeting, which in the past has always been very well attended, Aussie 4TN presented a detailed statement, in true accountancy style, of the Convention Fund. After all payments were made, we found that we were a couple of db. down. This, Council members thought, was reasonable as finances and expenses were well over the century mark! We had thirty pounds in the fund when we started. This was made up of donations, specially given, and from the sale of gear given by members to the Institute! Our convention fund now stands at twenty-eight db. All donations for next year's convention, which will be a bigger, better and brighter convention, would, of course, be gratefully accepted. Aussie, having first hand information, showed us also how we could, in future, clip our expenses so that next year's convention would show a slight profit, or at least break even financially! There were not many large accounts Aussie pointed out, but when a large number of small bills have to be tallied up, the expenses have a habit of rapidly mounting up! Anyway, Aussie, many thanks from Council and Hams generally for your co-operation and for the many hours spent in organising the whole show! It was really appreciated.

In an attempt to learn from our mistakes, and to make the job of Treasurer less complicated, Jim 4OB put forward the scheme of creating a separate Savings Bank account and labelling it "Convention Fund." After listening to the many reasons, which you would have heard had you attended the last general meeting, the members felt, provided the funds for this account were made up of donations and from the sale of gear given to the Institute, that the idea was sound. To clarify the position we now have three accounts. No. 1 is a working account and is usually small. No. 2 is a savings account into which we frequently delve for the purchase of disposals gear. This account is usually a very healthy one. No. 3 account would then be our Convention Fund.

Our emergency deal is still very much alive, and the scheduled date for our first run is 20th August or, if things don't pan out, then 27th August. However, boys we have been talking about this day for a long time, so if you haven't your gear out and going by this, then be it on your own heads.

There is to be another emergency meeting immediately following the next Council meeting and it should prove to be historic, for the final plans will be cast for our Amateur C.D.E.N. We wish the emergency boys every success in their venture and we hope that Hams in Queensland will extend their co-operation (within the meaning of the Emergency Regulations in VK4) to make Amateur C.D.E.N. a valuable service to the community.

A recommendation that Council discuss the future pattern of meetings was made by 4ZAE. A considerable amount of time was frequently used up in the discussion of matters not relevant to actual business under discussion. Consequently the meetings often progress deep into the night, which naturally leaves any following lecturer with a restricted amount of time. There are many other issues which could be discussed perhaps by the counterpart of a public relations committee and so on. Revision of the conduct of the general meetings, perhaps streamlining would be a better phrase, would then place greater accent on social activities, etc.

A gentle reminder about the R.D. and the Ross Hull Contests. The R.D. Contest will be well over when this goes to press, but it is hoped that this year will see a better response than the thirty logs that were submitted last year. Don't leave it until too late to get cracking for the Ross Hull Contest! Don't stay off the air thinking that you are giving the other fellow a chance! Chances are that he will be doing the self-same thing.

Good hook-ups on Sunday mornings with the country boys, too. The round table is getting bigger as each week goes by. Unfortunately, 4XP, who has been supplying slow Morse for the boys will be moving to Charleville and will not be available for some time to come. Many people who took advantage of the Morse transmissions on 80 will miss the regular fist of 4XP. Pounding that key was truly appreciated!

However, boys, don't despair. Bert hopes to have 4WI ready for Morse transmissions very shortly. He has been putting a lot of work into the station's rig and although it has taken quite some time for him to get things into shape, the station equipment will be versatile and reliable. Good work, Bert.

Ron 4ZAN asked Council if the Postmaster General's Department could be approached in an effort to speed up the releasing of examination results and the granting of call signs. Some of the boys had to wait quite some considerable time after the examinations before they could get cracking, and as a result, the first full bloom of enthusiasm has started to wear off! We have all been in the same boat at one time or another, but Council will see what can be done for future examination candidates.

To date we have had no news concerning the Federal Convention held last Easter. A request for advice of the results was sent, but we anticipate that it will be some time yet before the full report is available.

At the last general meeting we were fortunate to have the services of three Hams Vince 4VJ, Aussie 4TN and John 4FP. They all described the preliminary horrors that beset budding mobile Hams. However, the boys made the subject interesting enough to claim a few more fans. A recording was made of the lecture and it is hoped to present at a future date some articles for "Amateur Radio." A start has been made, so how about it boys? You don't have to be a literary genius to write an article; if you have some interesting circuit, etc., you've tried, jot it down (readable at least) and we can get the diagrams put into presentable form for publication. They have to be a certain size, etc. Please address all correspondence through Box 638J, G.P.O. However, reverting to the subject, most of the lads were intrigued by the novel methods employed in getting a compact converter to work multi-band. Very clever application there, Vince. Thanks to you Aussie, Vince and John for a very entertaining and informative evening.

The last V.h.f. Tx Hunt was hidden by Jack 4JO and a crew of helpers on top of White's Hill. A perfect spot, an S9 signal all the way; most deceptive! It was won by Les 4LM and his XYL in some 27 minutes, with John 4FP hot on their heels. Once there, several willing workers started to boil the billy and it wasn't long before the boys made short work of the cakes and sandwiches provided by Mrs. 4JO, Mrs. 4LM and Mrs. L. Hill. Thank you ladies, it rounded off the evening beautifully.

MARYBOROUGH

4DJ still building his rack and panel rig. Is heard DXing on 14 Mc. and is often on 40 mx. Graham has bought a new receiver.

Arch 4CB building a table-top rig with a Geloso v.f.o. driving a 6146 with pi-coupled output. Looks like that 10 mx quad, sitting on the ground for months, will soon be up on the 80 ft. tower.

4EG will be combining his two beams in a tri-band beam and meantime is still rising early for those elusive new countries.

TOWNSVILLE

Quite a successful meeting was held at Graham's 4BX and it was nice to see the

boys coming along, after previous difficulties in obtaining a quorum for the meetings. It was decided to purchase suitable disposals gear to the value of £25 for the benefit of members who will reimburse the club for same plus a very small percentage to help along the financial resources of the club. After disposing of the usual business, the members settled down to hear a lecture by Bob 4RW on "Electrocution." How easy in the Ham shack. Notes were placed on the blackboard to show just how the different currents affect the body and their probable effects. Great stress was given to the condition which is a sure killer—"heart fibrillation." It was also stressed that artificial respiration be performed in all cases of electric shock. After the lecture numerous questions were answered and some members gave reports on just what had happened to them when coming in contact with voltage in the shack. Ted 4EJ then showed many coloured slides which he had taken around Magnetic Island. Ed 4WH, the Secretary, also brought along slides of the Barrier Reef.

Two new members were admitted to the club, namely Bob Conway, 4ZAZ and Nick Watling 4WT. Eric 4EL is still striving to work the DX and landed a FS7 on French St. Martin, nice work. John 4DD, Allan 4BE and Ted 4EJ trying hard to beat each other for an S point on 10 mx working into England. Quite surprised to hear a come back to the fold after a long retirement was Len 4GD. Now that the gum has again taken hold Len, what about coming to the meetings. Arthur 4FB on the Island of Dusky, Maidens and flowing palms takes along a noggin when trolling for fish, no reports on how it is used to keep them biting.

Bob 4MF is going on a motor holiday down south and promises to call on the various stations he has worked, while Bob 4RW hopes to be in Rockhampton first week of December, so have all your gear nice and handy and not locked away. He then hopes to tour the Tablelands going as far north as Cooktown. KG4AN posted off 30 QSL cards to VK Bureau on 1st July. Hope mine is amongst them. Only two new countries worked this month at this shack were HTL/MQ (Dominica) and UC2KAB in the U.S.S.R.

Allan 4PS still in trouble getting a converter to work on 144 Mc. This band should get a hiding in the district very shortly after the three new transceivers arrive for 4LR, 4EJ and 4DK, who were successful in the recent ballot for them.

SOUTH AUSTRALIA

For some time now your Council and particularly the Programme Organiser have been wondering if the "tender" night was as popular as it was earlier, and whether it might be an idea to drop it off the list for a while. The attendance at last month's effort for that kind of programme gave the complete answer, for not only was the crowd a near record, but the gear offering was good in quantity and variety and the bidding brisk. It is apparent that there is still a good list of items about that can change hands to advantage—so your Programme Director will see to it that the ever-popular programme is repeated with the same frequency.

Our thanks go to Brian 5CA, who so ably stood in for Dougal 5BY, and Norm Colman for their efforts to keep the ball rolling. It's not an easy job, but those two (correction three) fellows have the right approach and keep the ball rolling.

I suppose there was some normal business conducted at the meeting, but it was not of great import, so was not given more time than just to cover the essentials.

A recent Sunday morning session from 6WI outlined a few advantages of membership and facilities available to members which could well be repeated here. For instance, there are various instruments for loan, in some cases, or for use at the Custodian's QTH, Doc 5MD, a c.r.o., and a mod. osc. are included, and means for checking any valve you might be suspicious of. Access is available to a library of various books of interest, including up-to-date copies of call books, local and overseas, so don't go short of an address for that odd special QSL card. There are technical committees available for consultation of any problem you may have—be it to do with some gear you are planning, or b.c.i., or the like, this committee comprises members familiar with such problems and are there for you to call on for aid. And then finally make use of this magazine to express your views on the hobby, don't be backward in coming forward, and help spread the news of any development you make, a new gadget you design, by doing an article on it for the magazine. Help the Institute by using it and what it has to offer, and at the same time contribute when you can.

An outstanding item of interest of recent times was the splendid and efficient aid provided by two prominent members at Victor Harbour, namely Pat 5KM and Ron 5KN, who between them set up a base station and a mobile one at the scene of search and rescue operations at Walpinga when two brothers lost their lives whilst searching the coastline. Pat and Ron, both prominent in affairs at Victor Harbour, were approached by the Police and Bushfire Net to set up such gear and throughout the operations were able to afford efficient ground to ground and ground to air communications, covering the whole set-up. The Authorities aided by providing phone lines as required and granting authority for the operation on the allotted channels.

It is certainly pleasing to know that our members spontaneously provided this service, which in operation met with high regard from those associated with the rescue. Congratulations to them both for bringing Amateur Radio to the notice of the general public in such a favourable light, and for their own strenuous efforts.

Congratulations Jim 5JK on your appointment as C.D.E.N. Co-ordinator for S.A. The above paragraph will give you some idea of how the boys will help Jim and just what can be expected. We may not all be as well set up as 5KM and 5KN were, but at least we can prepare and keep abreast of movements to be ready if called on.

Congratulations also due to Bill 5ZAX on his appointment as Assistant Secretary of the Division. It will prove interesting Bill and you won't regret the experience.

As well as the usual rounds of locals worked this month, Peter 5RB bales up on 40 with a very fine signal, an ex-VK9 who now lives at Modbury, and reverting back to the meeting some new faces seen in 5EU, 5JS, 5DS, and 5HA. OK fellows, but wear your name cards, it's a good means of introduction for many of us know the voices only, and like to meet up in person.

A recent contact with Col 5RO brought out the information that he is playing with d.s.b. Heard any funny sigs lately? Ken 5KC also going to give the same idea a go soon, who is going to be first up on d.s.b.?

Ron from 5WC has put the mike aside for spanners lately, working on a bomb—four wheeled variety—don't know if it incorporates any mobile gear, but can't think that would be left out somehow. The 5WC boys are still active and looking for contacts in spite of the continued high noise level there.

Ever heard of Lloyd 5OK on 40 mx phone? Well, if you try you will, very good signal too. John 5KX has strange visitors in his shack some Sundays, one Wal 5DF was there recently and John couldn't reach the audio control fast enough to keep Wal's 100w. voice in tab.

Both Len 5OC and Stewart 5MS heard recently working DX in great style on 20. Len W-wise and Stewart G-way. Understand Stewart has erected a new skywire (the 17th), what is it this time? Erg 5KU had a bout of the 'flu which kept him quiet for a while, but on resuming operations celebrated the return by blowing up his main power supply, so is still silent. Bram 5AB not on much—harmonic not an announcer yet. Claude 5CH has picked out himself a 35 ft. tower which together with a new chariot will keep him busy for a while and may curtail hamming somewhat. Don't let them get you down Claude.

In the course of nosing about on business, yes I still work for a living, came across a certain VK5 working a complicated machine tool at a place where gears are cut, not far from a large brewery, and believe it or not there was clear evidence of either excess late

hour DX or power failure at shaving time. Mind you it was only Tuesday and the stubs were about quarter wave on 576, should be worth seeing by Friday. Keep me informed on that type please Charlie.

WESTERN AUSTRALIA

At the July meeting of the W.A. Division Mr. R. W. Boggis, the President of W.A. Astronomical Society, lectured on the part to be played by his Society during the International Geophysical Year, and the ways in which the Institute can assist in the programme.

There is not much to report this month. Apart from the usual annual overhaul of gear prior to the R.D. Contest, portable and mobile operation at week-ends is still very popular. The No. 11 sets have been giving good results, and 6JG has shown what can be done with a 101 really "going to town" with an excellent 2w. phone signal. Nice work Ted!

6TH was working portable from Collie with a 122. After a long spell QRT, 6AH popped up on 40 mx with a Type A and a few watts, but has since got the big rig going again and promises to be more active on the bands.

6FD got his new modulator going f.h., then went down with 'flu, but is about once more. 6TL has been experimenting with a ZL special and working into N.Z. and Africa on 20 mx. Both he and 6JG prefer the folded dipole version.

The c.w. stalwarts, 6DJ, 6UF, 6GA, 6BE and 6EJ have been joined by a newcomer 6AJ, whose old call sign was G3JX. We were glad to welcome Jeff at the Institute meetings, and on the bands his fist is a treat to copy, as one would expect from an enthusiastic member of the "Tops C.W. Club."

80 mx is improving, signals from Eastern Australia, Tasmania and New Zealand all being worked at surprising strength on phone.

Up to the end of July, the Sunday morning broadcast from 6WI has given good coverage on 40 mx, but it may be necessary to put it out on 80 mx soon, so roll up with reports after the news as we want to reach all members.

Frank and John Hill spent a week-end with 6EJ, and were surprised how well their father 6AI came through on 40 mx from Wiluna. They were taking a well earned holiday, after having attended a farmers' course at Muresk, and before returning to the "wide-open spaces."

VK6 Readers—please do not forget to fill in the form attached to the July Bulletin concerning C.D.E.N., and post it off to 6MK.

OBITUARY

ERNIE LANGENSCHIED, VK6EL

Ernie Langenschied, VK6EL, of Geraldton, W.A., passed away on 19th July. Ernie obtained his ticket round about 1937, and was very active in the metropolitan area on 40 metres for local and 10 metre DX. He had a lot of friends in Europe whom he used to contact on 10 metres. In 1948 he moved to Geraldton, and did quite a lot of Amateur work. He had not been heard very much during the last few years. He leaves a wife and two teen-age children, to whom our sympathy is extended.

TASMANIA

Hobart's first 144 Mc. fox hunt at night was a busy sort of show, wherein we spent an hour chasing reflections from Mt. Wellington, with passengers briefed to keep watch for 7LE's Wolseley. Perhaps the most consistent signal was heard by Bob 7OM, closely followed around the place by another competitor in an Austin van. No one caught the fox until the aforesaid van came home, with the old fox himself at the wheel. No mistake was evident, however, in the way we stood-in afterwards on various bits of singed animal around the fires (this is not an oblique reference to any particular person!), and there were many returns to Mrs. Edwards' brew of coffee.

Fred 7FC gave the July meeting a preview of some high voltage carrier line techniques which are being put into use by the Hydro-Electric Commission.

Support is apparent from many parts of the State for an early start on some practical training for C.D. work, initially using home stations and introducing portables as they become available. Subject to P.M.G. approval it is proposed to exchange batches of dummy traffic in nets as arranged by Co-ordinator 7OM, in a way which will permit an element

of competition based upon accuracy and transit times. It is hoped with the idea of competition to preserve interest in the job, while building up a working organisation of trained operators who can accept emergency traffic as a matter of course.

With a remarkably mild winter already slipping by, there are tentative suggestions for a hamfest at Lake St. Clair, where a lot of fun was had last year setting up the works to handle the Olympic message. This could well become an annual event. If a firm date can be fixed far enough ahead, perhaps some of you Interstate chaps would care to hand the Cadillac over to Customs and be in it! Come in something else, because they're still building that drive-on ferry.

NORTH WEST ZONE

Our Annual General Meeting is over for another year, and our new President is Sid 7SF. A worthy choice as Sid has done a fine job as Secretary. In Sid's place we have Max Ives, an Associate who should keep things moving. Max also has a For Sale and Wanted to Buy Book, so contact him for those odd items.

Dennis 7DR still retains the bank book and seems to pursue a policy of all income and no expenditure.

Two Vice-Presidents were also elected to wit Ken 7AI and Jim 7JO. Their possible use depends on how late the President is.

Ellis 7WA was re-elected QSL Manager, subject to his acceptance.

As we had to be off the premises by the hour of 11 o'clock, the proprietors provided supper and we had the usual auction, which was a No. 11 set—in pieces—amongst the other items. Ted 7EJ was auctioneer, as usual, and we closed on time.

Associate members were well represented and displayed their usual lively interest in the proceedings.

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

FOR SALE: Aerial Mast, Oregon, 30 ft., 4" x 4" tapering. Perfect order. Ring WX 3153 (Vic.).

FOR SALE: DC mains 350 watt Converter. Input: 240v. DC, output 240v. AC. Excellent order. Write Arch Hewitt, Lucindale, S.A.

FOR SALE: One a.c. Generator, 240v. 6,000w. Ideal for emergency power unit or home power. Write for details. W. T. Campbell, P.O. Box 57, Murwillumbah, N.S.W.

FOR SALE: Unwired Power Supply, contains 1 Trany 710-880v. 250 Ma.; 1 Trany 2 x 6.3v. 3a. and 2.5v. 10a.; 2 x 250 Ma. Chokes (Redline); 2 x 866 Jnr. Rect. (Taylor). All new. £25 or offer. R. Chalmers, Denman, 3N, N.S.W.

FOR SALE: 7 Element Travelling Wave TV Aerial, as new, £30, air-freight paid. J. Oliver, Latrobe, Tas.

SELL: Eddystone 640 Rx, good order, 1.8 Mc.—31 Mc. in 4 bands. £27. Melb. Phone UY 6121, after 6 p.m.

SELL: Type 3 complete. Pair 803s. Bug. AR14 (batt. Rx). Genemotor, 18/500v. 65 Ma. QRT. P. Davies, 31 Jackson St., Toorak, Vic.

WANTED TO SELL: Mod. 522 Tx, 832A final, 30w. in., 6V6 mod., xtal, mic., £15. Mod. 522 Rx, 6AK5s, £12. J. Sapir, 1 Kyeamba Grove, Toorak, Vic. (UY 5152 even.)

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Range	Freq. Limits (Kc/s.)	Kc/s. per division
1.	28,000 — 30,000	2.0
2.	21,000 — 21,500	0.7
3.	14,000 — 14,350	0.5
4.	7,000 — 7,300	0.33
5.	3,500 — 4,000	0.7
6.	1,800 — 2,000	0.25

FREQUENCY STABILITY. Excellent overall frequency stability is given by the oscillator circuit design. Negative temperature co-efficient condensers counteract long-term drift.

BUILT-IN CRYSTAL CALIBRATOR. The crystal calibrator provides marker points every 100 Kc/s. Positive corrections due to any slight circuit variation, are easily made by the use of this calibrator and trimmer condenser.

AUDIO FILTER. Incorporated in the "888" is an audio filter, peaking at 1,000 cycles and having a bandwidth of 100 cycles for c.w. reception.

MONITORING. With Stand-by Switch "off", the receiver is de-sensitised but not fully muted, enabling c.w. and telephony monitoring of local transmission. Stand-by sensitivity is adjustable.

ELECTRICAL PERFORMANCE. Sensitivity throughout is better than 3 microvolts for a 20 db. signal-to-noise ratio (50 milliwatts output, 30% modulation); absolute sensitivity on c.w. is better than 0.5 microvolts.

Selectivity is variable from 30 db. to 60 db. down, 5 Kc/s. off resonance. With audio filter in circuit, a signal 250 cycles off resonance is attenuated 32 db.

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EDDYSTONE "888" Receivers are obtainable from all Eddystone Distributors. All radio receivers are subject to severe import restrictions, and supply is dependent upon import licence availability.

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OCTOBER, 1957

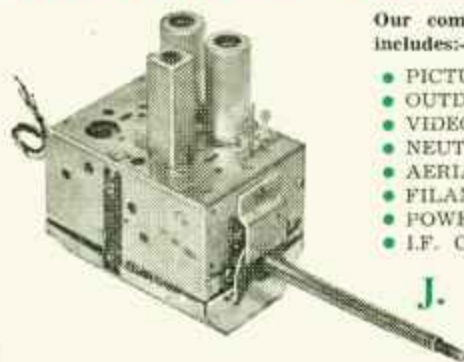


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WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI: Sundays, 1100 hours EST, 7148 Kc.; 2000 hours EST, 144 Mc. No frequency checks available from VK2WI. Intra-state working frequency, 7050 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7148 Kc., 57.5 and 148.25 Mc. Intra-state working frequency 7133 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0913 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7148 Kc. Frequency checks are given by VK3MD and VK5WI by arrangements on all bands to 56 Mc.

VK6WI: Sundays, 0930 hours WAST, on 7148 Kc. No frequency checks available.

VK7WI: Sundays at 1000 hours EST, on 7148 Kc. and 3672 Kc. No frequency checks are available.

VK9WI: Sundays, 1000 hours EST, simultaneously on 3.3, 7, 14 and 144 Mc. bands. Individual frequency checks of Amateur Stations given when VK9WI is on the air.

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EDITORIAL



50 Mc. BAND AND THE I.G.Y.

The world wide study during the I.G.Y. has intensified interest in the 50-60 Mc. region.

Throughout South America are scattered a number of high power transmitting and receiving stations dedicated to the task of studying forward scatter and other propagation phenomena at these frequencies.

Australian Amateurs will be particularly interested to learn that facts and figures so far disclosed support the evidence collected by members of the W.I.A. and submitted by your Executive to the A.B.C.B. and Amateur Administration during discussions relative to transfer of Amateurs to make room for TV Channels. The problem of long distance interference at these frequencies was particularly stressed.

It is fitting now that an opportunity has come for Amateurs to take

part in this aspect of I.G.Y. study on at least portion of the old 50-54 Mc. band where international activity is greatest.

The continuation of the studies in conjunction with special facilities available during I.G.Y. could lead to great advancement in our knowledge of propagation at v.h.f.

Another event in which Australian Amateurs have cause to be jubilant at this moment is the success of our approach to the Philippines Government, through the Australian Minister of External Affairs, to permit communication between the Amateurs of our two countries.

It is this freedom of exchange which has always characterised the spirit of Amateur Radio and overcome all obstacles with one object in mind. International Good, Year in and year out.

FEDERAL EXECUTIVE.

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90° R.F. Phase Shift Networks

PART THREE

BY N. L. SOUTHWELL,* VK2ZF

NETWORK IMPEDANCE

Let us look at the subject of network impedance. We wish to obtain as much voltage output from the network as possible, for a given power input.

The higher the network impedance the more output volts we obtain for any given input level, but we must compromise between output voltage and network impedance. Admittedly the operating power level of the network directly affects the output voltage obtainable, but the aspect of power level was dealt with earlier in detail.

Study the chart of component values with Fig. 1. Note how, as the frequency of operation is raised and the network impedance is kept constant, the values of the capacities required in the network drop. A 300 ohm network at 3.5 Mc. requires condensers of 147 pF., at 14.2 Mc. this has been reduced to 35 pF., and at 28.4 Mc. would be halved to 17.5 pF.

The inductance required also has decreased from 1333 μ H. at 3.6 Mc. to 337 μ H. at 14.2 Mc., and would be 168 μ H. at 28.4 Mc.

The stray capacity of circuit wiring plus the input capacity of balanced modulators, especially multi-element tube types, associated with the r.f. p.s.n. could easily equal, and in some cases exceed, the figure of 17.5 pF. quoted above.

In regard to two branch networks of Fig. 1 such a stray capacity would fall across the inductive element of one branch and add to the capacitive element of the other branch, hopelessly throwing the phase shift well away from 90°. In an extreme case the inductance could even be resonated by the stray capacity, with likewise disastrous results to the phase shift.

So we must limit the network impedance to some value where the effect of stray circuit reactances cause no trouble at the operating frequency, or frequencies.

The pi network of Fig. 5 avoids the stray capacity trouble to a large degree, as this capacity, as previously explained, falls across the input and output capacitances of the network and can be then counted as part of them. Consequently for any given value of network impedance, a pi network can be operated satisfactorily at a higher frequency than a two branch type of network.

An attempt should be made to estimate the stray circuit inductance and capacity, especially the latter, when one is deciding what r.f. p.s.n. to use in any particular piece of equipment. The effect of such strays upon the operation of any contemplated network, should then be considered at the highest operating frequency at which s.s.b. energy is to be generated. If the network will perform well at that frequency, the effect of the circuit strays at lower frequencies can be ignored.

It is possible in some cases to balance out an unwanted capacitive reactance by inserting an inductive reactance

of the same magnitude into the circuit at a suitable point, and vice versa in respect of undesired inductive reactance.

However, this method of approach to the stray reactance problem is not to be recommended, as the resulting circuit can quite easily assume the proportions of a monster that no one can tame, due to so many introduced variables. Also, balancing out reactance as described is only good for one frequency, further complicating matters.

Whilst on the subject of stray reactances, keep the two network output leads well separated.

Stray capacity will be the main problem as circuit inductance can be kept to a minimum by the use of heavy gauge wire and short leads. This should be done in any case, as floppy loose wiring may cause the phase shift to be unstable.

The circuits shown in Figs. 1, 3, 5, 7 and 8 should always be wired into the circuit so that no d.c. from the balanced modulators flows through them. If this condition is not observed the operating conditions of the balanced modulators will not be similar, also they will be coupled together by a d.c. circuit through the network, which produces undesirable results.

impedance source if inefficient operation can be tolerated in the driver stage.

It is appreciated that when dealing with components operating at the Amateur band frequencies the average Amateur will not know the exact value of his components. Should resistors used be plus or minus some percentage of the rated value, it will not matter greatly in the case of the two branch networks as the adjustment procedure provides for adjusting the associated series reactances to a value equal to that of the resistor wired with them. With all the types of networks, values of components specified are "centre design values" as calculated, and if the actual components used (with the exception of terminating resistors, which are critical) are within a reasonable percentage of this figure, the networks will be found to "phase up" without trouble.

USING THE REACTANCE CHART

The chart in Fig. 9 will enable the derivation of the approximate value of components for networks at various frequencies having impedances other than those given in the chart in Fig. 1.

The chart plots the inductive and capacitive reactance for components

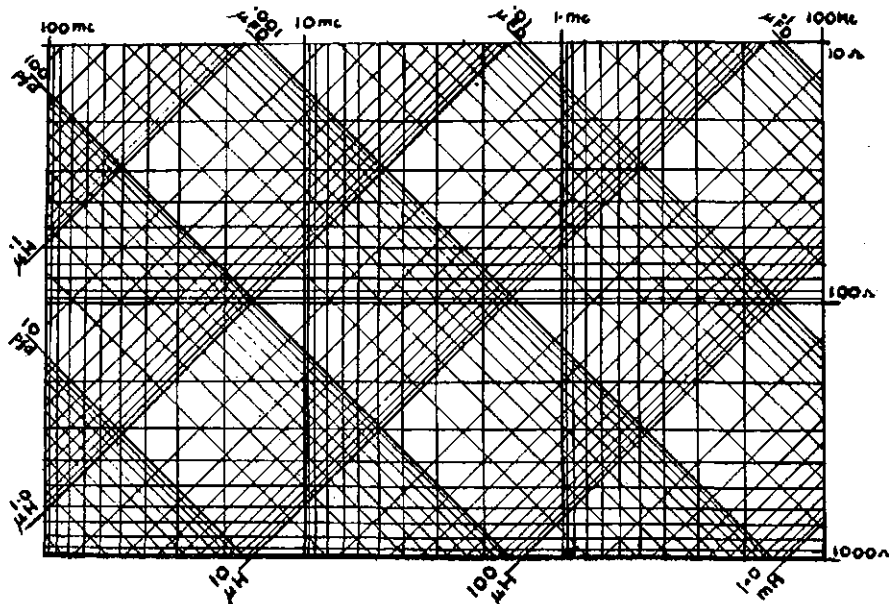


Fig. 9.—Inductive and Capacitive Reactance v. Frequency and Resistance.

The circuits shown in Figs. 2, 4, and 6 can be operated directly in the d.c. return path for the balanced modulators as in these networks the d.c. return paths for each output is completely separate, and of equal r.f. impedance and d.c. resistance.

Circuits of networks in Figs. 1, 2, 3, 5, 6, 7, and 8 should, as a general rule, be fed from a source having a low r.f. impedance and preferably low d.c. resistance, although it is possible to feed the above circuits from a high

between the frequency limits of 100 Kc. and 100 Mc., and resistance limits of 10 ohms and 1,000 ohms.

To use the chart enter it along the vertical line for the frequency of network operation, proceed down until it intersects the horizontal line which gives the value of network impedance required. From the junction of these two lines the values of the required inductance and capacity can be read off, by inspection and interpolation, on the inductance value lines which slope

*90 Dutton Street, Yagoona, N.S.W.

upward from left to right and the capacity value lines which slope upward from right to left.

ADJUSTMENT

The adjustment of r.f. phase shift networks involves dealing with the line up procedure of the equipment in which they are used, and will be covered here in a general form.

In dealing with s.s.b. transmitter exciters, it will be assumed that the audio p.s.n. has been previously adjusted to approximately the correct conditions and that the carrier balance controls have been set for minimum carrier leakage.

An audio frequency oscillator having a good waveform output is required. This oscillator should be set to approximately 1250 cycles per second and the output waveform inspected on a c.r.o. If the result is not a good sine wave, the oscillator should be overhauled until it is, as it will be useless to proceed otherwise.

The output of the exciter should be suitably loaded and the c.r.o. also coupled to the output so that the r.f. appears on the vertical plates. The oscilloscope sweep circuit is set to about 250 cycles per second and is applied to the horizontal plates.

With all equipment operating and lined up to resonance, the audio oscillator is connected to the exciter audio input and the gain control on the exciter advanced; care should be taken not to overload any circuit by either injecting too much signal from the oscillator or by turning the exciter gain up too high.

Viewing the c.r.o. pattern you will probably observe something like Fig. 10. The job in hand is to minimise the ragged nipples on the edge of the pattern until it looks like Fig. 12.



Fig. 10.—Carrier not fully suppressed, also some unwanted sideband present.

A number of things can cause roughening of the edge of the pattern. They are:

- (1) Audio phase shift not perfect,
- (2) R.f. phase shift not perfect,
- (3) Carrier leakage through the exciter to its output,
- (4) Distortion in the output of the audio oscillator,
- (5) Distortion in the audio sections of the exciter,
- (6) Distortion in the r.f. section of the exciter after the balanced modulators.

We will assume we have a minimum of trouble from (1) and (6) above. In regard to (3), a small amount of carrier usually gets through; this has to be borne in mind, and when you are endeavouring to obtain the best performance possible from the equipment, the presence of traces of residual carrier must be remembered. The presence of residual carrier is easy to pick as it produces ripples on the pattern at half the frequency as those produced by the sideband energy.

Adjustment of the carrier balance controls, extra shielding of the various

stages, or an altered layout are the ways in which this carrier can be minimised.

To minimise the unwanted sideband the r.f. p.s.n. controls and the audio amplitude balance controls are the ones to be adjusted.

In respect of distortion in the audio oscillator's output listed as (4) above, causing a roughening of the edges of the c.r.o. pattern, a very "sticky" situation arises, should the oscillator have much third harmonic distortion in its output.

This third harmonic distortion energy falls at a frequency which is twice the audio oscillator output frequency away from the unwanted sideband. Unfortunately the undesired sideband is separated from the wanted sideband by the same amount but in the opposite direction—frequency wise.



Fig. 11.—Carrier suppressed, still some unwanted sideband.

The c.r.o. will show both unwanted sideband and third harmonic of the audio oscillator up as identical signals, and it will be impossible to tell them apart as they will appear as one signal.

Under the above conditions it is more than likely that you will try and introduce, quite unwittingly, a sufficient amount of undesired sideband energy to cancel out the third harmonic of the audio oscillator. The remedy is to make sure the audio oscillator has a good sine wave output.

The reason for keeping the level of the tone fed into the exciter at a level where no overloading of any stage in the circuit can take place will also be appreciated.

Figures 10, 11 and 12 show representative c.r.o. patterns of different conditions you will encounter when lining up an exciter.



Fig. 12.—Both carrier and unwanted sideband suppressed.

Fig. 13. gives a table of the suppression values for various amounts of ripple in the c.r.o. pattern due solely to unwanted sideband.

The line-up method just described using a c.r.o. has its limitations, as can be seen by inspection of the table in Fig. 13. The best suppression that can be measured on a c.r.o. is between 30 and 40 db.

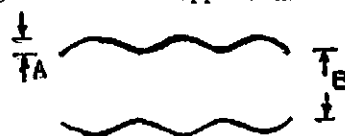
Another way of checking the output is by means of a receiver that has a single sideband adaptor connected to it. Both methods can be used together, or either alone. For routine line-ups after the initial adjustments have been ascertained, the writer prefers to use the receiver, as with practice it is quicker, more convenient, and accurate. In fact if you transmit much residual carrier the use of a receiver may be the most accurate means for you to use.

The receiver is set up with its input shorted and r.f. gain turned well

back, so that with no modulation you can tune in the signal radiated as residual carrier around S4 or 5, zero beat this signal exactly. Switch the adaptor to receive the unwanted sideband, apply tone input to the exciter as described previously and adjust the exciter controls until a minimum signal emanates from the speaker. Do the adjustments at a fairly low room volume, generally the lower the better, as the ear is more sensitive to changes in level at low volume. When you are satisfied throw the adaptor sideband selector switch to the opposite sideband and observe the difference in strength.

Now throw the sideband selector switch on the exciter so that the opposite sideband is radiated. Check the relative strengths of the two sidebands on the receiver. The ratio of suppression should be about the same as before.

It is quite possible when you throw the exciter s.b. selector switch that you may find the suppression not as good as that for the sideband you have lined it up on. In this case a small adjustment of the exciter r.f. p.s.n. controls and the audio balance controls are called for, possibly you will only need to adjust the r.f. p.s.n. to regain your original sideband suppression.



Ratio A-B	Sideband Suppression
1:5	14 db.
1:10	20 db.
1:15	24 db.
1:20	28 db.
1:30	30 db.
1:40	32 db.
1:50	34 db.
1:70	37 db.
1:100	40 db.

Fig. 13.—Deriving sideband suppression from c.r.o. patterns.

Inspect the controls to see how much you have had to move them and set them half way between the two settings required for the different sidebands.

The checking of both sidebands radiated by the exciter is a necessity as under some conditions it is possible on one sideband to obtain good suppression from a single tone when the r.f. and a.f. phase shifts are not 90°. Switching sidebands proves whether your adjustments are satisfactory or not.

Under conditions of good adjustment it should be possible to barely hear the unwanted sideband on the speaker when the signal from the wanted sideband is set to give fair room level.

ADJUSTMENT OF RECEIVING TYPE S.S.B. ADAPTORS

The adjustment of r.f. p.s.n.'s. in receiving type s.s.b. adaptors will also be given in brief outline as details will vary a little with individual equipment.

(Continued on Page 8)

ZEPHYR MICROPHONES

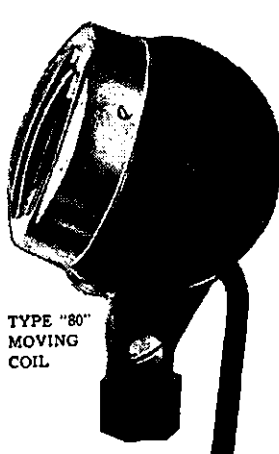


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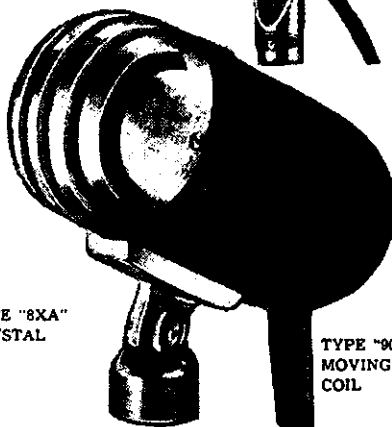
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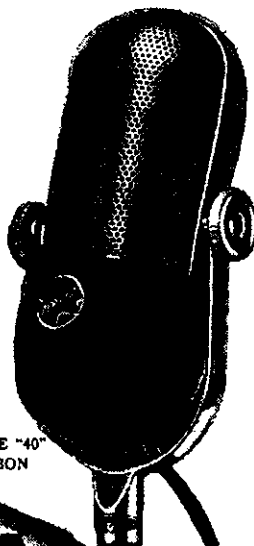


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E.H.T. Without Tears

BY M. RILEY,* A.S.T.C., VK2ARZ

IN spite of the fact that small modulation monitors have been described in "A.R." and other magazines with some regularity over a period of nearly thirty years, a few hours listening on our phone bands will reveal that the simple c.r.o. is still not being used to the extent it should.

The cold hard facts are that although plate meters seem to be used extensively to monitor, in a rough fashion, the degree of modulation applied to the majority of transmitters, this indication of average modulation does not tell us very much about what is happening to the carrier under peak modulation conditions.

Failure to recognise this fact leads to reports of overmodulation and splatter. The only satisfactory way to overcome these difficulties lies in the construction and use of a simple c.r.o. One Sydney operator will not consider phone operation without his c.r.o. even when the rig involved is only a mod. osc. (fortunately now relegated to its correct place). He claims that he felt "completely lost" when the c.r.o. was out of action for a short time.

The writer has attempted to analyse the reasons which have prevented the simple c.r.o. from assuming a place in the Ham shack similar to that occupied by the multimeter and g.d.o. In previous years c.r.t.'s. were expensive items. Recently, however, numerous types have appeared at prices ranging from 10 to 40 shillings. If the life of one of these is considered in terms of your operating time, it can be seen that two c.r.t.'s. at the most will outlast the average Ham and that the price of two tubes spread over say 30 years removes the consideration of c.r.t. cost.

The average Ham should experience little difficulty in wiring up the four potentiometers and half dozen resistors necessary to build a small c.r.o.

Assuming the use of a "negative e.h.t." supply all the voltages required for the operation of such a unit, with the exception of the e.h.t. supply, may be obtained from the transmitter itself.

It appears likely that what we really need is some form of "black box" which we can install in our equipment. This "black box" must place very little load on the power supply operating it and must produce sufficient e.h.t. to operate any c.r.t. likely to be found in the average junk box.

If you have been waiting for such a "black box" read on.

If you are still trying to find an excuse for the lack of a simple c.r.o. type modulation monitor in your shack, stop here and turn to the YL corner.

The unit to be described places a very small load on any one of the transformers used to power your rig.

If you wish to build the c.r.o. into the modulator (its logical position) then use the speech amp. supply for a small c.r.t. or the modulator supply for a large tube.

The output voltage (V_o) developed by the "black box" is a function of the transformer voltage. Typical figures are as follows:

Transformer Voltage	Loaded E.H.T. Voltage
220v. r.m.s. a side	—ve 900 v.d.c.
350v. r.m.s. a side	—ve 1500 v.d.c.

No special filament windings are needed to operate the "black box" supply.

The "magic" is supplied by the use of special selenium rectifiers.

At this stage you may be prepared to throw up your hands in desperation! If so, turn to the DX pages.

USE OF SELENIUM RECTIFIERS

Perhaps you have had some unfortunate experience with selenium rectifiers. Most failures of that nature are caused through ignorance of the factors involved in the operation of these rectifiers so that the manufacturers' ratings have been exceeded.

Once a few simple principles have been established in your thoughts, you will find yourself in a position to judge the suitability of any type you may have on hand for a particular

should appear across each plate in the non-conducting or "reverse" direction. This rating determines the voltage which may be applied to the stack. A value of 14 to 18 volts r.m.s. is normal for rectifier plates manufactured in Australia. In the U.S.A. a figure of 65v. maximum peak inverse voltage is quoted for some domestic receiver applications. This explains those miniature rectifiers so often seen in "QST" performing an apparently impossible task.

If a rectifier is feeding into a capacitive filter a maximum input voltage of 9v. r.m.s. per plate may be used in a half-wave circuit, 9v. r.m.s. per plate a side in "push-pull", or 18v. r.m.s. per plate in "bridge" rectification.

A selenium rectifier is also very sensitive to breakdown induced by excessive temperature rise. The best we can do here is to see that the other ratings are not exceeded and that the rectifier is well ventilated.

The manufacturers recommend that the normal maximum working temperature should not exceed 65°C. (149°F.) although a value of 85°C. (185°F.) can be withstood with safety for some hours(1).

CONSTRUCTION OF E.H.T. SUPPLY

To proceed with the construction of the "black box" e.h.t. supply you will need:

- Three selenium rectifiers type K.8-40. These are rated at 960v. r.m.s. inverse and 5 Ma. maximum forward current. They are obtainable ex stock from the Sydney manufacturers (S.T.C., Botany Road, Alexandria, Sydney, price 10/8 plus tax).
- One paper capacitor 0.5 μ F. or greater. 400v. or more d.c.v.v. (C1).
- Two high voltage capacitors 0.1 μ F. or greater, voltage rating 1kv. or greater (C2 and C3).

All components are mounted on a piece of bakelised canvas in the unit constructed by the writer. The actual

(Continued on Page 6)

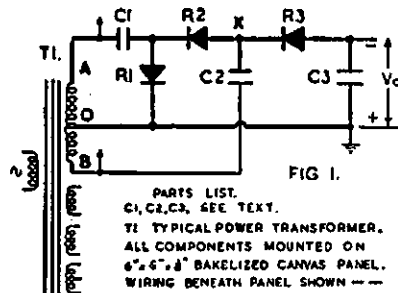


FIG. 1.
PARTS LIST.
C1, C2, C3, SEE TEXT.
T1 TYPICAL POWER TRANSFORMER.
ALL COMPONENTS MOUNTED ON
6" x 6" BAKELIZED CANVAS PANEL.
WIRING BENEATH PANEL SHOWN ---
FOR PARTS LAYOUT SEE FIG. 2.
R1, R2, R3, SELENIUM RECTIFIERS
TYPE K.8-40, SEE TEXT.

job. Before describing the "black box" a few words on selenium rectifiers in general will not be out of place.

Basically, they have two important ratings; maximum rated forward current and maximum inverse voltage.

The first rating determines the load current which the rectifier will deliver and is determined by the area of active conducting material on each plate and the spacing between plates in a rectifier stack. A typical rating is 50 to 60 Ma./sq. cm. of active material. To determine the rating of a metal rectifier plate, measure the outside and inside diameter of the conducting material on the plate (assuming circular plates with "centre contact" mounting), calculate the area in sq. cm. and multiply by 50 to obtain the current rating in milliamps.

If the stack is used in "push-pull" or bridge connections, the rating calculated will be correct. If half-wave rectification is used, this figure must be halved to give the correct rating.

The rating of maximum inverse voltage is the maximum voltage which

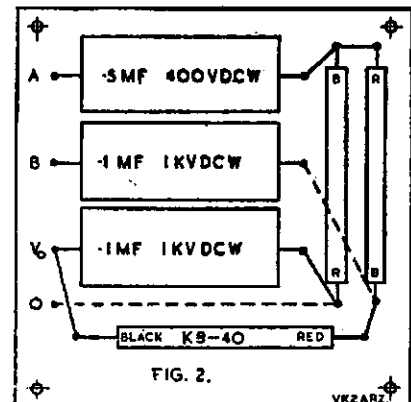


FIG. 2.

(1) "The Manufacture, Construction and Application of S.T.C. Selenium Rectifiers" by R. F. Haren, A.S.T.C.

* 5 Barlinga Road, Mortdale Heights, N.S.W.

RADIO—31 YEARS AGO

BY ERIC TREBILCOCK, BERS195

[31 years ago Eric Trebilcock, BERS-195, first made his entry into the field of Amateur Radio interest. He recently re-read some radio magazines which were in existence at that time and from same extracted some information which will be of interest to present-day Hams and S.w.l.'s.—31 years is a long time ago, probably before half of our VK Hams were born!—Ed.]

This information refers to the 1926-1927 era. In those years:—

There were approx. 400 licensed Amateur Stations in VK, and 100 in ZL.

Of those licensed in 1926, 96 still hold the same call sign in VK.

Only two call signs were listed under Papua-New Guinea (VK4CP and VK-4CR).

There were 21 broadcast stations—eight "A" class and 13 "B" class.

A 200-page radio magazine cost 1/- in those days!

There were 180,000 broadcast listeners licenses in existence in VK—of which total 90,000 were in VK3 and 50,000 in VK2.

A broadcast listeners' licence cost varied between 17/6 and 27/6. A dealers' licence cost £2 to £5, and a licence for a receiver in a hotel cost £7/10/0 to £10.

A crystal set was retailed at £4.

A 2-tube b.c. receiver cost £15, 4-tuber £28, 6 tubes £45 to £120; and

* 340 Gillies St., Thornbury, N.17, Vic.

a portable job cost £75 believe it or not!

In those days 500 watts was referred to as low power!

A train toured N.S.W. carrying a fully equipped b.c. station, the aerial for which was 60 ft. long and mounted on two masts 40 ft. high above the carriage roofs!

There were 23 Australian based warships, all of which had call signs commencing with G.

The main DX band for Amateurs was 32 metres, and the prefix was A (later OA—then VK still later).

S.w.l.'s. and b.c. listeners alike used to derive great pleasure from week-end music and speech transmissions by Amateur Stations around 200 metres.

At night time it was common place for Interstate reception to take place regularly—on this "Amateur" band.

Several of the big DX men 30 years ago are still to be heard chasing DX—on the other hand, some of our present-day chief experiments were in the front ranks of experimenters 30 years ago.

QSL cards were no less popular then than they are now. (Most b.c. stations used to seek DX reports too, for which QSL cards were offered.)

"Cage" type aerials were all the rage with Amateurs and b.c. stations—beams were virtually unknown.

In the intervening 31 years, BERS195 has made 182,000 log entries, mailed 15,000 reports, and received 9,000 QSL cards.

E.H.T. WITHOUT TEARS

(Continued from Page 5)

physical construction does not matter, but the method suggested has proven simple, rugged and reliable. Pigtailed on each component are soldered to lugs held on the insulating material by tubular rivets (see Fig. 2).

THEORY OF OPERATION

To understand the operation of the circuit (Fig. 1) assume that point A becomes positive with respect to points O and B.

Rectifier R1 will conduct and C1 will charge to the peak value of the voltage AO. (C1 must be rated to withstand this voltage of $1.4 \times AO$ r.m.s. voltage. For a 220 volt aside transformer, C1 should be rated to $220 \times 1.4 = 310v$. d.c.w.)

On the next half-cycle R2 will conduct and due to the charge on C1, C2 will be charged to a potential of $3 \times 1.4 \times AO$ volts peak.

The potential of point B will vary from 1.4 AO positive to 1.4 AO negative with respect to the point O. The polarity of R3 is such that although point X will tend to vary from $4 \times 1.4 \times AO$ to $2 \times 1.4 \times AO$ volts, C3 will be maintained at $4 \times 1.4 \times AO$ volts.

In the case of a 220 volt aside transformer this means that C3 will be charged to nearly 1,100 volts unloaded. When the e.h.t. bleed is added, together with the c.r.t. load, this potential will drop to about 900v.

The theory of operation is included so that intending constructors can check the rating of any components which may be pressed into service. Before you attempt to use any capacitor in the "black box" see that its rating will cover the voltages likely to be experienced. If possible give them a "leakage" test on a neon-type indicator or check them with a megger.

Having provided yourself with a compact, simple and reliable source of e.h.t. for your modulation monitor, any standard Amateur manual will provide you with the circuitry of a simple c.r.o. The one described in "The Radio Handbook", eleventh edition, is the one used by the Sydney Amateur mentioned. The c.r.t. will require a filament winding isolated from all other tubes in the equipment. One of the normal windings on the power transformer can be used and although the insulation is probably not designed to withstand several hundred volts to frame, equipment constructed this way is known to be operating satisfactorily. If you have any strong feelings on the subject it is not difficult to wind up a one-to-one transformer (having adequate insulation to withstand the voltage used), energised from a filament winding on T1.

If the c.r.t. has a four volt or two point five volt filament this procedure is recommended.

And now that is the story of the "black box". The writer wishes good reports and more effective modulation to anyone prepared to try this not well known approach to e.h.t. generation.

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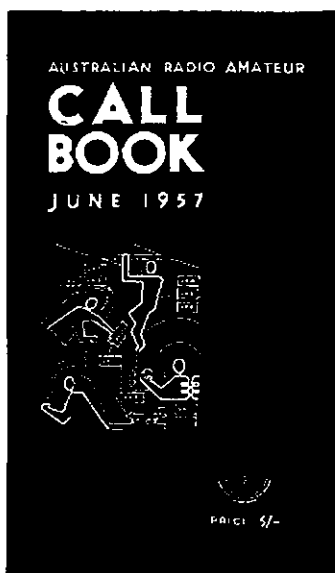
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THE 1957 EDITION CONTAINS—

- An up-to-the-minute listing of Station Call Signs and Addresses of Licensees of Transmitting Stations located in the Commonwealth of Australia and Territories including VK1 Australian Capital Territory, Z Call Signs, and W.L.A. Listeners' Numbers.
- Over one thousand additions, alterations and deletions since the last edition, making more than three thousand amendments since the 1954 edition.
- DX Countries, Prefixes and their Zones.



Antenna Couplers for 50 and 144 Mc.*

SHIELDED COUPLERS FOR THE V.H.F. STATION

THOUGH antenna couplers are quite general on lower frequencies, they are still something of a rarity in v.h.f. stations. Why bother with a combination of coils and capacitors, when a simple balun of co-axial line will serve the same purpose?

There's nothing wrong with the balun approach, provided we recognise its limitations. The balun will convert from co-ax to balanced lines, and step up the impedance from 50 to 200, or 75 to 300 ohms, in the process, but it will do no more. Transmission line of 200 ohms impedance is little used, and the common polyethylene-insulated 300 ohm lines leave quite a bit to be desired, particularly in wet weather. Probably the best transmission line for most v.h.f. installations is the open-wire variety, with impedance ranging from 400 to 600 ohms. A balun will not do the job properly with this sort of line.

In addition, few v.h.f. antenna systems actually present a purely-resistive load of 300 ohms at the transmitter end. Measurement of impedance, at the end of the line or at the antenna, may show values well away from those that can be matched with simple co-axial baluns. A moderate mismatch between the antenna and the transmission line

● Unless only a short transmission line is needed for the run from transmitter to array, losses may run rather high if co-ax is used on v.h.f. antenna systems. Yet modern transmitter design and the need for t.v.i. protection demand the use of co-axial output coupling. The best combination for most v.h.f. installations is some form of balanced transmission line for the main run, and an antenna coupler to handle the conversion from the balanced line to the co-axial transmitter connection. Here are shielded couplers to do the job on 50 and 144 Mc. (Slight modifications will be necessary for 56 Mc. band operation in Australia.—Ed.)

something less than a red-hot v.h.f. antenna, but the couplers made it possible to load properly, and the antenna didn't do too badly. With another coupler of similar circuitry, the same doublet also serves well enough for our occasional excursions on all the "d.c. bands" from 30 to 3.5 Mc.

CONSTRUCTION

Antenna couplers for lower bands are usually constructed with their tuned circuits out in the open. Shielding is desirable, but the large coils needed for those frequencies would require quite large enclosures. Metal in the field of a coil reduces its "Q" so we should allow for free space all around the coil for at least half the diameter. On 50 or 144 Mc. we can satisfy this requirement and still build the antenna coupler in a compact package.

Our couplers are housed in aluminium utility boxes 3 x 4 x 6 inches in size. These are the two-piece variety, and all the components are mounted on one of the pieces. With only slight modification a standard chassis could be used, the shielding being completed by adding a bottom cover.

The two units are identical in external appearance, and similar components are used. The main tuning capacitor, C₂, is fastened to the front wall 1½ inches in from the left side. The series capacitor, C₁, and the co-axial fitting, J₁, are 1½ inches up from the bottom of the rear wall, 1½ and 2½ inches, respectively, from the left edge, as viewed from the back. A standard crystal socket, J₂, is the terminal for the balanced line. It is mounted on the top, one inch from the edge.

Details of the interior arrangement should be obvious from the photographs. The 50 Mc. coils are cut from commercially available stock inductors, though they can, of course, be made by

hand. The coupling winding, L₁, is inserted inside the tuned circuit. The polyethylene strips on which the coils are wound keep the two coils from shorting to each other, so no mechanical support other than that provided by the leads is needed. The leads to L₁ are brought out between the turns of L₂, and are insulated from them by two sleeves of spaghetti, one inside the other. Do not use the soft vinyl type of sleeving, as it will melt too readily if, through an accident to the antenna system, either coil should run warm.

In the 144 Mc. unit the positions of the coils are reversed, with the tuned circuit, L₂, at the centre, and the coupling coil on the outside.

The components are designed to stand up under fairly high power. Smaller parts could be used if operation is to be at the 100 watt level or lower, but there would be no great saving in cost. Similar tuning capacitors are used in both couplers, but some of the plates are removed from the one in the 144 Mc. unit. This provides easier tuning, though it has no great effect on the minimum capacitance, and is therefore merely a matter of convenience. The capacitor may be left in its original condition, if you want to save it that way for some other eventual use.

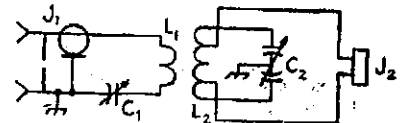


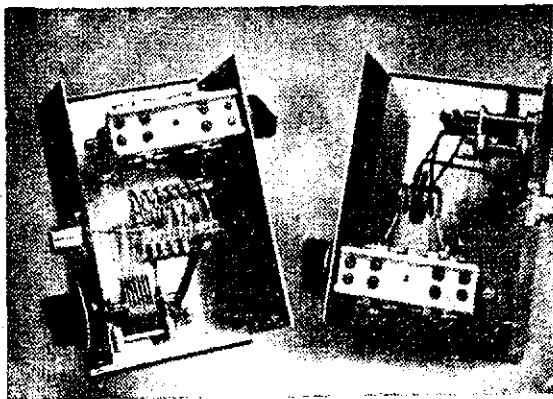
Fig. 1.—Circuit and parts information for the v.h.f. antenna couplers.

- C₁—100 pF. variable for 50 Mc., 50 pF. for 144 Mc.
- C₂—35 pF. per section split-stator variable, 0.07 inch spacing. Reduce to 4 stator and 4 rotor plates in each section in 144 Mc. coupler for easier tuning; see text.
- J₁—Co-axial fitting, female.
- J₂—Crystal socket.
- L₁—50 Mc.: 4 turns No. 18 tinned, 1 inch diam. ½ inch spacing.
- 144 Mc.: 2 turns No. 14 enamel, 1 inch diam. ½ inch spacing. Slip over L₂ before mounting.
- L₂—50 Mc.: 7 turns No. 14 tinned, 1½ inch diam. ¼ inch spacing. Tap 1½ turns from each end.
- 144 Mc.: 5 turns No. 12 tinned, ½ inch diam., 1 inch long. Tap 1½ turns from each end.

ADJUSTMENT

There is only one way to adjust an antenna coupler properly. That is by means of some form of standing-wave bridge. Anything else is guess-work. You can come up with an adjustment that will work, but you will never know if it is the optimum, except by checking the standing-wave ratio on the co-axial line from the transmitter to the coupler.

If you have a power-indicating bridge it will be necessary to drop the power level to that recommended for the bridge in question. Adjustment of the coupler is the same for either, however, and once it is set correctly it may then be used for that antenna sys-



will do very little harm, provided that some provision is made for tuning the line, and for coupling to it properly. That's where our antenna couplers come in. With them you can make almost any antenna system that is fed with a balanced line take power on 50 and 144 Mc.—and that can be highly useful in an emergency.

The writer recently made use of the two antenna couplers described below in this way. Some changes in our arrays for 50 and 144 Mc. had been started, and then were held up by a stretch of the nasty weather that New England can serve up in March. For a week or so we got in some tolerable operating on 6 and 2 metres by using a 68-foot doublet that is fed with about 100 feet of open-wire line. It was

* Reprinted from "QST," July, 1956.
 1 See the Transmission Lines chapter of any recent edition of the "Handbook" for details.

tem at any power level, and with any length of co-ax, and any transmitter.

Set the bridge to read forward power, and with the antenna connected to J2 adjust the antenna coupler capacitors and the transmitter tuning roughly for maximum reading. Now set the bridge to read reflected power, and adjust the antenna coupler capacitors, first one and then the other, until minimum reflected power is achieved. Unless the line input impedance is very highly reactive it should be possible to get the reflected power reading down to zero, or very close to it. As far as the antenna coupler is concerned, the job is now complete, for the antenna presently in use. Adjustment from here on, for maximum transfer of power from the transmitter, is done entirely at the transmitter. If you can't get the transmitter to load properly now, you need some modification of its coupling system. If the bridge shows zero reflected power, the co-ax link now represents a purely resistive load for the transmitter. Leave it that way, and go to work on the rig!

The couplers were checked in the lab. with resistive loads from 100 to 1600 ohms, over which range it was possible to show a 1:1 s.w.r. in the co-ax line and load the transmitters effectively. This simulates a mismatch of up to 5.3 to 1 for 300 ohm lines, or 4.5 to 1 for 450 ohm lines. It is unlikely that a v.h.f. array built to any standard design will have an s.w.r. of anything like this order. Antennae intended for use on the other bands may present higher or lower values, but a

slight juggling of the line length should make it possible to load them effectively with the couplers shown.

—E. P. T.

PHASE SHIFT NETWORKS

(Continued from Page 3)

With the main receiver set on manual volume control and with the r.f. gain turned well back, tune in an a.m. phone signal. Listening to the signal when tuned to zero beat it should be clear and undistorted at the output of the adaptor.

Detune the receiver to one side of the station until a heterodyne of 1,000-1,500 c.p.s. is obtained with the received carrier. Operate the adaptor's sideband selector switch and observe which position gives the weakest received signal and leave it in that position.

Adjust the r.f. p.s.n. and the audio balance control for that particular sideband until the received signal is at a minimum. The receiver should now be detuned to the opposite side of the a.m. carrier, to obtain approximately the

same beat note, and the adaptor's sideband selector switch is thrown to the other sideband position.

The audio balance control for that sideband and the r.f. p.s.n. controls are adjusted until the received signal in the speaker is again at a minimum.

Switch alternately between the two sideband positions on the adaptor, tuning the receiver to the opposite side of the received signal each time. After two or three adjustments to each sideband position the job will be complete.

As in the case of the s.s.b. exciter, it may be necessary to strike a mean position for the final settings of the r.f. p.s.n. controls.

Now you will find as you tune across the band that the carriers of a.m. stations can only be heterodyned on one side of zero beat, likewise c.w. signals. Tune in two a.m. stations QRMing each other and observe how selecting the appropriate sideband either eliminates the QRM or renders it of no nuisance value. In the case where a station is hard to read on either sideband try reading it on a normal a.m. receiver and you will appreciate what a properly lined up adaptor is capable of doing.

This article has covered r.f. p.s.n.'s from almost all angles, practical and theoretical, the types covered are thoroughly representative of those in use by the s.s.b. fraternity. Other phase shift networks may be encountered occasionally, as other circuits do exist, but this article should meet the requirements of almost all the readers interested in these circuits.

CHANGE OF ADDRESS

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THOSE EQUALISING PULSES

Maybe you have built your own t.v. receiver, or maybe you've only a theoretical and academic interest in its circuitry, but, whichever way your interest lies, no doubt you've wondered about those pulses! Let us lift you out of the confusion caused by other published explanations of this facet of t.v. by referring you to a series entitled "Television Made Easy," published in "Amateur Radio" under the names of Ken Wall and John Jarman, in particular Part VI., February, 1952, from which we quote:

"Now these equalising pulses; what are they for? Well, we've learnt that each picture is scanned in two 'fields', each of 312½ lines. The first field is terminated in the middle of a line, and the second at the end of a line.

"Now, supposing that normal horizontal synch. pulses were used right up to commencement of vertical synch. pulses. Consider the interval between the last horizontal and the first vertical pulses. At the end of the first field, it would be shorter than at the end of the second field. The small charge left on the integrator, by this last pulse, has therefore less time to escape so that at the end of the first field, charge on integrator reaches its peak faster.

"In every picture, therefore, the first field would be 'cut short', so that interlacing would not be correct. The lines of the second field would tend to 'overlap' those of the first, instead of falling between them.

"To prevent this, we substitute some of the horizontal synch. pulses, both before and after each set of vertical synch. pulses, with narrow pulses, at twice line frequency, to equalise conditions for each type of field."

Amazing, isn't it, that such a lucid explanation has lain dormant for five and a half years? . . .

VALVE DATA

6SN7GT A

MEDIUM-MU TWIN TRIODE
 Base: Octal.
 Socket connections:
 Pin 1—Grid of Unit No. 2.
 Pin 2—Plate of Unit No. 2.
 Pin 3—Cathode of Unit No. 2.
 Pin 4—Grid of Unit No. 1.
 Pin 5—Plate of Unit No. 1.
 Pin 6—Cathode of Unit No. 1.
 Pin 7—Heater.
 Pin 8—Heater.

Electrical Data
 Heater voltage 6.3 volts
 Heater current 0.6 amp.

CLASS A1 AMPLIFIER
 Values are for each unit.
Maximum Ratings:
 Plate voltage 450 max. volts
 Cathode current 20 max. Ma.
 Plate dissipation:
 For either plate 5 max. watts
 For both plates with both units operating 7.5 max. watts
 Peak heater-cathode voltage:
 Heater negative with respect to cathode 200 max. volts
 Heater positive with respect to cathode 200*max. volts
 *The d.c. component must not exceed 100 volts.

Characteristics:
 Plate voltage 250 volts
 Grid voltage —8 volts
 Amplification factor 20
 Plate resistance 7700 ohms
 Transconductance 2600 μmhos
 Plate current 9 Ma.
 Plate current for grid voltage of —12.5 volts 1.3 Ma.
 Grid bias voltage (approx.) for plate current of 10 μA —18 volts

Maximum Circuit Value:
 Grid-circuit resistance: For fixed-bias operation 1.0 max. megohm

E.Y.M.A.—EIGHT-HUNDRED YEARS MUNICH AWARD AND CONTEST

On the occasion of the Munich 800-Year Anniversary Festival, the Munich section of the D.A.R.C. arranges a contest from 1st October, 1957, to 31st December, 1957, to promote a close contact with all Amateurs of the world.

CONTEST RULES
 As many contacts as possible should be established with Munich stations.

Mode of operation may be phone or c.w., or both. Minimum report for phone contacts must be Q3/S3, for c.w. contacts RST338.

Each contact with a single Munich station is counted as one point per band. The sum of points thus gained is multiplied by the number of bands used during the contest, i.e. the highest multiplier is "5". Radio Amateurs outside of Europe may count two points per contact established on the 3.8 Mc. band.

Munich stations may be recognised during the contest by means of the identifier "C 12", i.e. internal German zone C 12—area of Munich; which will be added to the call sign. Example: DJ2FB/C 12. Stations with call sign prefixes DL2, DL4, DL5 and DJ0 are not recognised as German stations for the purpose of this contest.

The Amateur with the highest scores from each continent will be awarded expenses for a 3-day stay in Munich on the occasion of the Munich 800 Year Anniversary Festival in July, 1958. During the 3-day stay the winner will be awarded with his medal and his certificate. Second and third place winners from each continent and first place winner from each country, according to the official DX C.C. countries list will also receive a certificate.

Immediately after the end of the contest each participant will receive a special QSL card. This QSL card will be a reproduction of the original certificate with an indication of officially checked scores. In addition, all Amateur stations may obtain a certificate for establishing a certain number of contacts with Munich stations. For a certificate Amateurs in zones 29, 30, and Amateurs in zones 13 and

39, if located in the Antarctic, must contact 10 different Munich stations. Participants in the contest will automatically receive the certificate if they fulfill the rules.

QSL cards for Munich Amateurs must be addressed as follows: O.V. Munchen, Post Office Box 4, Munich 40, Germany. Only QSL cards showing all necessary data will be counted.

Contest contacts will be acknowledged only if the contestant submits his cards according to the rules given above. The deadline mailing date (official post mark date) for QSL cards for this contest and the certificate is 31st January, 1958, and cards arriving after 31st March, 1958, cannot be acknowledged.

D.X.C.C. LISTING			
Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.			
PHONE			
Call	Cer. C'tnt- No. ries	Call	Cer. C'tnt- No. ries
VK4FJ	21 202	VK3JD	1 155
VK3ATN	28 193	VK4KS	9 152
VK4HR	12 192	VK6KW	4 150
VK6RU	2 188	VK4RW	23 147
VK3BZ	3 176	VK3LN	11 141
VK3ZE	10 163	VK3JE	7 140
New Members			
VK3TE	37 115	VK7LZ	38 101
VK5HW	38 111	VK3ACN	39 101
C.W.			
Call	Cer. C'tnt- No. ries	Call	Cer. C'tnt- No. ries
VK4FJ	29 234	VK3CX	25 210
VK3FH	15 226	VK5BY	45 193
VK3KB	10 225	VK2EO	2 163
VK3BZ	6 222	VK3YL	39 178
VK4HR	8 218	VK4EL	9 175
VK3XU	48 213	VK6RU	18 172
Amendments			
VK9XK	41 140		
New Members			
VK3RP	56 128	VK7CH	55 105
		VK3ZA	57 101
OPEN			
Call	Cer. C'tnt- No. ries	Call	Cer. C'tnt- No. ries
VK2ACX	6 239	VK3JE	12 210
VK4FJ	32 238	VK3HG	3 201
VK4HR	7 233	VK2NS	16 185
VK3BZ	4 231	VK4EL	10 175
VK3XU	61 221	VK6KW	13 171
VK6RU	8 218	VK2DI	2 170
Amendments			
VK9XK	04 142	VK7LZ	23 141
		VK3YS	57 121
New Members			
VK4BG	66 112	VK3ZA	65 103
		VK1EG	67 100

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1957 "CQ" WORLD-WIDE DX CONTEST RULES

I.—CONTEST PERIOD:

Phone Section—0200 GMT October 26 to 0200 GMT, October 28.
CW Section—0200 GMT, November 30 to 0200 GMT, December 2.

II.—BANDS:

The Contest activity will be in the 1.8, 3.5, 7, 14, 21, 27 and 28 Mc. Amateur bands.

III.—TYPE OF COMPETITION:

1. Phone Section—(a) Single operator, (b) Multi-operator.
2. CW Section—(a) Single Operator, (b) Multi-operator, (c) Novice operator.
3. Inter-club.

IV.—EQUIPMENT:

There is no limit to the number of transmitters and receivers allowed, and competitors may use the maximum power permitted under the terms of their licenses.

V.—SERIAL NUMBERS:

Phone stations will exchange serial numbers consisting of four numerals, the first two being the readability and strength report, and the last two being their own ZONE number. Phone stations in Zone 1 through 9 will prefix their Zone number with zero (01, etc.). CW stations will exchange serial numbers consisting of five numbers, the first three being the RST report, and the last two being their own ZONE number. Stations in Zone 1 through 9 will prefix their Zone number with zero (01, etc.).

VI.—POINTS:

Contacts between stations on different continents will count three points. Contacts between stations on the same continent, but not in the same country, will count one point. Contacts between stations in the same country for the purpose of obtaining a Zone and/or country multiplier, will be permitted but no QSO points will be allowed. More than one contact between stations on each band will not be permitted.

VII.—MULTIPLIERS:

- Two types of multipliers will be used:
1. A multiplier of 1 for each Zone contacted on each band.
 2. A multiplier of 1 for each Country worked on each band.

VIII.—AWARDS:

Certificates will be awarded in each section as follows:

1. To the highest scoring station on each single band in the following areas:
 - (a) Each call area of the U.S.A.
 - (b) Each call area of Australia and Canada.
 - (c) All other countries.
2. To the stations having the highest combined total of all bands (or more than one band) in the following areas:

- (a) Each call area of the U.S.A.
- (b) Each call area of Australia and Canada.
- (c) All other countries.

IX.—SPECIAL AWARDS:

1. A cup will be awarded to the highest scoring Single Operator, All Band, Phone Station in the world.
2. A cup will be awarded to the highest scoring Single Operator, All Band, CW Station in the world.
3. A plaque will be awarded to the affiliated DX Club submitting the highest aggregate score of the scores submitted by its members.
 - (a) For a Club to enter, an officer of the Club must submit a list of its members participating and their scores.
 - (b) This list may include scores of Single Opr. and Multi-Opr. Stations; both Phone and CW.
 - (c) Stations that are members of a competing Club must therefore indicate this fact on their report forms.
4. At the request of the donors, last year's winners are not eligible for the 1957 Phone and CW cup award. In other words the cups cannot be won more than once by the same station. This, however, does not hold true for the plaque award.
5. Also such special or additional awards as the DX Committee shall choose to make. In countries or sections where the returns justify second and even third place, certificates may be awarded.

X.—SCORING:
 The score for each Single Band is the sum of the Zone and Country multiplier for that band, multiplied by the total contact points on that band.
 2. The total All Band score is the sum of the Zone and Country multipliers of all bands, multiplied by the contact points on all bands.
 3. Everyone who sends in a log for a single band is eligible for a Single Band award only. If more than one single band log is submitted, indicate which band is to be judged.
 4. Those who submit logs for two or more bands will be judged for the All Band award.
 5. No station is eligible for more than one award.
 6. Contestants must show a minimum of eight hours of operating time to be eligible for an award. If a contestant operates All Band and wishes to be judged for a specific Single Band, he must show a minimum of eight hours on that band.

X.—SCORING:

XI.—ZONES AND CONTINENTS:
 To check your own Zone number and continent for scoring purposes, refer to the A.R.R.L. or "CQ" list as well as the W.A.Z. map. For continental boundaries the same as used for W.A.C. will be recognized. Should any question arise as to the positive location of any station, the official definition will be final.

XI.—ZONES AND CONTINENTS:

XII.—OPERATING SUGGESTIONS:
 1. Foreign Amateurs; remember, scores are based on the greatest number of Countries and Zones as well as

stations worked. Therefore do not concentrate on working only U.S. stations. This is a world-wide competition.

2. Foreign Amateurs; it is recommended that you give the call letters of the station you are working at the end of each transmission, instead of "BK" as this would prevent much QRM of stations piling on and calling you.

3. Overseas phone operators should indicate which end of the band they are tuning or which portion of the phone band (American or foreign) they intend to cover. This is extremely important on 21 and 28 Mc.

4. CW stations would greatly reduce QRM and speed up contacts by working stations OFF their own frequency. Likewise, U.S. stations should avoid calling "that rare one" on his own frequency.

XIII.—RULE CHANGES:

No changes from last year. See modification in Rule IX. Nos. 4 and 5 re awards. Also note definition of 8-hour minimum in Rule X. No. 6.

XIV.—LOG INSTRUCTIONS:

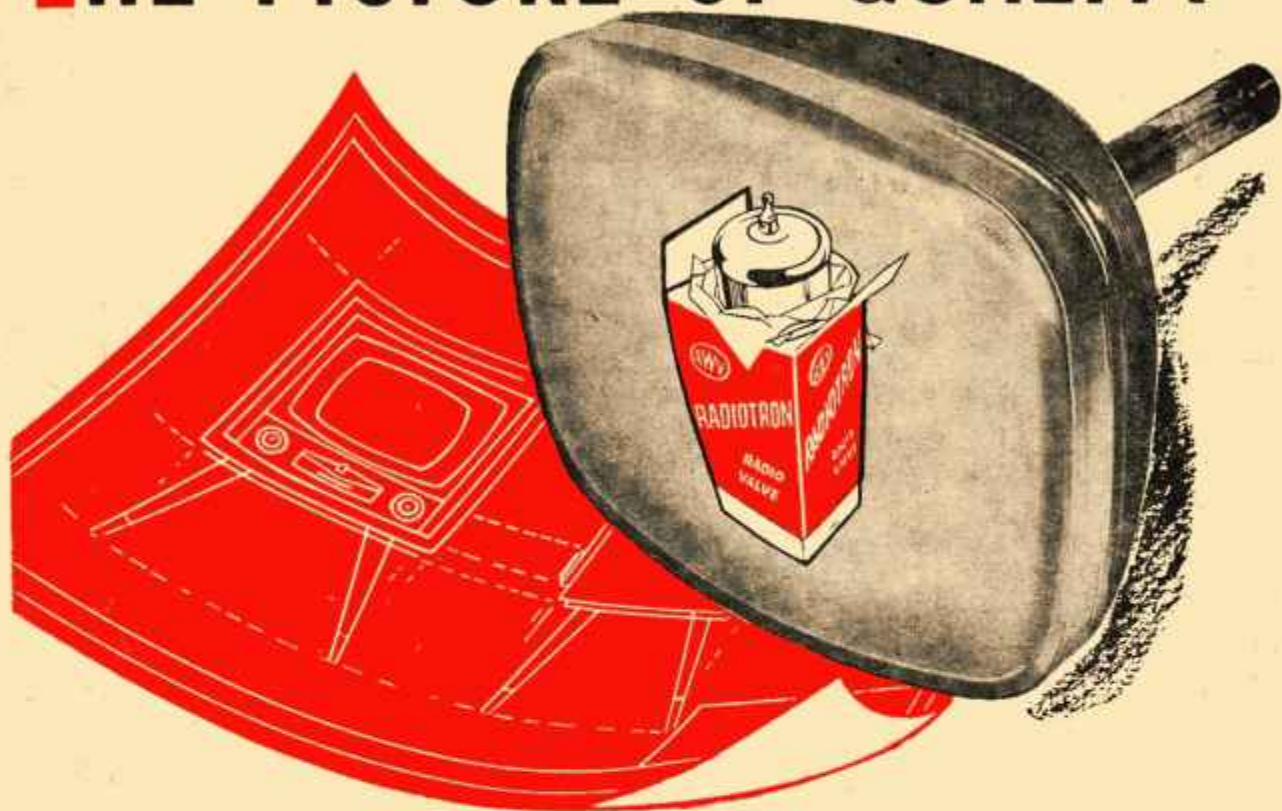
1. In keeping log, fill in Zone number and Country only first time it is contacted on each band.
2. Use a separate sheet for each band.
3. Keep all times in GMT.
4. All contestants are expected to compute their scores. Logs should be checked for contact duplications and proper point credit before they are submitted.
5. Make sure name and address is clearly noted on each log.
6. Each contestant must sign the usual pledge. Note sample contest report form.
7. If official log forms are not available, it is hoped that the contestant will make a duplicate form as illustrated. The size is 8½" x 11" with 52 contacts to the page.
8. Copies of the Zone and Country list and log and report forms are available from "CQ", address listed below. Send a self-addressed, stamped envelope, or in the case of overseas stations, I.R.C. coupons. Make sure to include sufficient postage and state how many sheets are needed.

XV.—DEADLINE:

All logs must be postmarked no later than December 1, 1957, for the Phone Section and January 15, 1958, for the CW Section. Send all logs direct to: "CQ" Magazine, 300 West 43rd St., New York 36, N.Y. Att: Contest Committee.

50 Mc. W.A.S.			
Call	Cer. Add. No. Cntr.	Call	Cer. Add. No. Cntr.
VK2WJ	13 4	VK2AEZ	10 1
VK3PG	5 3	VK3XA	11 1
VK2VW	9 3	VK3GM	13 1
VK4RY	2 2	VK3ACL	14 1
VK4BR	4 2	VK3ZD	18 1
VK1C	1 1	VK2HO	17 1
VK8DW	3 1	VK2ABC	8
VK3RR	8 1	VK2WH	15
VK3HT	7 1		

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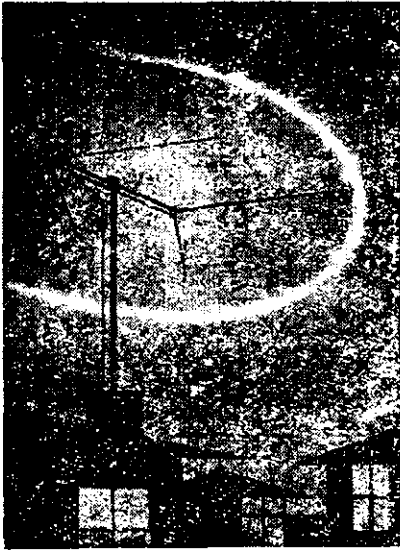
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S.W.L. SECTION*

NEW SOUTH WALES

Barry Cartwright, from Richmond, N.S.W., just missed the boat by one day last month with his letter. (These notes have to be with the Magazine Committee by the 8th.) Barry states that he hasn't yet built a 2 mx converter, but has plans for building a G4ZU beam in the near future, evidently with the idea of really going hard after the DX. He is at present in the throes of constructing a three-tube converter which should be in working condition very soon. Barry finds that 15 mx is the best DX band for him but is also very prone to QRM from ignition and power lines.

He guarantees that Richmond is the noisiest town in Australia and says that a Ham friend in his street will bear his statement out. Well, I don't know, Barry. I live on a main road with plenty of cars and trams and have an h.t. power line on two sides of me. I'd say the country boys are on top there.

Our next letter comes from Don Grantley, of Holbrook, N.S.W. Don, like Dave Jenkins, is keen on battery operated t.r.f. receivers. He has been s.w.l'ing since 1952 using an R1882 (AR14) 5v. battery operated t.r.f. which he says has proved itself. As proof he quotes the following logged on 20 mx in the past few weeks. YV4, VK0, OH, DL, KL7, EA, VS, KP4, OZ. The antenna used at the moment is about 20 ft. of wire from chimney to gable. The set originally cost Don 45/- so he evidently has a bargain. Don, who was a telegraphist in the R.A.A.F., intends to sit for his ticket in January under the urgings of George 2ADZ. Hope you get through OK Don.

VICTORIA

At the Aug. meeting 22 members were present and we were pleased to welcome two new comers in Charles Saunderson of East St. Kilda and J. Inglis of East Coburg to the Group. Election of office-bearers for the forthcoming year was as follows: President, L. Poynter; Vice-Presidents, M. Ide, A. Stebbing; Secretary, I. Hunt; Asst. Sec., M. Cox. Council delegates, G. Robertson (3WJ) and Noel Sinnbeck (3ANSI). Organising Committee: I. Woodman, M. Cox, I. Hunt, B. Stebbing, M. Ide. Official Observers: F. Nolan and G. Morris.

After business was disposed of, we were entertained by Noel 3ANS with a film featuring tx hunting and another on the Melbourne airport, which included some shots taken dur-

* Compiled by Ian J. Hunt, WIA-L3007, 211 St. George's Road, Northcote, N.16, Vic.

ing the Group's visit to D.C.A. at Essendon. These were followed by some films in much lighter vein kindly brought along by Michael Ide. We would like to thank those two gentlemen very much for providing us with such an interesting evening.

The visit to the Newport Power Station, despite poor weather, was a great success. About 15 members attended and we were shown everything from where the coal arrived at the power station through to where the outgoing electricity was controlled.

Recently several members in search of knowledge of Ham Radio visited the station of Bill Tregear, 3TX. Bill, who is always ready to provide help whenever needed, kept the boys most keenly interested by showing them not only his equipment but also log books dating back to the early days of radio and other relics from the times when a big spark was the right thing. His stories of those days and of his own experiences were something which they will not forget in a hurry. The boys went on their way fortified by a most enjoyable supper. We wish to thank you Bill and your good wife for looking after our members in such fine style.

On 2nd Sept. 26 members participated in a most interesting inspection of television station HSV7. Divided into two parties we moved gradually through the whole process of putting a t.v. programme on the air from studio or film to the final output from the control rooms. Quite a few amazed faces were apparent upon being shown the microwave transmitters used for relaying the programme from studio to transmitter up in the mountains.

The Group meets each month at the Institute rooms, 191 Queen St., Melbourne at 8 p.m. on the last Tuesday of each month.

PAPUA-NEW GUINEA

This month we have a short note from R. Clarke, WIA-L9001, who informs us that the A.O.C.P. class is going along steadily and a couple of the chaps intend to sit for the exam. in January and hone with a bit of luck to make it. Bert Smith is looking round for a good receiver. At present he is using an Ekko but it is not exactly suitable for Ham work. Laurie Howell is using a Pye International and getting some good results although he has not been very active this month. Bob Clark has been overhauling his AR7 and is pleased with the results. He is busy now building a pre-amplifier to try and break down the noise level which he suffers at his QTH. All the associate members of the Division have now been allocated s.w.l. numbers, so it is hoped they will take a more active part and come to the meetings, thus making more news items available.

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DX ACTIVITY BY VK2QL†

Have missed out on some of my "over the air" contacts this month so, unfortunately, we will not know just what they have been up to. For those who have been holding off 21 Mc., do not dally any longer. W.A.C. is there for the taking minus the hectic QRM we are finding on 14 Mc.

NEWS AND NOTES

There is an abundance of material this month. Some has been omitted as it would be obsolete by the time you read these notes.

Firstly, 6LG, 6BE, 6CL and 6EJ have been amongst the ZS on 3.5 Mc., signals of over S9 being received from those listed under the 6EJ activities. Time this was going on was between 1900 and 2100z.

The proposed trip to the **Maldives** from VS1 has been cancelled due to the unserviceability of the aerodrome. This is not expected to be ready before Xmas.

DLAAP will operate from Crete and Rhodes the first week-end in October with the call of SV0WAA (Crete) and SW0WAB (Rhodes) and requests at least 1 I.R.C. per QSL. He is being financed to make the trip and this will help defray expenses (5AB).

YK1AT can be heard 14051 Kc. at 1500z.

UP2AS is going on an expedition to **Tanna Tuva**, possibly September. Two different calls have been given me and I think the 3W8AA version is more likely to be closer to the mark and his version is UA0KTA/KTB/KTT. W6YY has the calls of UA0KOJ and UA0ON. Phan has told me that the derivation of the "Iron Curtain" call signs is the letter "K" when used after the figure indicates it is a club station and the next letter is for the province of operation. This principle has been mentioned to me before so there is probably good foundation for following closely the letter after the "K". I have no info on the two letter calls to date other than they are not club stations.

HL2AM is currently active from Korea.

Don't be led astray by the stations signing HB-----/FL1. FL1 is being used by stations which normally used /HE1. The position is not quite clear at present as to how the FL1 is going to be used by stations permanently licensed for Liechtenstein.

W6UOU/KS6, who gave an excellent exhibition of controlling a "dog pile", has now moved on.

VK0AB heard nothing on 3.5 Mc. during the R.D. Contest. Chas. has now reached 103 countries worked.

VE3AHU/SU was operating from the Gaza strip (5AB).

All the following from W6YY: **VR3A**, who was married in June, will be returning to VR3 about mid-Sept. and will be active all bands c.w. and phone from 0200-0700z.

UA0KFF is reported to be active from Tibet. Ghana is going to change its prefix from ZD4 to 2G1.

W0AIW (XE4A) was expected to operate from Aaland Is., mainly on phone, using the call OH1ST/0, during September.

FL3AC is operating on 14035 Kc. **FL3AB** is now available on phone.

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.

* Call signs and prefixes worked.

z—zero time—G.M.T.

FB8CD is on phone from the Comore Is.

RAEM is the call allotted to one of the Soviet Ice Breakers. It has been heard out here.

Before I leave this section, I think it probably the best place to add comments by Bram 5AB on his problems with the JZ0PB/JZ0PC QSLs. He has had no end of complaints, both from VK, me included, and the DX boys on their failure to receive a card for their JZ QSO. Bram has NOT received a card from many of those who state they have sent one through the Bureau. He has answered all cards received within a day or two of receipt. Some of these have not reached their destination. Cards despatched to K6DDO and CEJE in Oct. '56 have still not been received. There is not much fun in handling QSL cards for DX stations apparently. If you have not received a QSL to date for a QSO with the two abovementioned JZ stations, try Bram VK3AB once more.

ACTIVITIES

3.5 Mc.: 6EJ and others: ZS5OM*, ZS5PM*, ZS6AQ*, ZS3CD*, ZS5CV*, ZS1FX*, ZS8GN*, ZS5JO*, ZS3AV*, ZS4IA*, ZS6QK*, ZS5YC*, W. VK9XK.

7 Mc.: 2AIR: W*. ZC4CH, DL6XT, HB9SX, KH6BMD. 2AGH: KZ5RF*, PY1BLT*, KM-6AX. 2QL: VK0AS*, VK0AB*, UA0IJ. 6EJ: VK9XK*, VK9DB*, VK0AB*, DU7SV*, JA*. BERS195: CM8TL, GD4VH, ZS5LZ, ZD6DT, KW6CA, KM6AX, KR6AK, VK0AS, VK0AB, VK0DJ.

14 Mc. CW: 2AIR: UA0KKB*, PZ1AY*, W6UOU/KS6*, KP4AIO*, HBIMQ/FL*, XW8AB, XW8AG, CR10AA, P88AY, HL2AM. 2AGH: UA0YE*, UA0FB*, KB8A*, UA0KKB*, UA0FC*, VK0CJ*, UA0KQB*, KP4CC*, VK9VM*, VK0AS*, VU2SX*, VP2VB*, VK9AD*, VP8BM*, W6UOU/KS6*, LA1IF*, LA1CB*, UA2AW/MM*. 2AMB: CE9AK*. 2QL: FM7WD, 3W8AA*, CN2AY*, VP2VB*, W6UOU/KS6*, VP8BW/P*, PZ1AM*, VK9AD*, EA8BF*, XW8AG*, VK0AS*, HBIMQ/FL*, GD3UB*, HL2AM*, UQ-2AH, UP2AT. 6JS: LUTAZ*, LU7ABL*, LU-7BA*. 5RX: LZ1KAB, LZ2KAB, HAIHSA, W6UOU/KS6. 5RK: W*. H18BE. 6EJ: VE1*, VE4*, VE6*, VE7*, VE8*, KL7*. BERS195: CX-1BO, FB8XK, GB3SP (who else heard this Scout Jamboree station?), JAJJG (Antarctica), LU6AJ, OQ5GU, TF3WCD, UH8AB, VP8RG, UH8KAA, VP6KL, ZAIKAD, XW8AG, ZS2MI, W1A-L3039: BVIUS, UJ8AG, 3W8AA, VU2JB.

14 Mc. Phone: 2A0H: VR4JB, P2JCE*. 2AMB: VK9AD*, ZL5AA. 5AB: KG4AA*, HH-5JD*, CO7OZ*, KZ5FA*, VP9G*, W4DQA/KS4*, ZC5RF*, HL2AJ*, HL2AI*, H18BE*, 4X4BU*, LXIDE*, VK0CJ*, HCSCL*, CO7RG*, HK7EZ*, F7UAD*, VP9K*, TG7SJ*, YU2OB*, FP8AP*, OH3AA/0*, VR6AC*, VR6TC*, VO-1DN*, VR4JB*, YSILA*, EA8CC*, ZS6ANE*, VP2VB*, TF2WBZ*, FP8AY*, FB8CD*. Nice going Bram. 5RK: VK9YT*. 8E1: VE3*, VE4*, VU2AV*, 4ST5W*, ZS8*, ZE2*, VR4JB*, BERS-195: VK9YT, VK9DB, VR4JB, ZL5AA.

21 Mc. CW: 2AIR: UC2CB*, OA7I*, KZ5LY*, 4X4IV*, 4X4FS*, SP8CK*, PA0TAU*, VP7NM*, GW3BNQ*, ZP9AY, SV0WR. 2AMB: KW6CE, VS4JT. 2QL: H18BE*, CTIJS*, PY1BQI*, KZ-5LY*, EA8BF*, VK0AB*, GD3FXN*, UA0GF*. 6JE: GM3ITN*, G*, VSI*, W*, ZS*.

21 Mc. Phone: 2AMB: KR8FM*, 5AB: VS-4JT*, SP8CK*, VP4LF*, VP9G*, ZS6JW*, KG4*, KS4AM*, HA5TI*, HR3HH*, HS*, PS7*, VK0AB*, VP7BN*, UB6WF*, VP5EM*, YV5AY*, VP6LT*, VE3AHU/SU*, W6UOU/KS6*, VP5BL*, CR5SP*, HK3PC*, MP4BC*.

28 Mc.: 5AB: ZE3JVC*.

QTHs OF INTEREST

ZBICZ—Malta Workshop, R.E.M.E., Br. Forces, P.O. 51.
ZAIKAD—Operator Orpel, Tirana, Albania.
QSL via Box 88, Moscow.
OA7I—Jullaca, Peru.
VP7M—Box 48, Nassau.
KA0SC—A.P.O. 815, C/o. P.M. Frisco.
HLIAM—A.P.O. 970, C/o. P.M. Frisco, or via K0CSW.
HBIMQ/FL—Via HB9MQ.
YK1AT—Box 2249, Damascus.
XW8AB, XW8AG—Box 165, Vientene, Laos.
VP2VB—Via KV4AA.
VK9AD—Douglas Drive, Norfolk Is.
H18BE—C/o. U.S. Embassy.
W4DQA/KS4—802 Plaza St., Orlando, Florida.
VQ6AC—C/o. G.P.O., Hargeisa.

THE QSLs RECEIVED

2AIR: VP5BH, VS2FF, EA8BF, UB5CJ.
2AMB: XW8AB (7 of 14), VP8BW, CT2AH, UA1KAE. 2QL: JZ0PC, ZE4JH, ZS7C, ET3AH, VK9AD, UA1KAE. 5AB: VE3AHU/SU, OH-3AA/0. 5RK: VE3WBV (ex-G6WV), VESKG.

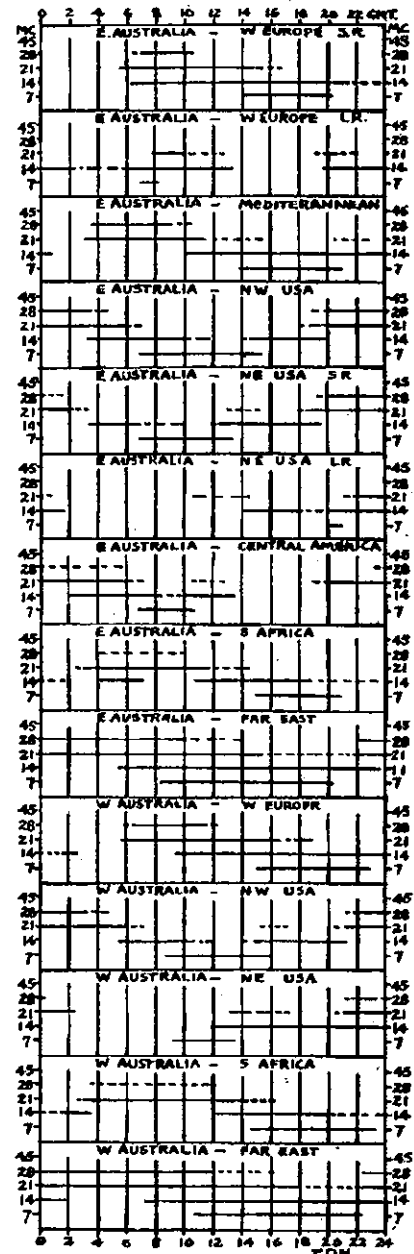
6EJ: CESAG, ZD6BX, VQ2IE, UJ8KAA, UI-8KAB, VSIGX (3.5, 7, 14, 21 Mc.), VP8BO, BERS195: CX1BO, CR10AA, IIBNU/Trieste, LUTXP, UA1KAE, UD6KAB, UG6BF, VP5BH, VQ2JN, ZBICZ, 4X4HK.

And so we come once more to say thanks to, firstly, W6YY for his helpful letter. Thanks John for the gen. 2AIR, who is steaming up for the "CQ" Contest; 2AMB, not quite so active this month due to a sojourn in VK4; ZAGB, much to his disgust had to hear his first 9S4 whilst visiting my QTH; 5AB, who whilst recovering from an illness was able to scare up some good DX; 5RK, for his QSP of 5JS and 5RX, who is hoping to get amongst the good ones more often; 6EJ, who naturally very excited about the ZS's on 3.5 If only I could pick one off to complete my W.A.C. on the five bands, and to our two listening stalwarts, BERS195 and W1A-L3039.

Have been unable to find out if anybody has heard anything of Hans 3AH, so know no developments in his trip away.

By the way, have you noticed the station that has been sending "U's" on 14003 Kc. for ages has moved to 14001. A little bit more of a nudge—just one less.

IONOSPHERIC PREDICTIONS FOR OCTOBER 1957



FIFTY-SIX MEGACYCLES AND ABOVE

56 MEGACYCLES

Trans-Pacific schedules from U.S. to Australia will be resumed on 1st October, 1957, at times to be announced later. In addition to radiating signals beamed on Australia, K6RNQ, W6SUE, W6AJF, W6BAZ and W6UOV will all be listening on the fifty-six megacycle band. All have receivers for this band in addition to their own 50 Mc. allocation. This gives a real incentive to use the 56 Mc. band.

[The above information came to hand from Norman Burton, of Revesby, N.S.W. It is requested that Amateurs, particularly in VK2 and VK4, operate on the 56 Mc. band and endeavour to make contact with the American stations.—Ed.]

All is quiet on the 56 Mc. front. No great burst of activity on the band though fresh calls are appearing each week. Main scene of activity is on the work bench where new rigs are under way. When the finished jobs are on the air the activity should be reminiscent of the 1950 period when activity was at a high level on 50 Mc. Browsing around the various bands many conversations in all States relating to construction jobs under way can be heard, a healthy sign indicating that the d.c. man is interested as well as the v.h.f. chap.

T.V.I. has proved a bugbear to many of those whose tx's have been built for some time, entailing complete re-construction, the tri-tet front stage going in favour of a straight xtal osc., with complete shielding and link coupling between the following stages, with more bypassing than the average Ham ever used. Strange the ways of the t.v. serviceman. A case to mind (yes, it happened to me), where a quarter wave open end stub had been placed on the t.v. turret, proving most effective when the critical length had been found. Came the serviceman for a minor job, saw the loose end, cut some off, pared the ends back and soldered on to the aerial terminals on the back panel. His reasoning, where else should the end of a piece of 300 ohm ribbon go? Same fellow said the 144 Mc. beam was the strangest t.v. aerial he had ever seen and what a peculiar direction it was to point it at. The moral, make sure that the XYL or what have you knows what you do to the t.v. set.

Auroral work here in VK has had limited, if any investigation. It has been tried on rare occasions when the opportunity was there, to no avail, possibly because of the limited occupancy of the band. A further limitation is VK's location in the temperate zone, our southern latitudes not being as close to the effective southern auroral zone as the northern more populous districts of W land are to the northern zone. But that is not to say that we should not try. The W.I.A. has been asked to co-operate during the Geophysical Year in the work of auroral investigation. More information shall be given next month as to how you can help. We should realise that the Amateurs as a whole are judged by the way we respond to such requests by important, sometimes Government back bodies and investigators. It is the cheapest form of good public relations and one where everybody can assist from the most junior associate to that large segment of members who have no aspirations to executive work, yet feel that they would like to do something to help the Institute.

Skedwise, the important news is the re-commencing of the W/VK skeds as listed above. An interesting development is that the W's are now listening on 56 Mc. If those VK stations participating would send in details of their normal operating frequency, these could be sent over to the W's. VK3 never did put through or receive signals from KH6, that was a VK2/VK4 preserve and it is to be expected that someone in those districts should provide the VK end should the trans-Pacific path open. It is to be hoped that VK2, with its numerical strength, and VK4, with its active members, can organise at least a listening watch during the sked period.

—Frank O'Dwyer, VK3OF.

of KH6UK's array are not known. This record breaking contact—it almost doubles the old record—was the culmination of nine months of daily skeds; a fine example of persistence paying off.—3ZAQ.

NEW SOUTH WALES

Meeting.—The monthly meeting of the V.h.f. and T.v. Group was held at Gore Hill Technical College on Friday Sept. 6 at 8 p.m. The meeting was well attended and business concerning field days, contests, treasure hunts, etc., was treated with despatch and the meeting proceeded to the important event of the evening—an auction sale of Ham gear. As usual the auctioneer was Ted 2XX who, as always, did a mighty job. Quite a large and assorted collection of gear was brought along by members (including 2NP's usual copious supply of valves), most of which fell under the hammer of our most capable auctioneer. Arthur 2AJA suitably thanked Ted on behalf of the Group. Good show, Ted!

The meeting then being ended, tea and biscuits (a new departure for v.h.f. meetings) were served by 2NP and 2ABZ who have undertaken to provide this service to members.

Monthly Night Fox Hunt was held on 28th August, the starting place, as usual, being Top Ryde. As is also usual, the winner of last month's hunt, 2AWZ, was the fox. Dave, who is as wily as a fox as he is a hound, was well and truly hidden at West Turramurra. First in was John 2ZAV in 90 minutes (just made it John!). Bob 2OA and Philip 2ZBB came in next and we understand that although 2OA really was in second (96 minutes), 2ZBB was so close on his heels that the result was nearly a draw for these two places.

Jim 2ZBD with 2ANF and 2ER aboard came to an ignominious end in a ditch and had to send for "Winchy" and others including 2ZCF to get him out.

I.G.Y. Project.—Full scale rehearsals that were to have taken place during the first week in Sept. have been brought forward by two weeks and will not now take place until the week commencing Sept. 15. This change has been made necessary because Sydney's recent spell of wet weather played a certain amount of havoc with the astronomical installation at Belfield.

During the month it was requested that the Group submit a comprehensive technical report on the radio section of this project. This report was prepared on our behalf by John 2ANF who you may be assured did a very fine job on it.

Lectures.—The lecture for the October meeting will be given by Mr. Alec Little, of the C.S.I.R.O. Mr. Little proposes to tell us something about rx noise, but unlike most lectures on this subject, he will concern himself with noise external to the rx. This should prove to be a most interesting and informative lecture and we hope will be well attended.

During the month of August five metre activity has further increased. The precise additional numbers are not known for sure, but they certainly include 2ZBX and 2ON. A new station on 2 mx, 2ZAW, has been heard getting himself all mixed up with his former call sign—6ZAW. Other new 2 mx stations heard are Ron 2ZCE and Aubrey 2AXT. Ted 2XX and Alf 2CE have both been heard on 2 mx after an absence of some time.—2ER.

VICTORIA

Fox Hunt.—The August hunt was a successful night for all concerned. Roy 3ARY was fox and three hounds cars, viz.: 3ZAT, 3AOG with SMS, and Bob Hall with 3ADU turned up. The route traversed: Studley Park, Richmond, Hawthorn, Glen Iris and Ashburton—the final location being at the home of Cliff 3ATP and Margaret. Everyone had a good time and at the end of the evening David 3ZAT was declared the winner with Tom 3AOG runner-up.

V.h.f. Meeting.—At the August meeting, Peter 3ZAF gave a short description of the Butler overtone oscillator. He had his 56 Mc. converter on display in which he had used this type of oscillator. Peter also had his 288 Mc. portable gear on display and he worked 3MT at the Royal Melbourne Technical College. To finish off the first part of the meeting, Syd 3ZDB amused the gang with a description of his new, completely shielded, pre-amp. The general business section of the meeting was mainly taken up with a discussion of field day rules.

Doings on the Bands.—On 16th August good conditions existed on 144 Mc. 3ZCG in Gippsland heard 3MT in Melbourne, who was only using a halo antenna. George also worked 3AMH, of Ballarat, with good signals both

ways. There has been some activity on 288 Mc. lately. Both 3ZFA and 3ZCZ operated portable from Science Exhibitions during the Education Week period. By the way, 3ZCZ is now working on 144 Mc., whilst 3ZFA has a converter going. He hopes to have a tx going soon. A new call floating around 2 mx is 3ZE, but don't let it fool you—it's Stan, ex-3ZEB. Congrats on the full ticket Stan. Glad you like 144 Mc. enough to stay on the band. Congrats also to Jim 3ABA; late in August, XYL Vera presented him with a fine daughter—all are doing well, including Jim.

Geoff 3AUX had an unfortunate accident recently. He injured his hand rather badly when he got a "kick" from the p.s. of his rig. Hope you will be fit again soon Geoff. David 3ZAT has been running mobile on 56 Mc. and so it looks as though there will be at least one starter on this band for the field days. David, who now lives in North Balwyn, passes on the following for newcomers to 5 mx: One or more of the following stations will be on deck at 8 p.m. each night: 3ZAT, 3ZAL, 3AJH, 3SF and 3AHL.

I had a visit recently from Lindsay White, who is at present stationed at Hopetoun. Lindsay is just waiting for his call to be issued and then he hopes to represent Hopetoun on 56 Mc. Another person waiting for his call is Jack Hudson and as soon as it comes through there will be another 2 mx signal from down Highbury way. Brian 3ZFH has trouble in the form of t.v.i. Frustrating, isn't it Brian? After a couple of months of messing about I think I've finally got rid of my t.v.i. It appeared to be caused by a rather elusive parasite in the final. Ross 3ZDN has been gradually building onto and improving his gear and he is now keenly awaiting the opportunity to work his first Ballarat station.

V.h.f. 100 Award.—Certificate No. 5 has been awarded to Alan 3AEL. Congrats, Alan. In making the award, Herb 3JO and Bob 3OJ deplored the design of some QSL cards. They said they had to knock back a couple of Alan's confirmations because such things as band of operation, or signature of the operator were missing. Another fault with some cards is that they don't definitely verify a contact; it could be verification of an s.w.l. report. Therefore fellows, when designing or writing out your QSL make sure that all the necessary information is given. It's most discouraging for someone trying for an award to receive a worthless card.—3ZAQ.

QUEENSLAND

With the proposed advent of t.v. in Queensland now certain, I suppose it won't be unduly long before the boys start thinking in terms of "one-eyed monsters". However, for the time being their minds seem to be directed towards long yagis, 16 element beams and 5 metres!

Quite a few of the newly licensed limited Amateurs already have 5 mx rigs on the go or on the air, while the 2 mx band looks like regaining its "all-too-quiet" silences of yesteryear.

However the 2 mx tx hunt on Friday, 8th Sept., was well attended and proved as popular as ever. The tx was hidden at Ekubin Quarry by Les 4LM and his crew. Ross 4ZAT found the tx in 16 minutes, which was quite a grand effort. John 4FP was rather unlucky, as at one stage, while the director in his beam worked its way out, he took bearings which landed him 10 miles out to sea! He also had to curb his blithe spirit while he followed a prowler car for nearly four miles at steady 25 m.p.h. However, everyone managed to get there for supper which was provided by Mrs. 4LM, for which all the boys thank you sincerely. Remember the next Tx Hunt on the first Friday of next month and bring your friends along!—4ZAE.

SOUTH AUSTRALIA

Once again a lack of activity noted from here on 56 and 144 Mc., most of the gang being busy on building and really experimenting.

The only signals heard this way being Keith 5MT (who also provides the 2 mx relay of the W.I.A. session in the morning), Col 5RO, Hughie 5BC, and Bill 5ZAX, and even they have been spasmodic.

Anyway, the weather is surely more to the liking of the boys now, so we hope to hear more from now on, of course maybe everyone is tuning and no one calling, that happens plenty of times on the lower frequencies, so who will set the pace?

This apathy is not apparent on 288 Mc. for my spy reports there has been extreme activity on that band of late where it is very easy to get a contact almost any time.

Among those active on 1 mx are SKY, 5JK, 5JS, 5LN, 5LQ, 5XA with quite a few others

(Continued on Page 15)

YL CORNER

BY PHYL MONCUR*

In a letter received from one of our XYL readers, Jan Nitschke (Mrs. 5EN) we catch a glimpse of life at the 5EN location. Jan writes:

"Well the stork has at last dropped his bundle, another male harmonic, Barry Erwin by name, and the OM couldn't have been more pleased (another aspirant for 'beam raising' he thinks). Usually that has been my lot, but funny how these jobs and tests always must be done no earlier than 11.30 p.m. when poor XYL is snug in bed and must get up 'in the cause of duty', practically life or death or some unbeatable reason. After much arguing and prevailing on his sympathies, which gets you nowhere, the raising of the beam wins, and for a week afterwards you struggle to 'feed 'the brute', while in the grips of the 'flu, and all the sympathy you get from the OM is 'Why don't you look after yourself, stop gallivanting about of a night-time'.

"Anyway I really do feel it's a great life being an XYL and I must admit there is usually a scramble to get hold of and read 'Amateur Radio' first. Even our 18-months-old harmonic, Robert, seems to have a very intense interest in Amateur Radio and knows which way to turn knobs and pull out plugs and of course has to have his say over the mike. But just how I'm going to stand it in a couple of years with three of them against me, I don't know. As it is now I'm dragged into the shack to wind rolls till my eyes nearly turn inside out, but I'm assured that one day I will get my corner cupboard in payment and after having waited two years for my band basin in the bathroom, I can believe anything.

"Quite honestly though I must admit that I have been well schooled in the art of Ham Radio and I really did go into it with my eyes open. You see a week after I had first met my OM-to-be, he arrived at my home complete with gear, Morse key, etc. At this time he was bedded in the 'best bedroom', but soon after was banished to an adjacent 'rubbish room'. It was no time at all and VK5EN was boldly nailed in large letters on the door. Feeder lines were strung across the room out the window and up the 'wind-light' tower. We used to wonder why the lights went dim when 5EN was testing. I was made QSL manager and was quite honoured with the position, but if I had only known then what I was up for, perhaps I'd have been less enthusiastic. Now I am expected to write up a mere 500 which he says I can do so capably but believe me I don't fail to detect a certain amount of 'she's got nothing to do all day' sentiment in the OM's speeches.

"However the OM throws out his chest when he shows visitors to the shack and they see the neatly labelled files and tidy shelves, but it's just that I'm too ashamed after he's been in there wrecking things as he's so dreadfully untidy. I even put in a strip of new lino to please him but it has taken on a new 'sparkled' pattern, which I strongly suspect to be solder which files in all directions when he is busy 'converting' something.

"We are going to Sydney shortly so the boys up there had better wire their tools to their benches in case my OM decides to 'dig up a Ham'.

"Good wishes to the column, I never miss reading it, and I'd like to send 73 to all the other readers.—Jan Nitschke."

* 235 Union Road, Ascot Vale, Vic.

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C.D.E.N. NEWS

The value to humanity of Radio Amateurs in an emergency is highlighted by the release of a French film "Race for Life". The story is written around a drama at sea and the part played by Radio Amateurs in the rescue operations. Radio Amateurs in Australian Capital Cities are being given the opportunity of seeing a special preview, thanks to a gesture by the film's distributor and exhibitors.

Divisional Co-ordinators are now in possession of up-to-date information on C.D.E.N. activities and after Divisions have had a chance to peruse and criticise "Instructions to C.D.E.N. Operators" and the final draft of "Authorisation Card" steps will be taken to circulate both to members of C.D.E.N. through Divisional Co-ordinators.

Hereunder are Rules regarding Initial Action and Co-operation. Discussions relative to same will be included in next month's C.D.E.N. news.

Initial Action and Co-operation

1.1. The first action of any Amateur is to advise HQ Control Station via any available channel that an emergency is developing and indicate to whom he has offered to enlist the services of C.D.E.N.

1.2. The Amateur or Amateurs shall then advise the Officer or Officers concerned that W.I.A. C.D.E.N. has been alerted and that he is/they are in a position to handle traffic with such places as directed by the Control Station or necessity.

1.3. Other stations in the affected area will report into the control station for instructions. Requirements may include handling traffic, monitoring frequencies, or intercommunication with other services.

1.4.1. All messages handled from an emergency area must be authorised by the person

FIFTY-SIX MEGS. AND ABOVE

(Continued from Page 14)

which my spy most likely could copy if the beams were directed his way, some have gone mobile, and the one most consistent that way is 5JS, who uses a 6J6 outfit. The mod. osc. is still the method of tx, no xtal outfits about yet on mobile, the trusty CV6 or 7193 tubes being the base.

There are some newcomers on 1 mxx. We congratulate Alf 5ZAL, Al 5ZCR, George 5ZDF, Brian 5ZBN, and it is known that there are others who have just received their call, but have not been around much. They will, it is hoped be about in time for next report.

Graham 5ES bobbed up on 1 mxx recently with quite a nice signal from Lockleys. The W.I.A. session is put over regularly by one of the boys for the benefit of all and sundry who cannot tune 40 mxx.

Jim 5JK has gone very quiet about antenna lately, rumour has it that he has been experimenting with a jet-propelled bath chair so that the "old dodderer" can keep up with things generally. He is also building up a new low frequency rig, but not for c.w.

With warm weather approaching we expect more activity from the mobile gang—hope to work Joe 5JO on the band again soon.—SEF.

WESTERN AUSTRALIA

The V.h.f. Group meeting on 3rd August was held for the first time in our new rooms at D.C.A. Amertities Section. The business section of the meeting disposed of, we settled down to listen to two lectures, one by Alf 6EA, and the other by Rolo 6BO. Alf's was entitled transformer measurement without elaborate test gear, and the boys enjoyed it because Alf is a master of this subject. 6BO talked on crystal grinding—theory and practice—the latter part coming from experience. Again this was well received.

The Fox Hunt on 24th August was again very successful. Dennis 6AW was the fox. It was a close go as three cars pulled up at the site together. The final placings went to Ralph 6ZAD, Jack 6ZBU and Don 6ZAV. There is a yarn going round that a certain VK6 finished up at the wrong end of a shot gun. An irate householder must have thought someone was trying to pinch his clothes line—evidently mistaken for a feedline and being followed back to the rig.

Jack 6ZBU has been on 56 Mc. since receiving his call sign and as he remarked, he is a bit mike happy. Rolo 6BO and Wally 6WG still checking the 250-mile path to Albany on 144 Mc. every morning, with 6ZAV joining in when available. Rolo 6BO reports that a signal from Tom 6TH was received in Perth on 56 Mc.—a distance of 90 odd miles—from a tripler.—6ZAV.

listed on the Authorisation Card, whose signature on the Authorisation Card and initials on messages should be obtained where possible.

1.4.2. The initials of authorised deputy will suffice on messages.

1.4.3. Lacking the authorisation as above, the Amateur may originate or accept such messages which plainly indicate that they are of a genuine emergency nature and can be substantiated by fact.

1.5. All initial calls to be made on guard frequencies 3501 Kc., 7002 Kc., etc., but traffic is only to be handled on assigned net frequency.

1.6. All stations in the area, adjacent areas and wherever interference to emergency channel is possible are to refrain from using that frequency and should move immediately when requested by station detailed to guard channel.

1.7. Co-operation with other services will be given willingly upon request and Control Station notified of action being taken.

1.8. The Control Station will at all times exercise over-riding control of network activities. All stations in the net will refer any queries to control for advice and decision.



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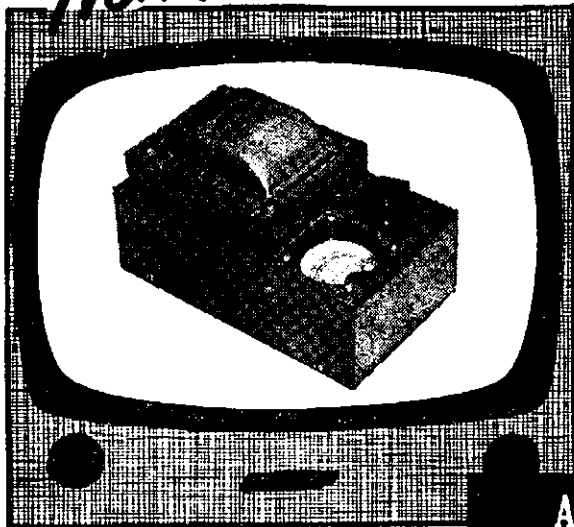
An Aid to T.V. Installation and Service

Flicker or shrinkage of the Television picture often indicates a low line voltage, leading to complaints of unsatisfactory reception, or to difficulty in adjusting the receiver controls. This condition can be reproduced with an A & R Voltage Adjuster, thus indicating the lowest possible mains voltage for good reception. The mains taps on the Receiver can sometimes be adjusted to suit, provided the voltage is consistently low.

There are many other applications for the A & R Voltage Adjuster, such as, correction of input voltage to Amateur Transmitting and Receiving Equipment, Tape Recorders, Hi-Fi Audio Equipment, etc., provided that load imposed is within capacity of adjuster. The auto model is quite suitable for these applications.

Servicing Transformerless T.V. Sets

Servicemen will find the double wound model an invaluable aid when servicing transformerless T.V. Receivers. The Receiver under test can be safely isolated from the mains supply, thus affording maximum safety and a safeguard against possible damage to valuable test equipment. A separate earth terminal is provided for earthing the receiver chassis to the adjuster if desired.



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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

WEST GERMAN AMATEUR ON 4 METRES

A limited number of West German Amateurs are to be allowed to operate in the band between 70.3 and 70.4 Mc. during the I.G.Y. It is understood that D.A.R.C. have applied to the West German Government for permission to operate a special I.G.Y. station using the call DL01GY, but no details are available.

SCATTER RESEARCH PROGRAMME DURING I.G.Y.

During the International Geophysical Year a research programme on Ionospheric Scattering will be conducted by Scientists and Radio Amateurs. Transmitting and receiving stations will be installed by the American National Bureau of Standards, and will operate in the 50 Mc. band. Transmissions will be beamed Northwards and Eastwards from places in South America. Radio Amateurs have been asked to report reception of these stations.

1959 I.T.U. CONFERENCE

The Administrative Council of the International Telecommunications Union has set the date for the opening of the radio conference as 1st July, 1959, to run for a maximum of five months. Geneva, last year tentatively chosen as the conference site, has been confirmed by this year's meeting.

FEDERAL QSL BUREAU

In a letter covering the forwarding of QSLs the President of the Teknik For Allas Eterklubb, of Stockholm, Sweden, states that the Club is the greatest DX club in the world and has 29,000 members, whilst its technical magazine has a circulation of 70,000 copies.

The Denver Radio Club announces an award called Mile Hi Award. This certificate is available to all Amateurs who contact 25 stations located in the Denver metropolitan area. Ten of these contacts must be with members of the Denver Radio Club. QSLs for the contacts claimed must be sent to the Club at Box 356, Denver 1, Colo., U.S.A., where they will be checked against members' logs. Additionally each claimant from VK will be eligible to receive one year's subscription to either "QST" or "CQ". Renewal subscriptions may be gained by completing the required contacts with an additional 25 different stations to those originally submitted. No information is given as to the retro-spectivity of contacts.

A card has come to hand from France for VK9FJ whose address is given as Cocos Keeling Islands. Name of VK9FJ is given as "Mice". Time of contact, which was on c.w., is 1825z on 1st August, 1957, on 14 Mc. Maybe "Mice" is the successor to VK9AJ.

Cards have come to hand from UA1KAE located at Mirny Base, Antarctica. The operator, George Minnov, is now back in the U.S.S.R.

VPSBH was operated from March 20 to March 27 by several W4 operators. Location of the station was the screened-in front porch of the Bayview Hotel, Georgetown, Grand Cayman Island, in the B.W.I. The station was operated non-stop for the whole period and 4,100 contacts were made with 2,502 different stations on five bands. One 48-hour period of operation yielded 2,405 contacts!! Halcrafters' equipment was used throughout and the antenna system comprised a tri-band cubical quad plus doublets and a vertical. Any VK not yet having received his verification can obtain same by writing, Don Chesser, R.F.D. 1, Burlington, Ky., U.S.A.

Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The August meeting of the N.S.W. Division was preceded by a Special General Meeting to consider the proposed changes to the Divisional Constitution, as directed by a motion moved at the Annual Meeting. About 60 members were present when the Chairman, Perce Healy, 2APQ, opened the meeting at 8 p.m. Several letters from members unable to be present were read on the proposed changes. These were followed by a recorded speech by the Federal President.

The Chairman then outlined the history of the proposed changes quoting extracts from Institute records and discussions had with the Division's Hon. Solicitor.

Many of the members present spoke on the desirability of making any changes, others thought that while some of the proposed changes were quite in order, others were deemed unnecessary. Finally, after an hour and a half's discussion, a motion that "The matter be referred back to Council for further consideration by them and to report their findings at some future date," was moved and was carried by approximately 5 to 1 majority. During the discussion on the motion, the Chairman indicated that Council had, when the matter was first discussed by them, thought the proposed changes could be dealt with by a Special Committee.

The time taken to dispose of the Special Meeting did not allow time for a lecture at the normal monthly meeting as several items of business had to be cleared and the caretaker appeared at the door to indicate time had run out.

However, the following new members were admitted: J. F. Dalstead, VK2ZCD; S. Davies, VK9AD; H. Y. Powell, VK2AYP; C. Fletcher, VK2ASF, and D. O'Dea, K. G. Scott Assoc.

The Secretary informed the meeting that the offer for the masts and tower made to the O.T.C. had been accepted. These will be removed from the Pennant Hills Wireless Station and re-erected at 2WI at Durral.

A motion objecting to Council's action in regard to the QSL Bureau was discussed at length, but after the reasons for the action taken had been given, the motion was defeated by a very large majority.

Coming Divisional events are the V.h.f. Spring Field Day on October 6 and the Hunter Branch Field Day at Blackalls on October 5 and 6. The South Western Zone Convention will be held on October 28 and 27 at Coolamon. Full details of these events are given in other section of this issue. Members are invited to give these functions their support and join in the activities. Take along your family and friends.

The Field Day, which for the last few years has been held at Woy Woy, will be held this year at Gosford on Sunday, 17th November. The change of location for this function should prove a very popular move and will be held in the Gosford Sailing Club House with a large picnic area alongside and the Olympic Swimming Pool a hundred yards away. It is closer to both Sydney and Newcastle by road than Woy Woy and only a few minutes further by train. Keep this date free and see next month's issue for further details.

As was indicated in the last issue, Vince Cahill, 2VC, had been co-opted to carry on as Treasurer for a short period. Council's thanks go to Vince for his efforts over the past 18 months and hope he has f.b. trip north. To fill the vacancy 3QG, Ced Smith, who has just returned to VK2 after spending some years in VK3, has been given the job of looking after the financial side of the Division. Those of you who know Ced are no doubt aware of his ability in this line of business.

The Division's C.D.E.N. officer, Roy 2HO, is busy preparing details of proposed scheme for the VK2 Division. This will be sent to members for their consideration in the near future. Roy is also due to attend the C.D.E.N. School at Macedon, Vic., in October.

Remember to note the dates for the functions given and even if it is not possible for you to attend, look for stations operating at these functions and join in the fun.

HUNTER BRANCH

Thirty members and visitors attended the September meeting of the Branch to hear Mr. R. Mondel from the School of Electronics and Communications lecture on "Impedance Matching," and also to view a film of the effects of a Hydrogen Bomb blast. A very enjoyable and educational night was had by all present.

Mac O'Brien, a keen country assoc., had a fling at the ticket but the old nerves played up. However Mac's a great trier and he'll make it soon. He has built himself an all-band rx with plug-in coils and is converting a 622. Rodney 2CN is being heard more often as tech. vacation frees him from study. A few wet Sundays bring more Ham activity from 2AGD; keep it up George. Ernie 2FP is very elated as his beloved 10 mx band has opened to Europe in the evenings, and he worked ZC4 for the first time. Social Sec. Gordon Sutherland obtained from G land a manual for his B28 rx. He kindly advised Ron 2ASJ who has the same type of rx and now, thanks to Gordon's tip, Ron has a manual too. Ron 2ASJ with lady friend attended the opera to see "Tales of Hoffman". Due to a family illness, assoc. Sid Daniels had to cancel his trip to VK4 so he spent the holidays enjoying the opera at Ron's 2AAI's place of toil. Following in Harold 2AHA's track, assoc. Jack Hamilton ("The Mayor") went on a Ham visiting trip to the North Coast Zone, calling on Cleff 2XO, Taree Bill 2AEY, Noel 2AHH, and the Graton boys. According to 40 mx grape vine, all the YLs went bush when they heard that "Gentleman Jack" was coming. Jack's main mission, he says, was to advertise the Hunter Branch Field Day.

Ljoneel 2CS, the operator of the Branch station 2AWX, has been on holidays in the big smoke and other places. Jim 2AHT has graced VK4 with his presence and was holidaying in the mulga back of Goondiwindi. Bill 2XT has just about completed his all-band t.v.i. proofed tx. Our Secretary Charlie 2ARV managed to work some DX while at home for a week with mumps.

It is with much regret that we note the passing of Mr. Stuart, the father of Ron 2ASJ. Ron's father was known to everyone who visited Ron or who had worked Ron on the air. Mr. Stuart always had a word of greeting for any of the local boys who contacted Ron in a QSO. The Hunter Branch sends its deepest sympathies to Ron and his family in their time of sorrow.

The Hunter Branch Field Days will be held on Saturday and Sunday, 5th and 6th October. The programme was published in August "A.R." A large attendance is expected and a large number of prizes are to hand for the various contests. Some of the donors of prizes are: Lawrence & Hansen, Martin De Launays, Radio Television and Hobbies, Chris 2FZ, Radio Corporation, Varley 2SF and others.

Don't forget that the Branch station 2AWX can be heard at 2000 hrs. every Monday night on or about 7050 Kc. Listen for the latest Branch activities.

The next meeting of the Hunter Branch will be held at the University of Technology, Tighes Hill, at 8 p.m. on 11th October.

VICTORIA

The general meeting for September was held at the usual place on the second Wednesday instead of the usual first, and President Fred was back in the chair after his recent illness.

WIRELESS INSTITUTE OF AUS. HUNTER BRANCH, N.S.W. DIV.

SIXTH ANNUAL
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XYLs, Junior ops. free.

W.L.A. SOUTH WEST. ZONE N.S.W.

FIFTH ANNUAL
CONVENTION

at COOLAMON
26th and 27th OCTOBER, '57

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Book Early for Accommodation

As was previously announced the lecturer on this occasion was Major L. G. Moore, of the R.A. Sigs Corp., and his subject, "S.S.B. Techniques in Service and Commercial equipment." For the average Ham the s.s.b. picture has become rather blurred over the last few years due to the number of controversial matters which have been bandied about. Here then was an excellent opportunity to get things straightened out by one who knows and we were not disappointed. The speaker put himself entirely at our disposal and we didn't let him stop until almost "lights out."

The lecture was presented in two parts: A theory section beginning with fundamentals and finishing with block diagrams of actual equipment and a film covering similar ground but with emphasis on operation.

In leading up to his subject the speaker pointed out the difficulties that exist in co-ordinating the use of the r.f. spectrum on a world wide basis, especially now that the demand for frequency allocations is fast overtaking the supply. Anything that can alleviate this congestion is being sought with much vigour and s.s.b. is proving to be a very definite answer in this direction. Its chief advantages when compared with the d.s.b. form of transmission are:

- (1) Only half the bandwidth is required.
- (2) Selective fading is almost eliminated.
- (3) Because of (2), distortion is greatly reduced.
- (4) Transmitter power is used more economically.
- (5) Multi-channel operation is available.
- (6) Receiver bandwidth can be reduced by half.
- (7) Signal-to-noise ratio is vastly improved.

Naturally, there are a few disadvantages to be contended with, such as high maintenance costs, high initial cost and loss in tx efficiency with this form of transmission, but these are far outweighed by the advantages as stated above.

In the U.S.A. such importance is placed on the worth of s.s.b. operation that efforts are being made to convert all frequencies below 25 Mc. to this form of transmission over the next ten years.

Hamwise, s.s.b. is a very attractive proposition as it enables maximum use to be made of the limited power available and it also produces a better signal to noise ratio at the rx end.

Rather elaborate gear is required in the Service and Commercial field of operation using this form of transmission but, as the speaker pointed out, the same high degree of perfection is not required on the Ham bands and something far less pretentious and well within the reach of most Hams is available. This is

some consolation. Lack of space and ability force me to leave the subject here, but I am sure that the very businesslike and authoritative manner in which the lecturer presented his subject gave all of his listeners much food for thought.

As time was short, very little general business resulted from the meeting. However you will be interested to note that the Philippines are now a permissible contact.

This is probably as good a time as any to remind you that the State Convention will be held at Colac on 9th and 10th November, when the South Western Zone will be hosts. The following information should, therefore, be communicated to our Admin. Secretary (Mrs. May) at the rooms, 191 Queen St. Melbourne, as soon as possible so that the organisers can make their arrangements: The names of those who wish to attend the Dinner, stay overnight, attend the picture show on the Saturday night (XYLs and harmonics), and those who wish to be catered for at midday dinner on the Sunday. Also those who intend to stay for afternoon tea at the local botanic gardens.

It is understood that £1 deposit is required with hotel bookings, but other details will have to be obtained from the rooms or the next Sunday morning broadcast as full details are not yet known.

Tentative arrangements for the Convention are as detailed below:

Saturday: Dinner in the evening followed by the meeting. While the OMs are coming to grips at the meeting the XYLs and harmonics who have arranged to do so will visit the local flicks.

Sunday: Transmitter hunt and visits to local places of interest (including local Ham shacks no doubt). Midday meal (chicken included) at one of the local hotels. Afternoon tea at the local botanic gardens.

From past performances this will be a large Convention and, unless the Colac boys are given the fullest co-operation, their organisation of the event could be badly hampered. Give them every consideration by letting your intentions be known as soon as possible, otherwise you have only yourself to blame if you "miss the bus."

One final word, a meeting needs an agenda and an agenda takes time to prepare. Therefore, please lodge all agenda items with Mrs. May by 21st October.

The above is only preliminary advice as further publicity will be given about the Convention in the magazine and over the air, so keep an eye and ear out.

Forthcoming lectures: October—Roth Jones (3BG) will present an illustrated travelogue on the Middle East and Europe with slides. November—Bro. V. McKenna will present the R.F. System of the Cyclotron. At the conclusion of his lecture there will be a conducted tour of the equipment at the University.

Members admitted to the Institute at the Sept '57 meeting: Full Members—B. S. Baulch (3ZCQ), A. Lock (3AUL), R. Rutledge (3ZDX); Associates—H. B. W. Barling, C. T. Biggs, K. A. Chamberlain, K. A. Robertson.

NORTH EASTERN ZONE

Since the announcement in "Amateur Radio" of the altered time of the N.E. Zone hook-up several members have, over the past four weeks, made an appearance at 8 o'clock on Wednesday night for the hook-up. This is heartening because it indicates that interest is not completely lacking in the zone but it would be appreciated if more members would come on to pass on news and items of interest taking place in this zone. We extend a welcome to this zone to Allen 3ACO, an ex-VK7 who recently took up duty in Victoria at Radio Australia, also to Bill 3AHO at Kyabram, who obtained a ticket a few months ago. Bill has been on several hook-ups each Wednesday night since getting his gear together.

Howard 3YV has retired from business and has taken up making cine commercial films.

Jim 3JK has been selling a large amount of radio equipment; he is working on single sideband. Peter 3AFP putting the finishing touches to a very well constructed t.v. set. Des 3CO also interested in t.v. along with Syd 3CI, Ted 3AOB, Allen 3UI, George 3GD, and others. Ray 3FI is putting more interest into photography; still has not completed his room to house the radio gear. No news is available on these members: 3AMZ, 3QC, Frank 3ZU and 3TS. No news available on Associates in the zone. Bruce 3AGG still pursuing DX on 20 and 18 mx. Ken 3KR working each night at movies in Benalla assisted by Keith. Hugh heard occasionally on 40 mx. Andy 3FD has been on the hook-up along with Vern 3AXW. Les 3ALE may have to enter hospital for a short period soon. 73 chaps, and please

pass on any comments via the Wednesday night hook-up and let's see if we can liven up this zone as in the past.

EASTERN ZONE

A successful fox hunt was held at Sale in July and the Sunday afternoon selected turned out to be a good day. Only three hounds turned up, which was a little disappointing, so it is hoped that a few more can attend our next meeting. Cliff 3AIT and Peter 3ZDP played fox, and gave the hounds a real show-down. They went through bogs, then through the streets of Sale and finished at a beautiful location on the other side of the canal. George 3ZCG was first to catch the fox who was bogged near Lake Wellington, then he himself got bogged, but short wave listeners, Ron and Allan, who were following, were cunning enough not to get stuck in the mud. Ron and David 3DY won the day's three runs with 11 points, then George 3ZCG was second, with Ian and Terry third. To wind up the day, Peter and Reg's XYLs put on a lovely afternoon tea. Reg 3ZCR was the control station. On the night of the hunt, Reg and George went portable on 2 mx, halfway between Sale and Bairnsdale with good results, so come on

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VK3AXU.

All other zones and metropolitan
members through the office, 191
Queen Street, Melbourne.

you Bairnsdale boys. What about some contacts on two mx? Allan should be able to supply the requirements.

Fred Hobson, of Yarram, is now a holder of an Amateur license. Good luck Fred. Also, Ian 3AAV is now on five bands using an 813 with 100 watts and will be changing QTH shortly to Moe. He will then put up a few beams and towers. During the month, George 3ZCG proposes to change his location to Moe, up on the hill. Cliff put up a good score in the R.D. Contest. He had over 200 contacts. We understand that Bert 3BB, Ron 3PR, Graham 3QZ, and David 3JD also had a few contacts. We all wish Graham a very enjoyable trip to the French Pacific Isles.

WESTERN ZONE

Our Annual Zone Convention will be held in Warracknabeal on Sunday, 29th Sept. We will meet at one of the local hotels for the midday meal, after which will follow the meeting. The afternoon will be taken up with a tx hunt on 80 mx and a scramble on 40 mx. Any folk with other high frequency gear are asked to bring it along as everyone will be interested to see it.

Trev. 3ATR has been contacting Chas. OAB on Davis Island regularly on 21 Mc. Herb 3NN, of Yanac, has had more than his share of sickness in his family recently, and we offer him our sympathy on the death of his father. Gordon 3GW, of Rainbow, one of the regulars in our hook-ups, is now getting the parts together preparatory to building a converter for v.h.f.

QUEENSLAND

We were very pleased and fortunate to have present at our last general meeting our Federal President, Mr. Bill Mitchell, 3UM. Bill very kindly brought the boys up-to-date on quite a few matters, which in as far as VK4 was concerned) have been "in-the-air". After the usual preliminaries were over the meeting quickly moved to discussions on available disposals gear and the method of distribution. Without a doubt, disposal by ballot was the fairest, but as the finer points of difference arose concerning the eligibility of Limited Amateurs to ballot for low frequency gear, it was suggested that the matter be referred to Council for a full investigation.

There were some doubts concerning the decision to provide the technical library with some disposals gear recently purchased by tender. It was thought that this would deprive the country Amateur of extra gear, as the technical library was in reality more an amenity for the city Amateur. However, as there are no rx's nor auxiliary tx's in the technical library to provide a complete working station, it was pointed out that should 4W1 at some future date be transferred to a new QTH, where possibly the new operator did not possess a good communications rx or perhaps was not able to make his own station rx available, then difficulties would most certainly arise. Also in the event of emergencies it was wise to have two reliable working stations available at short notice.

Stan 4SA announced at the meeting that his A.O.C.F. Class will commence on 1st Oct. He hopes to cover the entire course in three months and spend a further three months in revision. This will enable candidates to sit for quarterly examinations and not make things too difficult for students joining the class during the course. Stan also hopes to have his correspondence course, which I understand has been extremely well organised, under way by next May. This venture is something quite new in VK4 and Stan for his own efforts is to be sincerely thanked and given all the co-operation he requires.

An approach has been made to secure other meeting rooms in order to conserve our finances. There are a number of rooms available at the George St. University and although it is not the policy of the University to grant rooms to organisations not allied to it, a spokesman said that our request would quite possibly be favourably received.

Unusual sunspot activity and auroral disturbances have severely restricted communications in certain areas, and signals generally were way down on all bands. As there are only a small number of local operators on 5 mx, information concerning the 5 mx band, particularly as requested by Geo-Physicist Prof. Webster) has not come to hand. However, the new influx of successful limited licensees who, incidentally, are "rearing to go" on 5 mx, will fill the gap in VK4 as far as the Geo-Physical Year is concerned.

We had quite a gathering at the last general meeting and the boys, thirsting for information really peppered our Federal President, Mr. Bill Mitchell, 3UM, with questions.

Bill first gave a general resume of Federal activities and pointed out to us, as indeed we have proved for ourselves, that unity is strength! The reason, Bill said, for the delay in publishing the results of the last Convention was caused by several factors. First, over sixty type-written pages of foolscap had to be translated from short hand notes. Secondly, the manuscript then had to be edited and put into presentable form for the publishers. All this was done in the spare time of several members and although there was a delay, considerable saving of publishing expenses were effected. Bill also stated that an extremely large number of items were discussed and tabulated at the Convention and the delegates found very little time to enjoy the sights after the day-long meetings finished around midnight!

It was pointed out by a local member that the last Federal Convention was held at a time when the finances (unless they had been planned before hand) of Divisions generally would be at a low ebb. This was due to the fact that the Convention was held near the beginning of the financial year and subscriptions from members were only just beginning to come in. Consequently, large expenses at the time were not convenient. Bill said in reply that this point, which was quite a problem, would in future be taken into consideration.

Also items of C.D.E.N. were given considerable priority at the Convention and Bill informed the meeting that a plan was under way to have sets of circuits drawn up and standardised. This equipment could then be rapidly produced, should the need arise, and thus provide a pool of equipment available for the Amateur C.D.E.N. This scheme was approached from many practical angles and at one stage a completely transistorised transmitter was considered. However, as is usual with most things, finances have to be kept in mind and it was thought that this particular scheme eliminated the huge expense of firstly having, say five hundred units manufactured, and secondly, maintaining and modernising the units as time went by. As things stand, all alterations can be made to the circuits to keep them up to date.

Bill also informed us that the next I.T.U. Conference will be held at Geneva in 1960. It will commence on 1st July and will continue for five months. As there is a strong possibility that the Amateur fraternity may lose some space in the spectrum, it was suggested that unofficial representation (by the W.I.A.) at the meetings concerning Amateur activity, should be made. The cost of sending a delegate would be high, a conservative estimate being \$2,500. After serious thought you will agree that this amount (approx. £1 per capita) would indeed be a small price to pay to maintain the privileges we now enjoy. A delegate to this Convention would not be required for the duration but for approx. two months.

There were also many other items of interest which Bill mentioned and which will be published in due course. However, we on Council particularly were very grateful to Bill for the information which he supplied. A vote of thanks was passed to Bill at the meeting by the VK4 President, Mr. Frank Bond, 4ZM, who expressed the hope that it would not be quite as long before Bill visited us again.

Of interest was the first trial run of the Queensland Amateur C.D.E.N. which took place on Sunday, 25th August. The show started at 8.30 a.m. when an "atom-bomb" fell near the Storey Bridge. Immediately v.h.f. links were called in and both h.f. v.h.f. mobiles began investigating damage to the city. HQ, was established at Cildon Hill and direct communication was established with all local sectors and with VK4WI, who by this time had the country network in full swing. Some of the boys in the city nearly "died" from exposure to radiation while trying to recapture circus animals which broke loose during the ensuing melee.

All in all, the network proved very informative and Vince 4VJ as chairman of the Emergency Committee should feel well satisfied as, I'm sure, we all do at the success of this, our first trial run. There are to be other emergency runs, which as we become more experienced, will themselves become more complicated. Other services may possibly be called into the emergency net to provide exercises in dovetailing resources and extending the hand of co-operation.

Council wishes to thank all those members who participated and stayed the distance. Future meetings of the Emergency Committee will tabulate the results obtained. So be prepared! You may not be informed when the next run is to take place.

TOWNSVILLE

I expect I am like the others in writing these notes, always wishing that some of the boys would help out and pass along some

news, either about what they are hearing, working, or their latest pet theory on how to achieve more gain from their antenna, etc. The last meeting of the T.A.R.C. was well attended and a prospective Ham from the R.A.A.F. put in an appearance. He hails from Ballarat but his name slips me for the moment. More about this next month. John 4DD was well to the fore again in breaking new ground with suggestions for exchanging gear. No doubt he's heard all about our Secretary 4WH and his hoard of gear accumulated over the years ex disposals.

It is hoped that two associate members will face the barrier for a Z call sign next October and here everyone is wishing them the best of luck. At last the sound barrier on 144 Mc. has been broken and 4ZAY and 4ZAK have been heard at this QTH. So far no signal from Charters Towers, but Colin 4CE is going to try and pump a signal from Castle Hill, 900 ft. high, back to Vern at the Towers. He has heard Vern as far down as Mingala, 30 miles before dropping down the range of mountains. Ted 4EJ and Rex 5LR are anxiously awaiting the arrival of disposal transceivers and blame the slow delivery on our railways. I can take it boys.

Visitors to my shack the past fortnight have included Frank 5AE, ex-4AE; Reg Frost, ex-YJIRF of the New Hebrides, who regaled about the doings there and about the old maestro, YJIAA, Frank Palmer. Plus many of the locals trying to help me along the road with 144 Mc. gear. Allan 4PS on the air the other night testing with Ted 4EJ. Basil 4ZW from Cairns promised me news of their doings but so far no dice.

Bob 4TK had a flying holiday down this way. Passed the shack and did not call in on his way to the Towers where he found it too cold for his liking. He hurriedly left after calling Vern on the land line and went through to Homs Hill before returning to Innisfail. Ken 4XD blew in a couple of times and was unlucky to find me at work each time. Better luck next time. Bob MF4BCC, ex-MF2AA, together with VS1FS, ex-SUSEB, are looking forward to renew talks with all the VKs they have worked at the old QTH.

SOUTH AUSTRALIA

The "Members' Display" Night attracted a very large gathering of the clan in VKs, including visitors from G. land, one Joe Brown, G3AOE, who is spending some few weeks in this State. Others were Messrs. Rogers, Weatherley (5QL), Dawson (5KD), Kelly, Simaris, Tidderman, Dugdale, Young (5EU), Colin Luke (5ZXY), Thomas, Parham, Joyce, and finally Harry 5MY. We always welcome interest like that, particularly when, as we learned later on, that six of those visitors signed on the dotted line and sought membership.

Each member who had gear for display was required to give a short talk on it, why he made it, what it did, and to use Secretary Brian 5CA's words, "tell us why it worked". This was handled in varying degrees according to the vocal skill of the displayee, and it was noted that the Junior member 5XV, whilst he may have put Pop in a couple of times, handled the matter like a veteran. So look out fellows if he gets on the mike on 80 mx at any time, you can cancel next day's work!

John 5JT showed us an R.C. Bridge he has nearly finished, which with separate amplifier and power supply, will be a most useful set-up. A very small and compact diode wavemeter also splendidly made attracted attention, and a g.d.o. with a range of 100 Kc. to 80 Mc. with a separate 150v. power supply was much admired. Finally, he had an i.f. oscillator for 455 Kc., same being metered for checking and fitted with attenuation control, being powered by the g.d.o. power supply.

The judges, Messrs. Nestrom, Archerfield, and Heinrich awarded John the prize for the Test Gear Section.

Malcolm Goodridge had a very nicely made Co-ax V.h.f. Wavemeter to show, having a range of 230 to 300 Mc., using a germanium diode and a 250 microammeter. Claims accuracy to within point one per cent.

R. G. Edmonds gave us a look at his transistorised wavemeter come multimeter, which a lot would have liked to take home. A 0-200 microammeter as a base, he can adjust to take readings up to 2,000v.—a very useful piece of gear.

Frank Forgie won a prize with his V.t. Voltmeter, a first class job too, which he made up from circuit obtained from "R. & H.". The accuracy of measurement has been checked against a commercial unit and found to be right on the nose.

In the absence of Les 5AX, Frank also displayed and described a pre-amp. sent in by Les. One of his famous designs that has

proved so successful in raising signals and lowering noise.

John 5JG had a simplified receiver using 6BA6, 6BA6, 6SK7, 6SE7, 6M5, and with separate controls on ant., osc. and r.f. Certainly a departure from gang tuning, but with a vernier control on the osc. claims many advantages over the "more complicated" orthodox method, a cadmium plated chassis of 15g. steel provided a hefty firm base which was completed with plug-in coils.

Remember all the arguments about the 5MD modulator for the Type 3? Well, Doc answered them all by bringing a Type 3 and the mod. along and connecting same up (to a dummy load) and demonstrated that it does modulate "upwards", in fact he was asked to tune for "downwards" which some claimed it did for them, and found he couldn't do it. Once again simplicity pays off, for a 6SH7, one 6V6 and a 10K c.t. speaker transformer is about all that is in the little gadget.

Grammie 5XV took a prize with his v.h.f. converter which covers the 150, 144 and 288 Mc. bands. One rock, one chain of multipliers do the trick with separate r.f. stages for each band. It would hardly be fair to repeat what he said about the OM, and how he "assisted" in the neutralising process, so we leave that out.

Tom 5TD had a wavemeter made up from BC375 coils, 6SJ7, osc., 6K8 mixer, 6J7 audio, a really first-class job too, and at question time most wanted to know when it could be borrowed.

Laurie 6XN completed the display by showing us the progress on his new tx, t.v.l. proof to the last detail. A very attractive blue ham-mertone finish to panels and chassis work gave it a professional look, whilst the circuitry and layout followed all the things the T.v.l. Committee have hammered into us for some time. All coupling between stages is inductive, power in osc. and multiplier stages kept low (none higher than 1 to 2 watts), by-passing and shielding of power leads carefully planned.

A 8AG7 Clapp osc. cathode followed to EF50 multiplier stages, an 807 drive on final frequency with an all-band tank circuit drives a pair of 5146s in parallel through a pi-coupler to a.c.u.

The many questions asked re this display indicated the interest shown therein and to the fact that a lot are keen to do the same job. Laurie, of course, received the award for that section.

By and large, a most successful programme which the boys would like repeated.

The formal business concluded the gathering, the most important section of this latter part being acceptance of the following new members: Full Members—R. A. C. Washington (5ZDF), H. S. Young (5EU), D. F. Dawson (5KBD), and C. Luke (5ZXY) with Associates—K. M. Hill, R. C. Bills, M. R. Williams, R. J. Simonds, and R. Burton.

The member voted the one "most likely not to be broken into" had his record shattered recently by receiving an unwanted visitor. Guess who? Doc 5MD. Fortunately, a noisy entry or attempt attracted the canine watch who set up an alarm so his precious 813 is still intact. What no bars on the shack window? Shame on you Doc.

It is proposed to start up another A.O.C.P. class to follow the present one, and thus keep the ball rolling, and as the present lot will finish late October an early indication is needed from those intending to enrol to enable the organising to proceed. Let Brian 5CA know your wishes or Norm Coltman, in any case register early, it looks like same cost as at present, the whole course or a division of subjects is available.

Bob 7OM paid President John and Secretary Brian a visit last month when Institute matters generally were chewed over.

The R.D. Contest has been and gone again (hope you have all put logs in by now) and from it a few more lessons learned. One of them being the "life" the bands have when a contest is on, so why not keep it up through the year. All bands were well populated with some excellent signals heard, and some very good operating procedures noted, particularly from some of the older chaps. It would not be fair to name anyone, but it was refreshing to notice the splendid way most handled their contacts and the few who may not have attained that standard must have learned a lot in the 24 hours.

Congrats to Federal Council for introducing the opening ceremony.

WESTERN AUSTRALIA

At the Divisional meeting on 20th August we had a very interesting lecture by Mr. S. Cooper, of A.W.A., on the subject of "Commercial Application of T.V."

Another R.D. Contest is over and though scoring did not appear to be as high as last year, the bands were pretty crowded. It is surprising the number of local calls on the air at this time, who are seldom or never heard during the rest of the year. No doubt the Contest is responsible.

6MM is active again after about a three-year absence. He borrowed a tx and after a couple of local QSOs using a whip aerial on the chimney, the radio bug really bit again and he was soon happily digging in the junk box and rigging up a 86 ft. centre fed in the garden! If 6AJ goes off the air soon for a short time he will be changing QTH and hopes later to be on with a higher powered rig on 20 mx. Meanwhile he has worked VU2RM on 40 c.w. with his QRP rig. In a recent radio programme Jeff was asked how he liked the boronia. Thinking of his recent trip from the Old Dart he said "I'm not sure, how many funnels has it got?" I believe for several posts he received sprigs and parcels of boronia! Now he is looking forward to a visit to some country Hams where he hopes to sample emu steak and roo-tall soup!

August has been noticeable for the way in which South Africans have been worked from VK6 on 80 mx in the very early mornings. 6BE, 6CL, 6EJ and 6LG were heard in a round table QSO with reports running up to S9 plus both ways on phone. ZSs worked included ZS1FX, 41A, 5AV, 5CD, 5CV, 5OM, 5PM, 5YC, 6GN, 6QK, and 6VO.

6EJ swung a vee beam in the direction of Canada and has been working lots of VE and KL7s on 20 mx at good strength. 6RU is now on s.s.b. and I understand will discuss the design of this type of equipment at the September meeting.

6MK was unfortunately on the sick list during R.D. Bad luck Tom, hope you will be OK again before this appears in print! 6AG has re-built his pre-amp. with very pleasing results.

The Sunday morning 6WI broadcasts on 40 mx are giving better coverage than last year, conditions on that band being better at 0930 than they were. Wally is to be congratulated on the excellent transmissions and the service he is giving the Division continues to be specially appreciated by country members.

TASMANIA

NORTH WESTERN ZONE

How are the mumps? At the time of writing there appears to be a fair number of reports saying that the crop is extensive and prolific. Even Jim 7JO has been laid up with them. Never mind Jim, we've got them in the house too.

Assoc. Athol Lockett is apparently getting some practical knowledge in at Devonport by visiting Ted 7EJ. How's that rx Athol? Hope you don't go the same way as Max, our Secretary, and can't decide what type to build. Pleased to hear Ted 7EJ on again too, perhaps we should have R.D. Contests more often, and we might get a few more of the old shellbacks out. Leon 7JP, at Queenstown, lashed out recently to the extent of a new modulation transformer. Should be able to modulate that kilowatt without any trouble now Leon.

Heard Ellis 7WA on 40 mx recently, so I guess you have got that home-built Collins 75A working on the other bands as well as 15 mx Ellis. How about a write up for "A.R."? A new Geloso microphone for Chas 7CF helped the percentage of modulation. Let's hear you on 80 mx some time Chas. You should have that 813 stoked up too by now. That's probably right—stoked up—they take 50 watts to heat them. One of our southern members heard on 40 mx during September, Tiny 7JD, portable at Scamander on the east coast. That 4 watts was getting along this far, Tiny, sounds a fine job.

There seems to be a general exodus of VK7s lately to VK3. Whilst talking to 3KU one Sunday (ex-7BC), 3ALE broke in to say Allan ex-7CJ was in the shack. Pleased to hear of you Allan. Let's hear you from your own rig sometime. Not much news of t.v. this month, but I noticed an advertisement for the sale of a travelling wave aerial. Apparently home made ones are best, Jim.

PAPUA—NEW GUINEA

The new Secretary is Norm Casey, 9NT, and President is now Frank 9FN. The QSL Bureau remains the same. Norm is with the Post & Telegraph Dept. and Frank is with the P.M.G.

The Division is steadily growing and a new comer is Doug 9SB (ex-9SB). Welcome to VK9

Doug and may your stay with us be a happy one.

It was good to hear so many of this Division take part in the R.D. Contest, and although conditions were not the best, many went the full distance and put up a respectable score. Hope to hear you all again in the VK-ZL Contest chaps.

"Funny Noises" is making some queer noises as he is packing to go south on leave this month. 9AT was heard taking a cook's tour with portable the other week. Claude 9TZ was heard on 1/8/57 working 7 Mc. with a 1T4 osc. and 3V4 final. Very nice signal and hope to hear you more often now Claude. 9AMZ is busily trying to extract 1 kw. out of a pair of 8146s with input of 100w. Should hear Horrie on the air shortly. 9SP is back from the bush so we will have more DX to work. You can't have all the DX all the time Reg. A special welcome to 9WG, it's nice to have you back on the air with us Charlie. Be seeing you around. 9DE doesn't get around much any more since he took up golf. Believe he is bogged down at the 19th hole. Is that true Doug?

Carl 9YT is very active, but not on 7 Mc. on Sunday morning; how about it Carl? We would like some DX at that time of day. John 9KE and Les 9HI are on leave and are expected back shortly. The other Rabaul boys are very active getting in plenty of DX. Russ 9XK has been declared champion of the brass pounders club. Wrists are very easily broken Russ; better come up on phone for a while.

Now that we are in the news again chaps, let's hear you on Sunday mornings so I can make this the best column in "A.R."—R. Clark.

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WANTED: Schematic circuit R1155A receiver, modifications and Australian substitute valves for R1155A, and lining up details. B. J. Booth, 229 Hanson Road, Athol Park, South Aus.

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2.	21,000 — 21,500	0.7
3.	14,000 — 14,350	0.5
4.	7,000 — 7,300	0.33
5.	3,500 — 4,000	0.7
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OUTPUT CIRCUITS. Terminals at the rear take a speaker with impedance of 2.5 ohms; a panel jack is provided for high resistance headphones.

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NOVEMBER, 1957

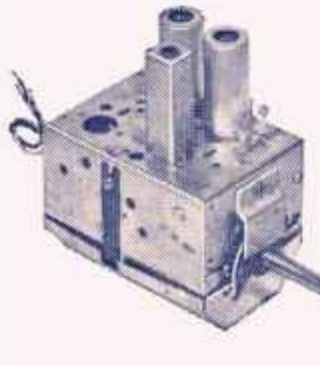


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EDITORIAL



SHORT WAVE LISTENERS' GROUPS

It was gratifying that the Federal President was able to report to the recent Federal Convention that "Short Wave Listeners' Groups are flourishing and many young potentials are becoming interested in this way which, when all is said and done, is the way most of us started out in Amateur Radio ourselves."

There is no doubt that any positive action we can take to interest young people in radio is a step in the right direction and it is hoped that the Councils of all Divisions will do everything possible to develop and encourage Short Wave Listeners' Groups, so that our numbers will be increased by a steady flow of fully licensed Amateurs, who have already gained valuable knowledge of our bands by consistent listening to our methods of procedure and practice.

This section in each Division should be under the charge of some of our most experienced members, as it provides the Institute with a splendid opportunity to commence basic training with the ultimate in mind that these young enthusiasts will join W.I.A. training classes and eventually secure their A.O.C.P. with admission to our ranks as full members.

If this step is too severe, such people would be able to graduate to a standard such as is covered by the Novice License for which they could be more easily trained.

The advent of the Russian satellite has given us another opportunity to show how Amateur Listeners can be of service to the community and if we had strong well organised Short Wave Listeners' Groups in each State of the Commonwealth we would no doubt find many opportunities to continue this work and engage in worthwhile plotting and ionospheric experiments.

Anyone with an interest in National affairs will be able to support the many well informed scientists in this country and overseas who stress the importance of each country having large numbers of trained radio, radar and technical people, and we are sure that the Wireless Institute of Australia can assist the authorities in a real and worthwhile manner by training and encouraging all who desire to further their studies in scientific and technical matters.

The Federal Council trusts that all Divisions will place this matter in the forefront of their interests and would be pleased to know that strong, active groups are flourishing in all Divisions of the W.I.A.

FEDERAL EXECUTIVE.

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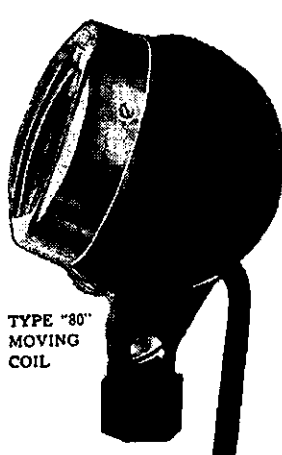


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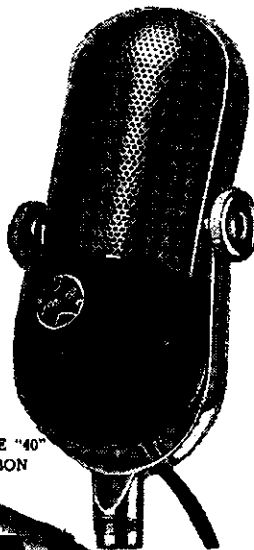


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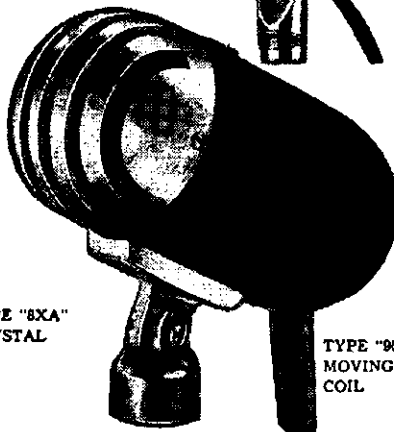


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Using Modern Valves in the Type 3 Receiver

BY N. R. BOASE,* VK3NI

THE A.O.C.P. was obtained in 1939, and before operation commenced there was a war on. It is perhaps not surprising then, that the first rig, when the time came, was a Type 3. In fact, it is the only rig the author has ever had much to do with. Experience is thus somewhat limited, and the first feelings when trouble appears are of distaste and dismay. And that is how it was that time when the receiver performance suddenly fell off to practically nil, and the v.c., so far as it worked at all, worked, backwards.

The eight pin positions were marked on this circle. The soldering iron was applied to a length of heavy busbar about 1" from the end. The end of the heated busbar pushed easily through the perspex to stick out the other side and form a pin for the adaptor. A miniature base was fitted to the other side of the perspex, supported only by the busbars soldered to its lugs, and an adaptor was obtained.

Care had to be taken in plugging it in—it had no key, only a mark where the key should have been.

Eventually it was noticed that V2A had a very much lower screen voltage than V2B. These are both 7R7s, and an examination of the circuit disclosed no reason why screen voltages should differ. The tubes were swapped and now V2B had the lower screen voltage. Obviously one of the 7R7s was drawing excessive screen current and had reached the end of its useful life. Which one to replace? Base V2A was the easier to get at, so it was chosen.

Now the 7R7 is a duo-diode-pentode. But V2A needs only to be a pentode. The reason for using a 7R7 was, of course, that the number of spares needed was thereby reduced. There seemed no point in using such a tube now, so replaced it with a remote cut-off pentode, a 6BA6.

It was now a really excellent little receiver, better than new, with just one bug—V1B went into oscillation just under full volume. It was assumed this was not due to wiring faults, but simply to inter-electrode capacitances and high-gain conditions. Different values were tried for neutralising condenser C14. It might have been possible to clear up the trouble this way, but with the range of capacitance available at the time it either (a) didn't clear it up, or (b) brought about a too-heavy reduction of gain. Eventually it was silenced with an un-bypassed resistor of 1K in the cathode. While stopping the racket, this did not seem to affect gain materially. The absence of C14 during these experiments did not seem to have any affect at all so was left out. Also, the recommended cathode resistor to V2A was not fitted, and it isn't there still!

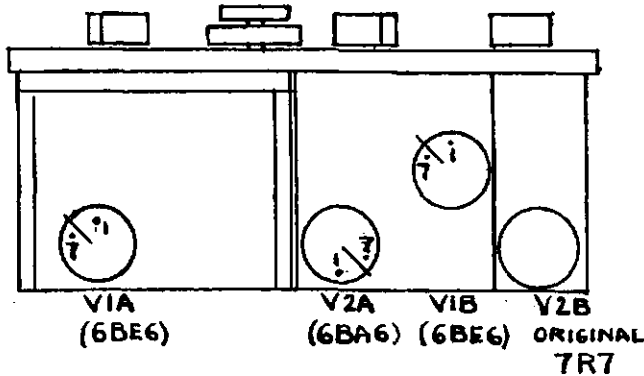


Fig. 1.—Location of gaps between pins one and seven.

This receiver is a very straightforward job when one gets to know it. Over recent months the writer has got to know it—it was do so or write her off. But at the start of this story it was a mysterious box full of valves, wires, etc.

Volume control on the Type 3 is by bias variation. The power supply delivers $-12\frac{1}{2}$ v. to the volume control and the grids of the first three valves are returned to the sliding contact. The power supply was checked, in fact delivering its $-12\frac{1}{2}$ v., and followed this into the set and found that the volume control was OK and duly delivering negative bias at its sliding contact.

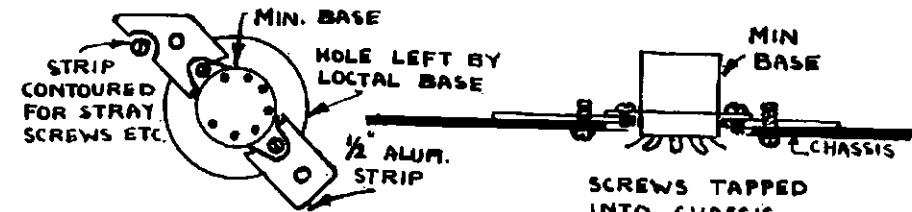
This bias could not be traced through to the actual grids, as the meter draws appreciable current and high impedance filters lay along the path. For the moment, no ideas came to mind. Then a note was discovered in the handbook to effect that if the volume control will not work that means V1B has gone soft. V1B and VIA were swapped; no improvement. So they were both soft! Well, buy a new pair. But the 7Q7 is unprocurable!

After some study it was decided to substitute 6BE6s, and immediately the problem of bases arose. Adaptors were made with less trouble than had been expected. Two pieces of perspex sheet were trimmed into very odd shapes, to make them fit in among the i.f. cans, etc., and sit flat on the bases of VIA and V1B. A circle was drawn on each, whose diameter was equal to the diameter of the circle of pins of a 7Q7.

So eventually the receiver was operating again, with two 6BE6s instead of 7Q7s. She came to life, but (a) she was full of birdies, and (b) the volume control still worked backwards.

Deciding to deal with the troubles one at a time, the birdies were tackled first—a bug which was not unfamiliar.

The wiring in the adaptors was not too much of a tangle, but it was, of



Figs. 2a. and 2b.—Methods of mounting miniature bases.

course, suspect. Anyway, the adaptors made the tubes so tall that the receiver wouldn't go back into its case. So, making careful notes about the connections, the loctal bases of VIA and V1B were removed and replaced with miniatures. In case you ever have to do this, Fig. 1 shows the better direction for pointing the gap between pins one and seven in the case of each tube, and Figs. 2a and 2b show how to mount the miniature bases in too-large holes.

This improved the birdies a bit, but not much. While gazing gloomily into the works, performance fell way off again. It was tossed in and went to seek a beer or two.

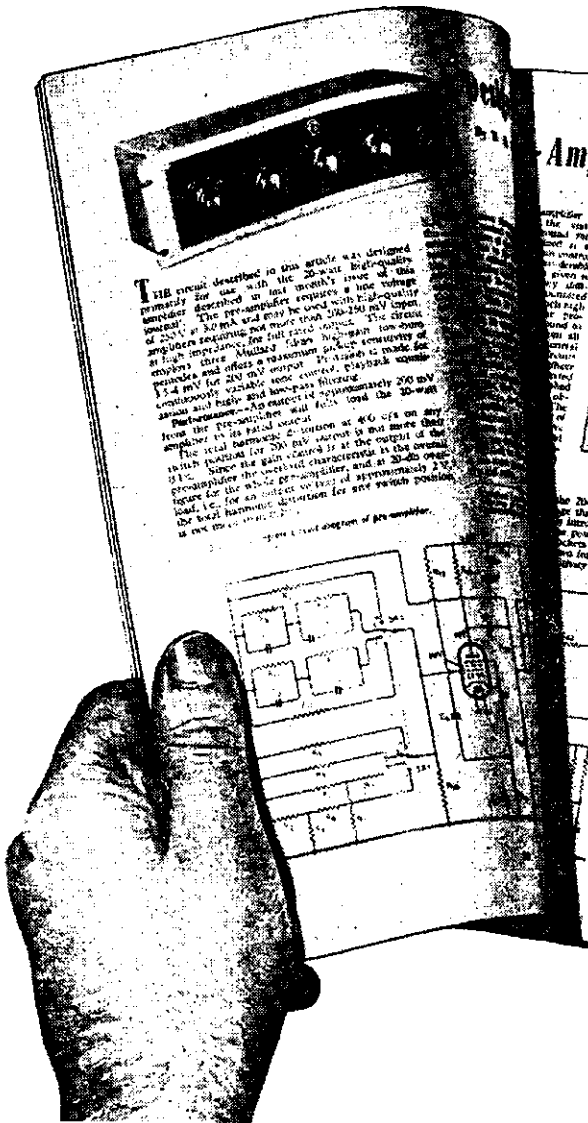
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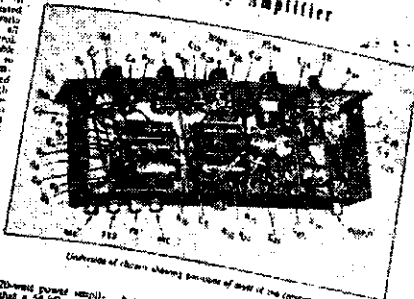
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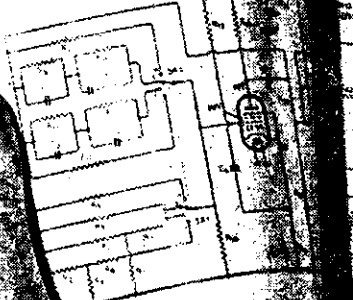


Amplifier For Use with a 20-watt High-quality Amplifier

The circuit described in this article was designed primarily for use with the 20-watt high-quality amplifier described in last month's issue of this journal. The pre-amplifier requires a line voltage of 250 V or 30 mA and may be used with high-quality amplifiers requiring full range output. The circuit at high impedance for full range output. It employs three Mullard 6AR5 diodes for pre-amplification and offers a maximum gain of approximately 15.4 dB for 20 mV input. It is also capable of continuously variable gain control. The output is approximately 200 mV across a load and high and low-pass filters. Performance—No effect on full load the 20-watt amplifier in its normal operation at 40% of its rated power. The total harmonic distortion is not more than 0.1%. Since the gain varies in the output of the pre-amplifier, the overall characteristics in the overall pre-amplifier for the whole pre-amplifier, and at 20-dB over load, i.e. for an input of 100 mV, approximately 2% total harmonic distortion for 200 mV output is not to be exceeded.



Photograph of circuit showing placement of most of the components.



The 20-watt power amplifier that a 50-lift circuit is introduced to drop the power provided, one for volume and one for each position.

being arranged by means of feedback. The input selected by switch SA1. The best sensitivity of the pickup input is obtained in more than 100 dB and suitable attention is introduced to facilitate the use of magnetic pickup and 500-ohm crystal pickup on socket PL1. The crystal pickup must be suspended in a suitable manner. By using a large volume of the full range of input sensitivity of 1.5 mV for 20 mV output is obtained. The sensitivity is usually 30 mV output is obtained to 100 mV in the circuit. V2 and Tune Control—V2 in Fig 1 is employed as a control.



This informative and practical booklet contains full Constructional Details of these Amplifiers and associated units. Fully illustrated with photographs and point to point wiring diagrams, it will be of interest to engineers, technicians and audio enthusiasts alike.

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M27A

AMATEURS AND SALES TAX

SOME COMMENTS IN FEDERAL PARLIAMENT

The following extract from Hansard (H. of R. No. 12, 17th-19th September, 1957) is part of a speech made in the Federal Parliament by the Member for Maranoa, Mr. Brimblecombe. It is printed because Amateurs may find many points of interest.

Mr. Brimblecombe: "... The next matter to which I turn is the sales tax. I know that in this budget some items have been exempted from sales tax and that on other items the rates have been reduced, but I desire to raise the matter of sales tax on the equipment used by Australian 'ham' radio operators. The Wireless Institute of Australia has for many years been asking the Government for some sales tax concessions for parts of equipment used for this very worthy purpose. We all know what a wonderful job these amateur radio operators do in the community. Their wonderful work in providing communications in times of bush fires and floods has been recognised. They have done a remarkable job. As a matter of fact, one of them was decorated with the M.B.E. for his work recently during floods in New South Wales."

Mr. Haylen: "In Maitland."

Mr. Brimblecombe: "Yes. He saved many lives. He was the only means of communication that the floodbound people had with the rescue workers using 'walkie-talkie' equipment on amphibious ducks and with the outside world. I think I could best put the case of the amateur radio operators by giving a summary of their activities and the reasons why sales tax exemptions should be granted to them.

"The Wireless Institute of Australia is probably the oldest organised body of amateur radio operators in the world and is therefore in the unique position of having fostered the development of communications and technical advances since the inception of the radio art. Much of the pioneering of high frequency, very high frequency and ultra high frequency techniques has been done by enthusiastic amateurs. The records of the institute show that amateur radio operators have made many outstanding contributions in the public interest. As far back as 1911, an amateur radio operator was responsible for saving a ship in distress, and since then radio operators have played a major part in developing and operating bush fire and flood relief networks, the location of missing aircraft and the transmission of traffic to Tasmania during cable breakdowns, and air race communication networks. Apart from this, a vast amount of data has been compiled, and this has played no small part in perfecting the propagation prediction methods used by communication services throughout the world.

"These people also made a wonderful contribution during the two world wars. Amateurs filled important posts in the communication branches of the three fighting services and augmented the ranks of marine operators. Apart from this, the institute conducted basic training classes as its part of the war effort. Between the two wars, the institute organised the Royal Australian Air Force Wireless Reserve and regular

exercises were inaugurated. As a result of this, on the outbreak of World War II, a large number of members immediately joined the armed forces to take up important posts not only in the Royal Australian Air Force, but also in the Navy and Army. Prior training had fitted them to undertake highly technical assignments. In keeping with this policy, since the cessation of the last war the institute has organised emergency networks under the title of Civil Defence Emergency Networks and maintained a high degree of interest. This network is available to the authorities in time of need and has the added advantage of extreme flexibility. When moments of emergency arise due to floods, fires and so on, because of his training and knowledge of equipment the amateur is able to maintain communications. This has been amply demonstrated in recent flood emergencies in New South Wales.

"In the industrial sphere, the amateur has played, and continues to play, an important part. Much of the knowledge acquired in his experiments goes into the perfection of some project or product. Because of his special understanding of frequency modulation and radar techniques the amateur was able to help materially in the establishment of the television industry, and many are engaged in their own television experiments.

"A firm basic training is fundamentally a part of institute policy. Classes are conducted to train young enthusiasts to the standards required by the Postmaster-General's Department for the amateur operator's certificate of proficiency. Ability to plan and construct is a part of the amateur's make-up. In the early days, each amateur had to design and make the major portion of his equipment. Today, although most components can be purchased, it is still necessary to build them into one unit in such a manner as to suit particular requirements. The equipment for emergency networks is specially designed for the work and represents an appreciable outlay, for which the amateur neither receives nor expects reward.

"In order to lessen the cost of equipment, which the amateur uses either to widen his knowledge of electronics, or to help maintain communications in times of emergency, the institute has, from time to time, approached the Commissioner of Taxation with the request that sales tax be removed from components used in communication transmitters and receivers. Unfortunately, the commissioner has been unable to give effect to this request. One difficulty was the policing of such a scheme. The federal executive and divisional councils of the institute, after long and careful investigation, reached the conclusion that a system based on the provision of a special application form allowing sales tax exemption would be workable. Responsible officers of the institute would be willing to investigate the bona fides of any applicant, whether a member of the institute or not, and arrange that the necessary exemption be issued by the taxation authorities. In this way, no extra work

or cost would be incurred by the Taxation Branch. An exemption could be issued to study groups or clubs so that they could purchase equipment for training and stations. In these circumstances, some person would be required to become the responsible officer. These clubs, apart from interesting lads at a very impressionable age, would form vital links in any emergency network.

"Looking to the future, the institute believes that any steps which encourage the training of more personnel in the scientific field are valuable. If some relief from sales tax can be given, the return to Australia in trained and enthusiastic operators will be invaluable.

"Tributes have been paid to this wonderful organisation for the work that it has done. I shall cite a tribute paid by the Postmaster-General (Mr. Davidson) to the work done during the New South Wales floods. He said—and this is reported in 'Amateur Radio,' of October, 1950—

"In a recent broadcast over 2KM Kempsey in connection with the recent widespread floods in New South Wales, I made appreciative reference to the assistance given by the licensees of Amateur Wireless Stations.

"Since then, I have received further information of the part played by members of the Institute, both in the Kempsey area and also in other parts of the State affected. Accordingly, I would now like to confirm in writing the sentiments expressed over 2KM, and to say how pleased I am with the readiness shown, once again, by Amateur Operators to perform a public service, in times of emergency, with the facilities for which they are licensed."

"That speaks volumes for the wonderful work these people are doing. I shall now outline the cost to the Government if amateur radio operators are given some sales tax concessions. Active amateur operators number about 2,500, and they spend an average of about £20 a year. The total amount spent would be about £50,000. Of this, 25 per cent. is sales tax on parts and equipment. Therefore, the cost to the Government would be about £10,000. This is not a great deal to pay for this form of defence preparedness when nearly £200,000,000 is voted for defence in the budget.

"Amateur radio operators not only do wonderful work in maintaining communications in time of emergency, but also maintain contact with amateur operators in other countries, and even behind the iron curtain. Radio 'hams' throughout the world are in communication with one another day and night. Their contact does a great deal to cement international relationships, and their work in this field should be recognised. I hope that the Government will sympathetically consider the request made by the Wireless Institute of Australia.

"I am able to speak with a little firsthand knowledge on this subject, because I have a 'ham' operator on my property, and I know something of what his radio activities mean. This amateur radio work not only is of wonderful assistance to the community in

(Continued on Page 7)

Polarisation Effects in V.H.F. Mobile*

Some Evaluation Tests on Mobile Antenna Systems for 50 and 144 Mc.

BY EDWARD P. TILTON,† W1HDQ

ITS effectiveness in working mobile stations is a time-honoured argument for sticking with vertical polarisation, in the areas where it is still in use. Admittedly, vertical mobile antennae are usually more pleasing to the eye, and mounting them is generally a simpler matter than is the case with any practical horizontal mobile antenna. But skipping the esthetic and mechanical aspects, how important is it that vertical polarisation be used, if satisfactory coverage is to be obtained in working with mobiles on 50 and 144 Mc.?

Many horizontal antennae for 2 metre mobile use have been described in "QST" in recent years.¹ A 6-metre halo was built and described by W1MUX some years ago.² We know how to do the horizontal job; the question here dealt with is how much difference does cross-polarisation make, assuming that a horizontal array is used at the fixed station? To tell our story we'd better start with a description of the antennae used.

HALOS FOR 6 AND 2

For tests on 144 Mc. we used a rather haywire halo made by the writer in a total elapsed time of about 30 minutes. Perhaps other lazy individuals who want to try horizontal mobile antennae would be interested in the mechanical details. The main support is 19" high. It was cut from a section of an old t.v. antenna element, used because it was light in weight, and because its $\frac{3}{8}$ " size made a nice tight fit in the sleeve of a standard Amphenol male co-axial fitting. The "no-holes" mount on the rear deck (a clip of stiff aluminium fastened to the inside of the rain gutter with self-tapping screws) has a matching female fitting, and a co-ax lead running up to the dash where the rigs are operated.

The roof-top mounting was made of flashing copper, bent into a cube slightly larger than the co-axial fittings. The inner conductors of the two fittings are connected by a short wire inside the box, and the lips of the box are soldered to a flat plate of flashing copper, about 3" x 6" in size. The plate is held on the car top with black plastic tape, the bottom of the plate having first been covered with tape to prevent its disfiguring the car top in any way. A length of RG-58/U co-ax is brought forward to the rain gutter, and run around to the corner of the door, where it is protected by the rubber bumper on the door casing.

The halo is $\frac{1}{8}$ " aluminium rod 38" long, bent into a circle. Ends of the element are about 4" apart, though the exact size of the circle made does not seem to be critical. The co-ax is run

up through the tube, from the co-axial fitting at the bottom, and out through a hole near the top of the support. The black covering is cut back below the point at which the lead emerges, to allow the outer conductor to make contact to ground at that point. The hole should be of such size that the lead with its braid cover will just pull through it.

The inner conductor is the arm of the gamma match, connection being made to the element by means of a small aluminium clamp. Originally a variable capacitor was used in setting up the match. The best value was close to 25 pF., so a fixed capacitor was substituted. Connection at 4" out from the centre of the support provides an s.w.r. of under 1.5 to 1 across a considerable frequency range in this installation. Make your own adjustments of capacitor and connection point, if you like, but do it with an s.w.r. bridge, not a field-strength meter.

The 6-metre halo is a commercially-available unit known as the "Saturn 6 Mobileer," made by the Wholesale Supply Co., Lunenburg, Mass. It arrived for technical evaluation just as we were starting tests on 144 Mc., so we decided to make the investigation a two-band project, inasmuch as we already had provision for operation on both 50 and 144 Mc. with vertical whips.

The "Saturn 6" was attached to a standard bumper mount provided by the manufacturer. It stands just over 6 feet above ground in this position. (An extension support for up to 12 feet or so could be used for stationary operation.) The 6-metre whip could be inserted in either the roof-top or rear-deck mounts.

A ski-rack-mounted turnstile for 144 Mc., made by W1DXE, was borrowed for some comparisons. This was originally a single dipole, and as such was pictured in "QST."¹ It was converted to a turnstile later, in the hope of providing better omnidirectional characteristics. It consists of two split dipoles fed 90 degrees out of phase through a quarter-wave loop of co-ax.

The home-made halo for 2 was tried in both mounts. It showed somewhat more directional characteristics in the rear-deck position than on the roof-top, but otherwise there was little difference in either transmitting or receiving results. Co-axial leads from all three mounts were brought up to the dash, where a co-axial switch was used to select the antenna desired. Thus, it was possible to make instantaneous changes from horizontal to vertical; while transmitting or receiving on either band. Gonset Communicators for both bands were used in the tests.

A v.h.f. mobile enthusiast for more than 20 years, with experience in all parts of the United States, the writer has observed the vagaries of v.h.f. propagation firsthand in all sorts of terrain. Most of this work has been done

with vertical whips, though various forms of horizontal antennae have been tried at times. From this experience it was obvious that matched polarisation paid some dividend. Equipment improvements in recent years have netted a considerable extension of our all-round v.h.f. coverage, however, even though there has been an almost country-wide swing to horizontal arrays at home stations, and thus much more cross polarisation in mobile operation with vertical whips.

Where both horizontal and vertical were available at home stations, we have found frequent instances where our mobile whip received an equally good signal, regardless of the polarisation at the home station. The degree to which the polarisation seemed to be rolled over has been quite closely related to the roughness of the terrain. Our worst mobile-to-fixed-station coverage, with cross polarisation on both 6 and 2 mx, was in the flat open country of the Middle West. As nearly all past experience with cross polarisation was gained with vertical whips on the mobile and horizontal beams at the fixed station, we were curious to learn whether horizontal systems on the car would show consistent improvement, and if so, how much?

Since the installation of the quick-switch system in the car we've had little opportunity for work over flat terrain, Western New England being mostly up on edge. We have tried all the kinds of paths we can find around the Hartford area, however, and conditions simulating those of flat terrain have been found in spots.

RESULTS ON 144 Mc.

We have used the 144 Mc. facilities of W1DXE-VLH extensively, as the 32-element horizontal array at that West Hartford station is more than 100 feet above ground, clearing all obstacles for a mile or more in all directions. Within five miles signals are so strong that little or nothing can be told about antenna differences, but over the mildly rolling terrain to the southwest signals get "off the pin" at about 7 or 8 miles. To the west, the route the author takes in going home each evening, a steep hill rises about 600 feet above average terrain at a distance of about 2 miles from the fixed station. Over the ridge of the hill the terrain drops even more sharply back to nearly the level of the eastern side, but the route winds behind other hills within 10 miles or so of travel. Hundreds of readings have been taken on 144 Mc. in these areas.

Out to and slightly beyond the visual horizon in open terrain the 2-metre halo shows a consistent superiority, the average in its favour being about 15 db. Very few spots can be found where the vertical whip approaches the signal level afforded by the halo, though both are entirely satisfactory. In the rolling terrain, at distances of 8 to 20 miles

* Reprinted from "QST," December, 1956.

† V.H.F. Editor "QST."

¹ "The World Above 50 Mc.," "QST," Feb., 1956, p. 55; Aug., 1956, p. 59.

² Sites, "A Halo for Six Metres," "QST," Oct., 1947, p. 24.

or so, the margin between the two decreases gradually, running mostly between 6 and 10 db.

Working over the "mountain" (apologies to Westerners) there is also some advantage in matched polarisation, but it is slight. There are many places to be found, by slow jockeying of the car position, where the vertical whip provides as strong a signal as the halo, and there are spots where cross-polarisation shows as much as 20 db. superiority. In the town of Collinsville, 12 miles and three ranges of hills to the west, some nearly dead spots can be found. Here many miles and much round-and-round-in-circles driving has shown the average gain with matched polarisation to be just enough to make the difference between the two plainly audible, as little as 3 and 5 db.

On an elevated ridge in Burlington, where signals from all up and down the Connecticut Valley are strong, polarisation discrimination is partially restored. On still higher elevations, where pure line-of-sight obtains, stations many miles distant show very clean polarisation.

One dividend from the use of the halo on 50 Mc. was greatly reduced ignition noise, both from our own car and others. Noise from the writer's car is barely audible at moderate driving speeds, even when the limiter on the Communicator is cut out. Switching to the whip brings in a deafening clatter. Reduction of ignition noise from other cars is at least as marked when the "Saturn 6" is in use, resulting in a considerable improvement in the readability of weak signals when driving in traffic. Oddly enough, this nice state of affairs did not show to so great a degree on 144 Mc.

Another difference between 50 and 144 Mc. showed up in the course of these checks. It had been observed before in working with the vertical whips, but it became much more obvious with horizontal polarisation. With horizontal antennae at both the fixed and mobile stations, the signals on 50 Mc. are much more constant in level than on 144 Mc. Particularly where the fixed station is using a good beam, the annoying flutter so characteristic of v.h.f. mobile work almost disappears. We have had no end of comments about this from fellows we've worked with the "Mobileer." Unless they watch the S meter closely they find it hard to tell whether we're moving along the highway, or standing still. The fluctuation in signal level on 144 Mc. is somewhat less with horizontal polarisation than with vertical, but it is still plainly noticeable.

SOME RANDOM OBSERVATIONS

What is the respective merit of roof and rear-deck mounting with vertical whips? We've always assumed that the ideal place for a 144 Mc. whip was on the car top, though we have used the rear-deck mounting for esthetic reasons. Our test set-up afforded a fine chance to run down some information along this line. Identical 19" whips were installed on the roof and rear-deck, and then switched back and forth on countless occasions. At a given spot there would be a difference between the two, as multiple reflections happened to add with one and cancel with the other, but

with the car moving along there was no observable difference in average level. If anything, the car body introduced a bit more in the way of directional effects with the rear-deck mount, but the over-all advantage of the roof mount was so slight that we removed it once the testing was completed.

How good is a halo? We knew that both the 6 and 2 metre halos made our reliable range somewhat greater than we enjoyed previously with the whips, but we had no measure of their effectiveness until the 6-metre unit was tested against the 3-element portable array described in August "QST," page 35. The latter was connected into our quick-switch arrangement a few times when we were operating from some of our pet locations. Both it and the "Mobileer" were adjusted for minimum s.w.r. at the frequency of operation, and the rig loaded to the same power input to the antenna. Results: stations worked (at distances from local to 150 miles or so) reported the 3-element beam as two to five S-units stronger than the halo. On reception the difference was estimated at an average of 12 db. A reasonably accurate measure of received signal differential was made with a signal generator, by checking the input signal required for various degrees of green-eye closure on the Communicators.

AND A CONCLUSION OR TWO

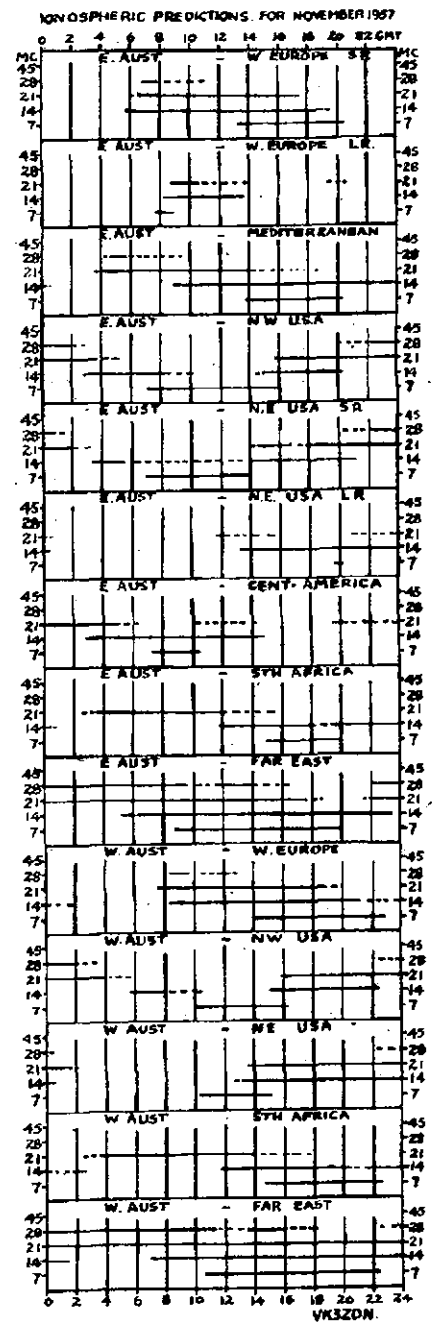
Going to horizontal polarisation appeared to give us a definite edge in reliability and coverage over what we have encountered in vertical-to-vertical and cross-polarisation work in the past. Certainly the horizontal combination gives improved signal-to-noise ratio, this difference being particularly marked on 50 Mc.

Horizontal at both ends of the circuit makes 6 metre mobile a real pleasure. Contacts with well-equipped home stations are almost noise-free out to 25 miles or so, in all but the worst terrain. Satisfactory communication out to 50 miles is frequently possible, and we've heard some surprisingly good signals at 100 miles or more, while driving in quiet areas. There was no DX during the period of the tests, but we anticipate that the improved signal-to-noise ratio of the halo will make 6 metre DX hunting more fun.

But cross-polarisation, which is likely to cause less trouble if you have an esthetically-sensitive family, is not bad. Conversion to horizontal polarisation on the part of every v.h.f. station in the country would by no means rule out the interesting and useful mobile operation on 6 and 2 metres by the fellow who will have nothing more obtrusive on his car than a simple vertical whip.

If you would get the most out of gear for 6 or 2 metres, installed in your car, you'll want to try the horizontal systems. If the wife will take it, you'll want something as good as WIDX's turnstile for 2, and the "Mobileer" or its equivalent on 6 metres. And don't pass up the portable beam idea. You'll never know the fun of v.h.f. work from the high spots until you pack along the biggest arrays for your favourite band that you can store in the rear deck of your car.

DO NOT FORGET!
The closing date for copy for the January issue is 2nd December.



AMATEURS AND SALES TAX

(Continued from Page 5)

time of emergency, but also is a wonderful hobby, and it should be encouraged. I leave the matter there, Mr. Temporary Chairman. I hope that honorable members will make themselves more familiar with the fine work that amateur radio operators are doing. I am sure that if honorable members learn more about it, they will support the request that these operators be given some concession."

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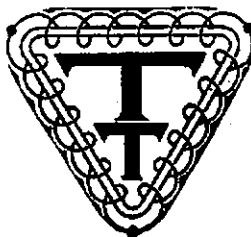
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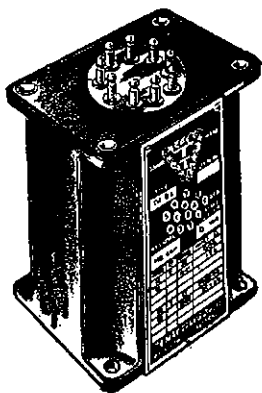
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South Australia
 5GR—H. E. A. Gehrke, 52 Norma St., Mile End.
 5LI—W. B. Legg, McPherson St., Penola.
 5MP—G. S. Coombe, 1 Everett St., Brooklyn Park.
 5SX—R. W. C. Kopp, 9 Matilda St., Eastwood.
 5WA—C. J. Waterlander, 32 Almond Grove, Glendore.
 3XM—L. M. Mullins, 47 Robsart St., Parkside.
 5ZBR—K. L. Metcalf, 60 Castle St., Edwardstown.
 5ZBX—B. N. Dale, 40 Ballville St., Prospect.
 5ZCR—A. C. Rechner, 36 Payneham Rd., St. Peters.

Western Australia
 6AJ—A. J. Jeffrey, 8 Stone St., South Perth.
 6CR—C. Rutledge, 449 Charles St., North Perth.
 6ZBR—E. S. Brewer, 95 Edward St., Osborne Park.
 Tasmania
 7ZAE—M. F. McGinnis, Cable Station, Naracoopa, King Island.
 7ZAI—D. A. H. Thorne, 308 Park St., Hobart.

CHANGES OF ADDRESS

VK—New South Wales
 2AZ—H. L. Day, 22 Hood St., Yagoona.
 2CG—H. E. Chinner, 458 President Ave., Kirrawee.
 2EA—L. Martin, 106 Doble St., Grafton.
 2GD—K. H. Hatton, 35 Boolarong Rd., Pymble.
 2KW—L. D. Wilson, 11 Ross St., Epping.
 2LH—T. G. Hewitt (Dr.), 31 Uralba St., Lismore.
 2YT—G. R. Woodward, 49 Cardigan St., Auburn.
 2ABX—R. C. Gibson, 15 High St., Newcastle.
 2AMH—J. R. Howard, 45 Kamilaroy Rd., West Pymble.

2ASH—J. A. Hodgson, 20 Northcott Pde., Wagga Wagga.
 2ZCM—S. B. McGregor, 3 Walworth Ave., Newport.
 Victoria
 3FQ—A. C. Yeomans, 11 Hillside Rd., Mt. Waverley.
 3HR—H. C. Roberts, Best St., Sea Lake.
 3SS—K. V. Scott, Princes Highway, Noble Park.
 3AAM—A. H. Sengotta, 9 Elysium Crescent, Huntingdale.
 3ADW—D. A. Wardlaw, 21 Tormey St., North Balwyn.
 3AMC—J. McDonald, Hampton Villa, Princes St., Drysdale.
 3AVG—R. W. Miatt, 27 Albert Cres., Surrey Hills.
 3AWC—W. J. Currie, 9 Soutar St., Eltham Sth. Queensland
 4ZS—C. E. Ryan, 114 Stanley St., Rockhampton.
 4ZAV—W. A. E. Flannery, Wishart St., Mt. Gravatt, Brisbane.

South Australia
 5CF—M. T. Nicholson, Station: McIntosh Ave., Glossop; Postal: P.O. Box 64, Glossop.
 5EU—H. S. Young, 37 Northumberland St., Tumore.
 5FP—F. C. Purcell, Main Rd., Clarendon.
 5JH—V. Chennell, 15 Third Ave., Ascot Park.
 5KJ—G. W. Connon, C/o Station 5LN Residence, Ft. Lincoln.
 5KN—R. S. McKenzie, Private Rd., Victor Harbour.
 5KS—R. A. Sedunary, 13 Langham Trce., Unley.
 5LL—G. F. Lucas, 19 Wilpena Trce., Kelkenny.
 5OX—J. Stewart, 51 Fuller St., Walkerville.
 5PF—D. McL. Robson, 21 Judd Rd., Elizabeth South.
 5WR—W. L. Russell, 77 Church Trce., Walkerville.
 5ZDF—R. A. Washington, 40 Swaine Ave., Rose Park.
 Western Australia
 6DT—W. R. Woodley, 52 Marrawa Way, Maniana.

CANCELLED CALL SIGNS

VK—New South Wales
 2OX—J. Stewart, Transferred to S.A.
 2AAA—N.S.W. Signals Radio Club.
 2AEQ—N. S. King.
 2AKB—K. B. Brown.
 2AVE—C. W. Meech. Now VK3AMG.
 2AVR—V. M. Rowsell.
 2ZCJ—J. V. Smith.
 Victoria
 3BX—G. W. Hitch.
 3OP—J. Kosseck.
 3PC—C. W. Purvis.
 3KN—M. C. Cumming.
 3YC—J. A. O'Shannassy.
 3ANU—R. G. Coffin.
 3ARI—R. M. Tutton. Now VK3SF.
 3ZBA—W. A. Ferrer. Now VK3GF.
 South Australia
 5RC—R. Bennett.
 5VW—V. J. Wilson.
 Western Australia
 6ZAE—L. K. Earp.
 Tasmania
 7RF—R. T. Foster. Now VK3ATF.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

VK—New South Wales
 2HL/T—H. C. Laphorn, 523 Pacific Highway, Artarman.
 2OI/T—G. C. Bower, 17 Oaks Ave., Dee Why.
 2QZ/T—R. H. Black (Dr.), 2 Yerton Ave., Hunters Hill.
 2ABP/T—R. G. Dunford, Dalgarno St., Coona-barabran.
 2AVJ/T—W. B. Jones, 30 Little Rd., Bankstown.
 2AZG/T—J. R. Grouse, 17 Ivanhoe St., Marwickville.
 2ZAN/T—K. N. North, 18 Gladstone St., Bathurst.
 Victoria
 3BU/T—W. A. Brownbill, 79 Gheringhap St., Geelong.
 3ABK/T—R. J. Heighway, 22 Leonard St., Belmont, Geelong.
 3AEH/T—E. J. Blackney, C/o. Whittington P.O., Geelong.

C.D.E.N. NEWS

As outlined in the VK4 Notes for October, on the 25th August, Queensland members of C.D.E.N. were given the opportunity of taking part in full scale exercises designed to explore the effectiveness of C.D.E.N. in the case of a city disaster. Three networks were used—one mobile on 144 Mc. band, another mobile on 7 Mc. band, and the usual city to country network. After the mobile had reconnoitred portable units were moved in to take over forward posts as they were established at strategic positions. We hope that more exercises of this type will be arranged in all States.

We were pleased to receive a copy of document setting out in detail the practical efforts of South Australian Division to ensure the success of C.D.E.N. in that State.

On 6th October communications specialists assembled at Mt. Macedon Civil Defence School to consider the findings of previous Communications Discussion Groups. The Institute was officially represented by: Bob Godsell, VK-2ARG; George Robertson, VK3WJ; and Vinc. Jeffs, VK4VJ. Other Amateurs present representing their particular organisations were Harry Hannam, VK3; Evan Fell, VK4EF; Herb Sprenger, VK4ES.

Nineteen talks were given by members of the Group. The first talk was by Sir Giles Chippindall (Director, Posts and Telegraphs) who was followed by a number of senior officers of his Department. Many aspects of the Department's emergency plans and potential were ably presented.

Representatives of other bodies including two representatives of the Institute (George Robertson and Vinc. Jeffs) outlined the activities and proposals of their own organisations.

During the progress of the session the Federal Co-ordinator, VK3AG, and the VK3 Co-ordinator, Reg. Busch, VK3LS, visited the School and joined in an informal meeting of W.I.A. Interstate members. Many interesting and valuable suggestions for the improvement of C.D.E.N. were offered.

One of the most valuable suggestions was that the title of C.D.E.N. be changed to W.I.C.E.N. Such a change would achieve the following advantages:

- (1) The word WICEN in addition to retaining our identity as W.I.A. network, would adequately describe our function, that is Wireless Institute Civil Emergency Network.
- (2) Remove the misconception that C.D.E.N. means our activities are related only to Civil Defence.
- (3) Provide a word suitable for use phonetically, Morsewise, or as telegraphic address.
- (4) Eliminate any confusion with C.D.O. activities.

Before printing Authorisation Cards, this proposal will be submitted to a vote of Federal Council. When the original title was selected by Federal Council it was done with the object of extending pre and post war emergency activities to cover every national contingency. The proposed title W.I.C.E.N. seems to aptly cover these requirements as well as providing the additional advantages outlined above.

In conclusion, we must record that both the official and unofficial discussions at Mt. Macedon have been most fruitful and enlightening.

The high esteem in which the Amateur's work in the emergency field is held was clearly indicated by the desire of all organisations to see him integrated into the general communications plan.

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DX ACTIVITY BY VK2QL†

This month has been one of the most disturbed I can remember. The bands did not follow a pattern for two days in succession. Chas VK0AB found one black which lasted eight days.

Well fellas, you gave the commercial sending v's on the low end of 14 Mc. a nudge the wrong way. After posting the last notes I found he had gone further into the band and was measured at 14008 Kc.

With the approach of the next International Radio Conference, there now seems to be an increased "attack" on Amateur bands. A new station, Radio Czechoslovakia, has been coming through very strongly on 14023 Kc. late afternoons. This is just one more to add to the F.S.K. and R.T.T. stations that have been slowly appearing on the 14 Mc. band. An additional press station has also been heard on the low end of 7 Mc., making the second one. Don't get ideas that this will only worry the DX boys. Shared bands and restricted operating hours will have just as much effect on the cross-town talks as on DX. So, let's rally to the cause and hold what we have. Has your Division done anything?

NEWS AND NOTES

How one sticks ones neck out. Talking to W4KVX the other day, we found something in common. He edits and issues a DX news sheet which apparently has quite a large distribution. Now we have a weekly sked to swap news of the DX world. If you are interested in reading the mail, we are on 14010 Kc. at 0630z Sundays, commercials permitting.

The station you have no trouble knowing on the air is CR8AC. Boys does he get out. Just stop and count the countries you hear calling him between 14000 and 14120 Kc. To be sure of a contact, you must be able to listen through your own signal, for if he picks on you he will call you once with "K" right in the middle of your call. If you miss that he goes on to another. Have heard many stations miss out through this procedure. He did it to me but I was listening through. Keep off his frequency as he will tune anywhere in the band. He has even answered phone calls. So good hunting.

JT1AA is xtal on 14060 in zone 23. He is expected to be operating from there for 12 months. He also will not answer on his own frequency. If you have zone 23 but not Mongolia, UA00M is easier to give you that country.

VQ8CB is now VQ4GT (5BY). W4FCB/KS4 expects to be in operation for three months. He promised he would try and make the VK-ZL Contest, so hope you got him.

In case you are unaware, Danny Wiel has lost his second yacht in an explosion in the U.K.

Ex VK1RW/VK9AJ can be contacted for that missing QSL at 7 Greenstead Rd., Newby, Scarborough, Yorks. (BERS195)

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.
* Call signs and prefixes worked.
z - zero time - G.M.T.

Anybody with a QSO of VP5BE, Turks, Jan 19 to May 4, '56, and still needing a pasteboard, should check with W8QLF/1.

TI2HP is handling QSLs for the TI9CR venture last Mar./Apr. If no QSL to date he is your man.

YA1AM has now returned to the States.

ZD1FG is ex-ZL2FG. Wonder if he has any love for VK if he hears one call.

VQ9AS is expected to be the call of a station operating from Rodrigues Is., 350 miles east of Mauritius. There has never been any Amateur activity from there before. He is expected to be there for three years but the catch—he will only have 100 v.d.c. available.

Activity from Easter Is. has ceased by now with the departure of CE0AC and CE0AD.

VR9G is now G3KDE.

LA2JE/P and LA2HF/P are expected to be on from Hope Is. for another 12 months. Power is 15w. and QSLs will be attended to after return to Norway.

Further to my last month's comment on the "Iron Curtain" call signs, I can now add a little more for you. To help identify the Asian zones. Zone 16: UA8S, UA9W; Zone 17: UA9A, C, D, F, J, M, and Q; Zone 18: UA9H, O, U, Y, UA0A, B, P, S, U and V; Zone 23: UA0T. Don't forget the K for the club station after the figure.

A Korean Radio League has been formed and all correspondence and QSLs should be sent to Box 162, Seoul (HL2AM via ZL1ST).

For those trying for YL DXCC look for UQ2AG.

HL3AM will not be actioning his QSLs until his return to the States soon.

Matlive Is. activity has taken place after all, but not as originally planned. VSIHJ got there but operation was not permitted by the R.A.F. authorities, although he had all necessary approval. Whilst sitting in the aircraft on the runway, he had four QSOs as VSIHJ/V50. He hopes to be back again by the time you read these notes with a pocket full of the necessary authorities (VSI6F).

VK8JF is now active from Cocos (Keeling) Is.

FP8AS is W2EQS on vacation.

CE9AH is located in the Chilean Antarctic area.

VP8CW is active from Falkland Is. (2AIR and 7LZ).

VP8AB is active from Sth. Caicos Is.

W4KVX is handling QSLs for VP5BH, call of the recent expedition to the Caymans. If you are still missing that QSL he can arrange it if your call appears in their log. Another DX expedition is planned by these boys, but as yet the location is not known but the time probably Feb./Mar. '58.

ACTIVITIES

8.5 Mc.: Nil reports. Heard ZLs working ZL5AA round 1130z, but could not locate him here.

7 Mc.: 2AIR: G5JM*, W*, Europeans. 2QL: W, YU2IT, BERS196: KM6AX, KR6AR, KR6RY, VU2RM, ZD6RM, ZE2JG, ZE4JM, ZSSFT, ZS6EQ, 9S4DU, Don Granter; OH3DG, ZSSPM, F9ID, SM5BCC.

14 Mc. C.W.: 0AB: GW3KSQ*, UB5KAB*, HL2AM*, AP2*, CO2SW*, 5ASTH*, 2AGH: UA0A*, ZD2DCP*, Y02KAB*, FASIH*, VR6TC*, JT-1AA*, UL7KAA*, HL2AM*, KB6BC*, ZC5AL*, F08AG*, UB5WF*, KP4BU*, UA00M*, FP8AS*, FB8XX*, FP8AJ*, 3V8CY*, ZC4GT*, FAS0A*, 4X4GY*, HL2AJ*, CRTLU, LZ1KBA, 0A4ED, ZK1BS, CE9AH, VP5AB, IS1MM, FP8AR, UD6DD, IT1TAJ, ZD4CM, U18KAE, UJ8AG, OD5AF, CR8AC, FB8XX, EA8BD, 2AIK: ZC5AL*, LA4DD*, VP8CW*, VOIEK*, ZM6AS*, CE9AH*, HK3JC*, HL2AM*, UR2AK*, UB5KBR*, UF6AC*, UB6SE*, 0A4FM*, ZC4BA*, CR8AC*, LU6DJX*, VP2GN, JT1AA, VR5AD, VQ4KRL, IT1TAI, UN1AE, VP8BO, SV0WP, 3A2AM, ZB1LE, IS1MM, VR8TC, FP8AP, 3V8CY, 2QL: VR6TC*, UP2KCB*, U18KAE*, VQ8AA*, UO5PK*, HRIJH*, UL7GN*, CR8AC*, ZK2AD*, FP8AS*, ZM6AS*, UO5CA*, HK3JC*, XW8AG*, 0A4FM*, W4CFB/KS4*, JT1AA, KS6AD, CE9AH, UO6RM, UM8KAA, YK1AT, UN1AE, UQ2AD, VR4CW, FB8XX, CP3CA, VQ8AM, VP5AB, IS1MM, SV0WP, HL9KT, 20W: CE9AH, HRIJH, JT1AA, VR4CW, UA00M*, VP6KL*, UA0JF*, UA0CI*, UA1KAE*, 5BK: W*, VE*, ZS8XK*, JA8BL*, 7LZ: LU6AJ*, OX3DL*, VOIEK*, CE9AH*, HK3JC*, CR8AC*, UA00M*, 0DB: VQ8AG*, UL7KBA*, UD8AK*, UF6AC*, XE1RY*, 3W8AA*, FFBAC*, KP4ADS*, VK-

0AS*, VQ8AB*, ZS1RM*, UB5KBB*, VP2VB*, HL2AM*, V59AJ*, 4X4FA*, 5KSDV*, YK1AT*, XZ2AD, PK1AQ, KS6AD, YV5BX, CO2SW, KC4USA, UO5PK, BERS195: CE3DZ, CR8AC, HK3JC, VR3B, KS6AD, XZ2TH, W1A-L063P: SP8CE, Y08CF, 0A4FT, HA5BL, 0A4ED, UR2KAA, LU8EN, CE9AH, SV0WP, 4X4FA*, LZ-1WD, HL2AM, YV5AE, Don Granter; 3V8CY, CN8FW, CR8AC, CN8JX, CX1BO, HL2AM, FP8AC, EA5BA, HRIJH, IT1TAI (this is Sicily Don and not a separate country), KC5AB (this a doubtful one), KC4USA, LZ1AH, OQ5IE, 0A4AP, PY1IH, PY4AJ, PY2CD, UM8KAA, U18KAE, 4X4HY, 3W8AA, VK0AB.

14 Mc. Phone AM: 2AGH: 5A1TB, ZD6DT, V59AJ*, 7LZ: GM*, KW6CJ*, VR6TC*, 9DB, XE2DO*, XE2KW*, TG9AD*, BERS196: HP-1AB, Red de Balfour: EA, DL, CT1CJ, VU-2BK, XZ2KN, DU9AA, DU1CV, VR4JB, VU-2NF, TG9AL, HP3FL, YN1ACA, VP6WR, VPTNF, HR3HH, HK4DF, HK7LX, LU2NG, LU2PD, CE2CC, YP6AJ, VP2DD, VP7YX, VU2CQ, AP2U, VP9CY, XE1DU, ZSSKG, 0A4AQ.

14 Mc. SSB: 2AAB: JA*, V84JT*, KL7*, AP2PB*, HRIEJ, W, GZHX, VS6BE.

21 Mc. CW: 2AAB: CE5DH*, CE8RE*, VP-6CC, 2QL: XE1AK*, F30A, UR2KAA*, OQ5ER, 7LZ: FY2AG, SP3PL*, GC2CNC*, G5*, SM6BQ*, 9DB: HA5BW, EA1A*, EA2CR*, SP-6PZ*, G18CQ*, UR2AR*, XW8AG*, ZC4II*.

21 Mc. Phone AM: 2ACW: K7L7, KB6BH*, MP4BC*, GM*, OY2RD*, OH*, 4X4FQ*, 11BDV*, 7LZ: LU6AJ*, 9DB: TIZO*, H51B*, XE1H*, V5A1T*, ZS6ALA*, KP4MO*, VS1FE*, VP6FR*, ZD6DT*, KG1JA*, ZK1BS*, FUBAD*, Red de Balfour: CN2WX, CN2AK, 4X4FQ, ZS-6BW, VQ4RF, PY9AEH, HP1CC, VP6ZR, VP-5AM, CE1AH.

21 Mc. SSB: 2AAB: HS1A.

28 Mc. CW: 2QL: ZS6ANN*, JA1CO*, ZC-5AL*, W*.

28 Mc. Phone: 4XJ: CR7DS, G2IT*, HP-2ON*, VQ2DC*, CE5HL*, HC1KV*, GD3GMH*, VS1FJ*, V51AF*, KH6*, W*, VE*, 9DB: ZS-5MP*, ZS6OQ*, KR6FN*, SM5CO*, DL*, G*, W*. Red de Balfour: ZSSNZ, VU2RM.

QSLs FOR THE MONTH

2AGH: BVIUS, Y03ZA, FS7RT, VPTNB, DU7SV, 2AAB: WF7NK/KP8, 20W: ZC3AL, 2QL: UL7KAA, UB5CI, UB5KIA, WF7NK/KP8, VO2S, 3W8AA (28 Mc.), HRIJH, 5HI: UB-5IA, UA2KAB, SP6BY, OKING, LX1DE, CR-6CJ, OX3LD, 7LZ: LZ1KNE, PX1FC, FB8ZZ, FB8XX, 3V8AB, KW6J, HBIOQ/FL, VP2VB, TG7SJ, CR5SP, LU2ZS (Sth. Shetlands). Red de Balfour: FB8ZZ, KC8UZ, 4S7GD, BERS195: CE0AC, EA9BK, HA5BO, KS6AD, OQ5VD, TF3SG, UO5AA, UQ2AS, VK9AD, VP8FL, VR-3G, ZC4GT, 3W8AA.

DEALINES

Would contributors watch deadlines for notes as follows: This issue of "A.R." shows the deadline for copy for Jan. issue as 2nd Dec. Please have all your news AT my QTH at least seven (7) days before that otherwise it will miss out. Thanks to help from Doug 5BY, I will be in Adelaide for the first week in Jan, so will need to get the notes away before I leave. Please have your copy by 20th Dec. Thereafter we should be back to normal, which is the last day of each month, no later. Tax fellers.

This month my appreciation to ZEG for QSP of 0AB. Will now has his DXCC for IEG granted. We welcome 2AAB to the page. Barry very keen on s.s.b. now. 2AGH who is having fun with "Indians" at present. 2AIR finds that since lifting his G.P. further off the ground is doing much better. 20W who is not so successful in DX hunting as he would like to be. 4XJ now hoping for good things on 28 Mc. phone. 5BK for his QSP from the Adelaide gang, and sez 5HI has received his worked 25 KZ certificate. 7LZ with CR8AC in the bag was QSP'd by Red de Balfour. 9DB who is back again after his mainland holiday, BERS195 who came to "sunny" VK2 for a holiday. Sorry did not see you on your way through Eric. W1A-L3689 who hopes for more listening time, and Don Granter who comes back to the page from Holbrook.

QTHs OF INTEREST

CR8AC—Box 32, Vasco da Gama, Goa.
FP8AS—A.R.R.L. (W2EQS).
CE9AH—QSL via R.C.C.
JT1AA—QSL via OK1JX.
HRIJH—C/o. U.S.A.F. Mission, C/o. U.S. Embassy, Tegucigalpa.
VR4CW—Box 49, Honlora.
ZM6AS—C/o. Civil Airport.
ZD1EO—C/o. S.L.E.M.E. Army P.O., Freetown.
VP8CW—Port Stanley, Falkland Is.
OQ5VD—Andy Vander, Box 195, Coquilhatville.
KS6AD—Tutulla, Pago Pago.
CE9AC—C/o. Box 1234, Santiago.
EA9BK—Box 124, Tetuan.
TF3SG—Svein Gudmundsson, Baruquta, Reykjavik.

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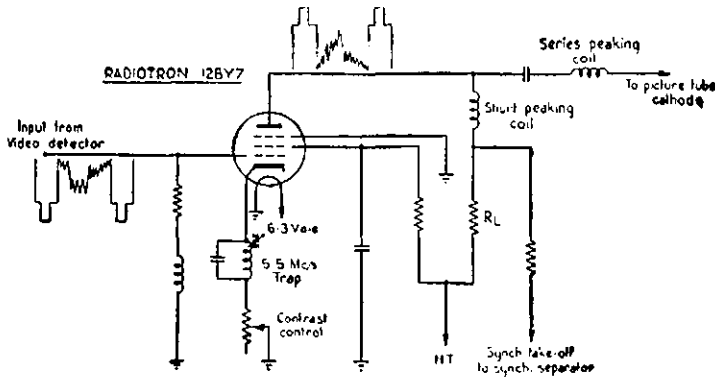
TV VIDEO OUTPUT STAGE

The television receiver video-output stage is required to amplify, without compression, the output from the video detector to a level which is sufficient to modulate fully the electron beam in the picture tube. The level required is normally in excess of 100 volts peak-to-peak. The frequency spectrum of this signal, which includes both picture and synchronising information, can include components extending from 25 c/s to as high as 5 Mc/s.

To maintain the desired pass-band shape a low plate-load resistance is used in association with peaking coils. The higher the circuit capacitance (which consists of the output capacitance of the video amplifier valve, the input capacitance of the picture tube and stray capacitance) the lower must be the load resistance and the more difficult is the practical achievement of the desired gain bandwidth product.


To achieve the necessary gain and output with the low plate-load resistance, a high transconductance valve capable of a relatively high plate current swing is necessary.

A typical video-amplifier circuit is discussed in Radiotronics, April, 1957. A simplified circuit is shown below.



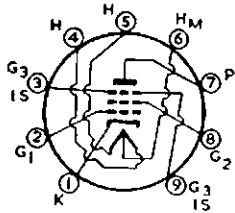
The Radiotron 12BY7 is a 9-pin miniature valve designed specially to meet the requirements of the video output stage. Its transconductance of 12,000 μ mhos enables adequate gain to be realised with low plate-load resistances, and its large signal handling capacity ensures compression-free amplification. The low output capacitance of this valve assists in keeping the circuit capacitance to a minimum, thus facilitating the stage design. The centre-tapped filament enables it to be used with both 6.3 and 12.6 volt supplies.

†For further information on the 12BY7 and other Radiotron Television Valves, consult the TV1 Booklet. Additional copies of this advertisement are available free and post free on request.



12BY7†

SOCKET CONNECTIONS



(bottom view)

- Pin 1 — Cathode
- Pin 2 — Grid No. 1
- Pin 3 — Grid No. 3, Internal Shield
- Pin 4 — Heater
- Pin 5 — Heater
- Pin 6 — Heater Centre-Tap
- Pin 7 — Plate
- Pin 8 — Grid No. 2
- Pin 9 — Grid No. 3, Internal Shield



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FIFTY-SIX MEGACYCLES AND ABOVE

STOP PRESS!

50-54 Mc. BAND FOR I.G.Y.

Federal Executive has announced that following representations to the Amateur Administration, approval has been granted for the Amateur Service to use the 50-54 Mc. band until December, 1958.

In view of the MUF going up there is every possibility that Interstate work at least shall soon take place.

56 MEGACYCLES

From Norm Burton, of Sydney, that good friend of the 56 Mc. man, comes amplification of his 50 Mc. note last month concerning the W/VK test schedule. They commenced at 2200 GMT, Sept. 29, and are continuing weekly. The participating W stations are in the band section 50 to 50.2 Mc., calling for 5 minutes twice each hour, commencing 15 mts. and 45 mts. past. They then listen on 28 Mc. for any answer or call concerning these tests. At least six of the W stations have 56 Mc. converters and are eager to attempt 50/56 Mc. cross-band contacts should the 50 Mc. path be open. Tests conclude at 0200 GMT each Sunday, giving four hours in which to try and make the grade.

Predictions indicate a high MUF during November and there is every possibility that the tests could be successful.

This is a definite challenge to the v.h.f. fraternity throughout VK, particularly to those in the northern coastal regions. The Ham made his name in the early days by his willingness to try what others, presumably with more knowledge, claimed was impossible. The most recent classic example of this was the W/KH6 144 Mc. link established in July. Many of the old 50 Mc. gang still have their converters, not yet having changed to 56 Mc. Why not blow the dust off them and take part in these tests. And the newcomers to 56 Mc. who have never used 50 Mc., set to and build a 50 Mc. converter, or revamp one of those other converters you usually have around the shack. Do not let it be said that the old timers were more venturesome than you are, that you are taking it easy on the reputation they have earned for the Ham in general. Try and make your call and name respected, as one who attempts, and should good fortune come your way, accomplish deeds such as breaking of the Trans-Pacific barrier on 50/56 Mc.

As a minor effort compared with the I.G.Y. tests on 49 Mc. from South America using power up to 20 kw. and beamed up the west coast of that continent at U.S.A., but important in its own right, arrangements are in hand to run a series of VK/JA tests on 56/50 Mc. But more of that when details are on hand. Under the VK3 notes is further information concerning auroral observation, this also indicates the need of a 50 Mc. converter, the band to which scientists during the I.G.Y. are paying a lot of attention. Let us tag along with the I.G.Y. v.i.p.'s whilst paying attention to our own v.h.f.s.

DX, until the end of Sept. has just not been there on either 56 or 50 Mc. Even Vern 4LK has heard nothing on 50 Mc., the JA signals apparently staying on their own side of the equator. Previously they have broken through to VK2/VK3 in October, and with conditions peaking there is every chance that shortly they shall come in again. The MUF has reached well into 40 Mc. lately and augurs well for the future, besides which the band is getting that feeling of life in it which is sensed by the experienced operator.

As a mark of interest here are some of the stations active on 56 Mc. in VK3—56 Mc.: 3YS, 3ZCG; 56.005: 3CI; 56.04: 3UI; 56.05: 3OF; 56.08: 3AJH (v.f.o.); 3ZBN; 56.09: 3SF; 56.11: 3ZAT; 56.16: 3ZCW; 56.21: 3ZAQ; 56.24: 3ZAI; 56.25: 3APP; 56.58: 3US/3VL; 56.57: 3BQ; 56.6: 3XM, together with VKs 3AE, 3AHL, 3ALZ, 3VF, 3ZAF, 3ZCN and 3ZL. It is understood that there is quite a crowd of VK4s around 56 Mc., so tune up that far boys.

The Charters Towers-Townsville path has not yet been cracked on 144 Mc., but tests are continuing and interest remains high. Well built high gain antennae should turn the trick, an assumption well founded on results achieved in long haul work on 144 Mc. in VK2 and VK3.

—F. O'Dwyer, VK3OF.

NEW SOUTH WALES

Meeting.—The monthly meeting of the V.h.f. and T.v. Group was held at Gore Hill Technical College on Friday, 4th October, at 8 p.m. Owing almost certainly to the holiday week-end, the meeting was not as well attended as usual. However, after a very smart disposal of formal business, those present were treated to a very fine lecture by Mr. Alec Little, of the C.S.L.R.O. Mr. Little's lecture, which was entitled "The Limits of Weak Signal Reception," dealt with noise external to the rx. A vote of thanks was moved by Dave 2AWZ and carried by acclamation.

ZER reported that I.G.Y. rehearsals which had taken place during the month had been most successful, the maximum time taken to pass a warning through the radio network being two seconds.

Monthly Day Fixture.—On Sept. 15 a treasure hunt was held with 20A hiding the treasure. During the day clues were left at suitable locations by 20A. Most of these were quite artistic efforts, e.g. the picture of the fox at Rooty Hill. 20A gave one accurate bearing from each location to some known point. Competitors were able to take one bearing of their own and then proceed to where they hoped to find the clue.

The final location at Paramatta Park included an unscheduled hazard in the shape of a 1/2 entrance fee. 20A is now known as "Two Bob Winch"! Final scores were 2ZCF and 2ANF/ER tied for 1st place with 12 pts. This type of event seems to be very popular judging by the excellent roll up.

Monthly Night Fox Hunt was held on Wednesday, 25 Sept. The starting place being Top Ryde. As a change from the usual straight out hidden tx hunt, Wednesday night's event was made a mobile fox hunt and was a huge success. The fox, 2ZAV, who started from an undisclosed point at 8 p.m. had to transmit continuously, keep on the move until 9.15 p.m., and then go to ground.

Points were awarded to the hounds who were successful in intercepting the fox whilst "on the run" and for the hound first in at the finish. 2ZBB, who was first to catch the fox on the run (3 points), tied by 2ZBD who in addition to winning a point for being first in at the end, earned 2 points for being second to intercept the fox when mobile.

Scramble.—An announced Scramble was held on Sunday, 29th Sept. Some thirty odd 2 mx stations participated, the winners being Bob 20A and Dick 2ZCF who tied.

During the month of September cross band (5 and 2 mx) activity has increased in popularity. A new 2 mx station, 2ZDF (Newcastle) has been putting a fine signal into Sydney. 2ALU (Wollongong) has been worked by 2EW in Sydney at good strength. 2ALU is back with us after an absence of some years.

VICTORIA

Big news this month! Two members of the Ballarat gang have got themselves engaged and on the same day too. Congrats to Bill 3AMH and John 3ZDM. John says he hopes to be back on 144 Mc. before Christmas and Bill hopes to get on the band from Colac shortly.

Another item of interest was the successful launching of a space satellite by Russian scientists. Press announcements said that it was emitting signals on 20.005 and 40.002 Mc. It wasn't long before a number of the gang reported hearing the lower frequency signal, but it wasn't until the Saturday evening (5th October) at 7.20 p.m., that Fred 3YS heard the 40 Mc. signal. At the time of writing, the only other one known to have heard the higher frequency transmission is Alan 3UL. Len 3LN has a good recording of the 40 Mc. signal taken from Fred's receiver so those who haven't heard the signal may get a chance to do so at a V.h.f. Group meeting.

Meeting.—The Sept. meeting was held on 18th and about 20 members attended to hear Jock 3ZDG speak on "Automatic and Remote Control." Jock kept the meeting interested for 1 1/2 hours with various hints on relays, sel-syns and associated devices. After the lecture, the rules for the field days were finalised and the meeting closed about 2300 hours. Ron 3AHJ has promised to come along to the November meeting on the 20th and give a talk entitled "Modern Airborne Equipment." He hopes to have some representative gear on display, so the lecture should be doubly interesting.

There was no fox hunt for the month of September because the usual night was taken up by the Divisional monthly meeting.

Field Day Rates

1. Dates: Nov. 17, Dec. 15, Jan. 26, Mar. 2, and April 28.

2. Scoring: 1 pt. per QSO on 144 Mc., 3 pts. per QSO on 56 Mc., 3 pts. per QSO on 288 Mc., and 5 pts. per QSO on 576 Mc. Double points for all contacts over 100 miles distance.

3. Locations: No one operator, or group of operators, shall be permitted to operate from the same location more than once.

4. Time Limit: Only those contacts made in any six consecutive hours count for scoring purposes.

5. Contacts: To make a scoring contact, operators must exchange readability and signal strength reports plus a 3 digit number, i.e. the same system as is used in the R.D. Contest or the Ross Hull contest. In addition, when long distance contacts (100 miles or over) are claimed, the actual distance must be agreed upon by both operators and submitted with the log.

6. Logs containing the usual information must reach Bob 30J within a fortnight of the contest date.

Some of these rules are new; they can be changed but give them a fair go before complaining.

Mention of contests and new rules reminds me to remind those operators interested in the Ross Hull Contest that this season's rules differ greatly from last season's. Interstate and overseas contacts count but intrastate contacts do not. Therefore, I should think the winner will have to do most of his operating on 56 Mc. The full details of the rules appeared in August "A.R." on p. 11.

Band Jottings.—Newcomers to 144 Mc. are Jack 3ZEF, Peter 3ZFP and Frank 30F. On 288 Mc. Ron 30M is attempting to get a pair of 7193s going. He has no rx to date. 3AMT of Ringwood has made a re-appearance on 288 Mc. after a couple of years absence, but he hasn't been heard at this location as yet.

Ray 3ZAE is working at Colac, now whilst Max 3ZAW is stationed at Bendigo. Glen 3ZBJ has been on 144 Mc. from his QTH in Aspendale after being silent for some time. Ivan 3ZDI has been inactive of late because he has had a spell of duty at Radio Australia.

I had the pleasure of a visit from Max 3ZCW recently. He told me he hopes to get on 56.16 Mc. shortly. Max would also like to know the identity of a station operating on 144.5 Mc. on 13th Sept., the date of quite a widespread auroral display. The time was between 8.30 and 9.00 p.m. and the signal appeared to be coming from the direction of the aurora. Can anybody help Max?

Well that's the lot for this month, but I would like to make a special appeal for information for next month's notes. From now until early December, I will be kept very busy with examinations and so I will not be able to scout around myself. Thank you, 3ZAQ.

SOUTH AUSTRALIA

The main item during the month was the two vivid appearances of the aurora and the effect it had on propagation. All kinds of reports have been buzzing around but none as yet really confirmed. One was that George 3GB heard a VK8 calling Keith 5MT and that some VK3 signals were heard in Adelaide.

At this QTH there were several fairly loud carriers heard on frequencies that were outside those previously logged and identified as VK8s although they could not be called other than transitory. The fitter on them made it impossible to get any modulation and by the same token it was not possible to "DF" them, for they were all loudest when the beam was directed to the South, that is into the display itself.

The usual 2 mx activities are still below par, presumably the cold is still in the bones, and it will take a warm burst and a break through to VK3 to really liven up the 2 mx band again.

One metre seems to have plenty of activity in spite of the weather, two newcomers in Colin 5ZXY and Ron 5ZDY being heard recently. Congrats on the entry to the band fellows, hope to hear more of you. Ron has an extremely strong signal and he made himself known to the boys at the last W.I.A. meeting.

3JS, who by using 2 watts only with a 6J6 transceiver, worked from Anstey's Hill to Hummocks—get out your 100 watts and multi-milt elements fellows and try your luck. These low power rigs really get things done.

Rex 5KY went to Port Wakefield for a week during school vacation, and took 288 Mc. gear and from a QTH in the town, he worked 5JS (at Ovingham), Al 3ZCR twice (at Norton's Summit) and Brian 5ZBN (from Mt. Lefty). Rex's gear was p.p. 7193s and 855 rx, antenna being a 5 element yagi up 30 ft. from the house chimney.

(Continued on Page 14)

W.I.A. FEDERAL PRESIDENT'S REPORT

"It is my pleasure to present to you the annual report of Federal Executive for the period April, 1956, to March, 1957, in particular, but including important matters which have happened since our last Convention in 1953. There has again been steady progress on most matters requiring attention, but it is hoped that the 24th Convention will regularise some of those aspects still outstanding. Turning now to the details of our operations for the period.

MEMBERSHIP

"I am happy to report that our Federal QSL Manager, Mr. Ray Jones, who has carried out his duties in an outstanding manner for over 25 years, was rewarded by being elected a Life Member of the Victorian Division; a small reward for a job well done.

"In January, 1955, the Papua and New Guinea Division of the W.I.A. was officially approved, and I had the privilege in July of that year of opening their station, VK9WJ, via a tape recording.

"With regard to membership generally, there has only been a small increase overall. Our present figures are unfortunately not very accurate due to the fact that all Divisions are not supplying us with the required figures every month—I refer to the detailed statement of all membership grades which your Executive must have in the future. The present figures given are: N.S.W. 785, Victoria 728, Queensland 155, South Australia 369, Western Australia 113, Tasmania 151, and Papua-New Guinea 25, making a total of 2,326. The increase from December, 1952, up to date is only in the vicinity of 250; not a very large number considering that in the same time there has been an overall increase of licensed Amateurs from 2,710 to about 3,380—a total increase of 670. It is apparent from these figures that the W.I.A. must take positive steps to encourage more new licensees and others to join and share the privileges of membership. I cannot pass off this subject without congratulating the Tasmanian Division who have achieved a pronounced increase in membership whilst other Divisions have just about maintained existing membership.

REGULATIONS

"In May, 1953, the Technician License was introduced and since that time a large number of technically qualified persons have availed themselves of this opportunity to become members on a Limited Amateur Operator's Certificate of Proficiency. In November, 1955, the 56-61 Mc. band was released in lieu of the 50-54 Mc. band which closed at the end of January. Also in November we were at long last successful in obtaining permission for Amateur Television Licenses and approval for experimenting commenced from the 1st May, 1956. To January, 1957, a total of 46 permits have been granted, consisting of 19 in VK2, 17 in VK3, 9 in VK4, 3 in VK5, 3 in VK8, and 1 in VK9—a result which has no doubt surprised the Postmaster-General's Department.

"In March, 1956, we successfully negotiated a relaxation in mobile-portable conditions of operation which is already proving to be an incentive for new members to extend their activities. Other negotiations are still under way regarding the Novice License, pulse techniques and the issue of VK8 prefixes to the Northern Territory to mention some of the more important ones. Our progress on the Regulations has been slowed down because of more urgent matters, but it is under way.

"As you know, we took a poll of all members on the change proposed by the P.M.G. Department to 146-150 Mc. in lieu of our existing 144-148 Mc. band. The result was most interesting and all the facts are now being correlated to provide a case opposing the change. In general, our negotiations with the Departmental officers have been on the best of terms and our friendly liaison and co-operation maintained.

POLICY

"An earnest attempt was made to hold a 'get-together' Region III. Conference during the period of the Olympic Games in Melbourne in 1956, but from all the Region III. Societies only New Zealand and Japan showed any interest and consequently the idea had to be abandoned with reluctance. I still believe it is imperative to pursue this matter, and to that end we have agreed to New Zealand 'sounding out' the Region III. area again. In July, 1955, the Federal Policy Book was amended and re-issued, and the Federal Constitution is now available in the amended form. I must mention the matter of the Federal Convention on which there seems to have been some misconception. Despite contentions to the contrary, your Executive considers they

have acted constitutionally in this matter. The support of six of the seven Divisions indicates confidence in the Executive's action. I trust that the deliberations of the 24th Convention will obviate any such misconceptions in the future.

FINANCE

"The audited accounts and balance sheet are appended herewith as presented by the Federal Treasurer. It is obvious that for an organisation the size of our own, the balance is particularly small and does not allow the Executive the scope it should have to represent the Divisions effectively. I trust this particular aspect will also be overcome in your deliberations during the Convention.

"AMATEUR RADIO" AND "CALL BOOK"

"The present standard of 'Amateur Radio' has been maintained by the Publications Committee under difficult circumstances with rising costs and lack of new advertising contributing factors. The 'Call Book' has been maintained also, and I think greatly improved since the initial issue; new features and revisions are always in mind commensurate with additional cost. The idea that profits from this publication would allow an improvement in 'Amateur Radio' have not been entirely borne out. The return of unsold copies of this book has placed an additional burden on the publishers which should not occur in future. I cannot pass on to other matters without high praise for the Editor and his Committee who have done a very difficult and onerous task in the best way possible. They deserve every Division's support to improve our publications still more.

OVERSEAS SOCIETIES

"This year we have maintained our close liaison with the I.A.R.U., the A.R.R.L., the R.S.G.B., the N.Z.A.R.T. and other societies on the friendliest basis. As mentioned else-

where, however, I was most disappointed with regard to most of Region III. societies who had not even the courtesy to reply to our circular letter. During the period we approached the Minister for External Affairs to present our sincere hope to the Phillipine Government that they would soon allow Amateurs to communicate officially with other Amateurs of the world, and we trust this move has had favourable results.

FEDERAL STATION VK3WIA

"In December, 1955, the Federal Station VK3WIA became active during the Pan Pacific Scout Jamboree held at Clifford Park, near Melbourne, and as a result promoted our objects in encouragement and instruction of radio communication in relation to the Boy Scout Movement. Since that time your Executive has obtained some surplus equipment for the official station and with the present exception of suitable modulation equipment can put a 250-watt c.w. signal on the air. As soon as this equipment is completed it is the intention to put out regular transmissions and official broadcasts on matters of Divisional interest.

CONTESTS AND CERTIFICATES

"The presentation of the W.A.V.K.C.A. Certificate for overseas Amateurs in May, 1955, has evinced great interest in Australia by DX operators everywhere as it is a much sought-after award. The rules may well have to be amended due to the recent VKI call sign change for the Capital Territory and the VK0 change for the Antarctic stations, but we hope that the Northern Territory prefix matter may be cleared as well before the rules are altered. The question of contests has been in the capable hands of the Contest Committee in South Australia, and their report will cover the salient points on this aspect. The reprinting of membership certificates is completed and they are available to Divisions for issue to new members.

"An unfortunate accident occurred to the Remembrance Day Contest Trophy this year (Continued on Page 14)

WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE

Balance Sheet as at 28th February, 1957

Current Liabilities		Current Assets	
Creditors	£31 4 7	Commonwealth Trading Bank—	
Accumulated Funds—		No. 1 A/c.	£96 12 3
Balance 1/3/56	£474 4 3	No. 2 A/c.	11 3
Add surplus for the		Cash on Hand	8 0 0
year ended 28/2/57	12 0	Debtors	181 15 11
	474 16 3	Stocks on Hand	104 0 0
			£390 19 10
		Fixed Assets (at cost less depreciation)—	
		Eddystone Model "640"	
		Receiver	£15 0 0
		Trophy, Remembrance	
		Day	8 15 0
		Trophy, Ross Hull	
		Memorial	31 6 0
		Filing Cabinet	17 10 0
		Typewriter	42 10 0
			115 1 0
	£506 0 10		£506 0 10

Income and Expenditure Account for year ended 28th February, 1957

Expenditure		Income	
Badges	£4 0 0	Per Capita Payments	£175 1 0
Trophy Expenses	6 7 6		
Printing and Stationery	29 14 3		
Certificates	3 5 3		
Depreciation	20 13 0		
Audit and Accounting	8 8 0		
Bank Charges	2 10 4		
Postage	11 7 7		
Sundries	20 2 0		
Telephone	4 8 3		
QSL Bureau	10 18 3		
Federal Contest Committee	27 11 3		
D.X.C.C. Bureau	3 2 1		
Entertainment	22 1 3		
Profit to Accumulated Funds	12 0		
	£175 1 0		£175 1 0

I have examined the books and vouchers of the Wireless Institute of Australia (Federal Executive). In my opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Federal Executive's affairs as at 28th February, 1957, and that the attached Income and Expenditure Account is properly drawn up to exhibit a correct view of the results for the year ended 28th February, 1957, according to the best of my knowledge and the explanations given to me, and as shown in the books. Stock on hand at 28th February, 1957, has been accepted on the certificate of the Secretary.

R. W. Ellis, Dip. Com., Chartered Accountant (Aust.).

W.I.A. FEDERAL PRESIDENT'S REPORT

(Continued from Page 13)

whilst it was in transit, but it has now been restored to its original splendour. Winners of the Ross Hull V.h.f. Memorial Contest now receive a framed photo in addition to holding the trophy for a period.

CIVIL DEFENCE EMERGENCY NETWORK

"Since the last Convention several national emergencies have occurred which illustrated the useful part a properly organised network can carry out in a crisis. The Federal C.D.E.N. Co-ordinator has also had the privilege of attending the Commonwealth Government Civil Defence School at Mt. Macedon, Victoria, on behalf of the W.I.A., Mr. J. Corbin, President of the New South Wales Division this year also attended the school in an official capacity.

"The Federal Co-ordinator has now obtained all the organisational data necessary and forwarded copies to each Division for information. It is obvious from his discussions at the Defence School that a network based on sound operating lines must be established for any sudden emergency, and this is the logical role of the W.I.A. I enjoin all Divisions to take the greatest interest in the Federal plan so that our interests and usefulness will not be lost to the Authorities. There are also other avenues into which our energies may be released and you may rest assured that these are being thoroughly explored by Federal Executive.

OLYMPIC GAMES RELAY

"This matter was carried out on an official basis with the Authorities and the Department co-operated to the extent of sending official cablegrams to not only the Greek authorities but also to any countries that might be concerned with the relay. The message of greeting duly left Mt. Olympus in Greece via the Athica Radio Club and was relayed via various stations to VK7W/P situated on Mt. Olympus in Tasmania, whence it was sent via VK3WI and presented to the Olympic Organising Committee and delivered the day prior to the opening of the Games. I wish to express my personal appreciation to all who took part and organised it with especial mention to the Postmaster-General's Department who officially organised the administrative and financial side and approved of this unusual but friendly gesture of goodwill.

MISCELLANEOUS MATTERS

"One of the most important matters that Executive was faced with during the period was in relation to Television receivers not conforming to the standards laid down by the Australian Broadcasting Control Board. Representations were made to the Postmaster-General himself and after much publicity by press and radio the matter was satisfactorily finalised for the members of the W.I.A.; members will not now be held responsible for interference to receivers not complying with the standards laid down, but of course should be encouraged to be helpful where possible to maintain good public relations.

"Another matter of import being dealt with at present is an application for the exemption from sales tax of equipment purchased by Amateurs for experimental purposes. This brief has meant a large amount of research work on the past history of the Amateur, especially in relation to his worth to the community, and has been the means of revealing a lot of incidents which will be duly recorded in the history of the W.I.A. for posterity.

"Short Wave Listeners' Groups are flourishing and many young potentials are becoming interested in this way, which when all is said and done, is the way most of us started out in Amateur Radio ourselves. All our younger generation are to be encouraged as much as possible as they will undoubtedly become the Amateurs of tomorrow.

"I think you will agree that the past year has been productive of many new privileges, but there remains a number of unfinished matters which the next year should see completed. I wish to express my sincere appreciation to the Awards Manager, the QSL Manager and the Traffic Manager, all of whom carried out their duties in the usual efficient manner. It is with regret that I have to report that Mr. Doug Paine has had to relinquish the post of Federal Traffic Manager and this office has now been taken over by Mr. Reg. Jepson to whom we wish every success.

"My thanks also go to the Contest Committee who have carried out their task with an efficiency and zeal, putting on a sound footing the recording of results of contests and the issuance of certificates and awards.

"I cannot let this opportunity pass without recording the honour bestowed by our Gra-

acious Majesty on Mr. Jim Corbin, VK2YC, and Mr. George Glover, VK3AG. Mr. Corbin's M.B.E. was well merited in view of his outstanding work during the N.S.W. flood disasters, and Mr. Glover's Coronation Medal was the result of many years service to Federal Executive in particular and the W.I.A. and Amateur Radio in general. My gratitude is also expressed to all Federal Councillors and other helpers not named in person who have all assisted in the well-being of the W.I.A. Last but not least are the other members of Federal Executive who have all helped to make my task as President less difficult and supported me in numerous ways. I thank them all for the unselfish manner in which they have assisted and trust they all have your confidence to give still more in the future. I can conclude now by assuring you that my own efforts are always at the service of the W.I.A. and that every effort on my own part has been with the prosperity and progress of the Institute in mind."

—W. T. S. Mitchell, VKSUM, Federal President.

DO NOT FORGET!

The closing date for copy for the January issue is 2nd December.

FIFTY-SIX MEGS, AND ABOVE

(Continued from Page 12)

Good going Rex, proves your old stamping ground to be a good v.h.f. spot. Interesting to note effect of antenna efficiency on this, because 5ZBN first heard on a folded dipole, just audible, only just too, and then the switch to the 5 el. yagi which brought the signal up in fine style.

Joe 5JO using a 16 el. beam and puts a very heavy signal across town S9 anywhere you like—nice going Joe. Tom 5TD, what's happened OM? Your signal won't travel east, another quiet one lately is Alf 5ZAL, how come Alf? 7193s go up in smoke?

Rumour has it that a number of the Z boys have knocked the morse over and will be appearing with two letter calls soon. Grape vine quotes ZBR, ZEN, ZDX, ZDF, ZAW and maybe others. Good shooting chaps, hope it's right. The October exam. will see another batch trying their luck for morse as well as a number starting from scratch—good luck to them also.—5EF.

WESTERN AUSTRALIA

The monthly meeting of the V.h.f. Group was held on Saturday night, 7th Sept., at D.C.A. Amenities Room. Attendance was not as good as it could have been, so shake it up you fellows. Business was soon cleaned up, thanks to our deputy chairman, Frank 6CC, and acting sec., Rolo 6EO. Our usual office bearers, Syd 6SJ and Ralph 6ZAD being unavoidably absent. The highlight of the evening was a very enjoyable lecture by Mr. Alan Jones, of the Astronomical Society, on an event due in the near future, namely the launching of the Earth Satellite. Mr. Jones covered all aspects of the project, aided by photos and diagrams and also plans whereby Radio Amateurs could help with suitable rx's and antennae. Mr. Jones proved himself master of his subject and judging by the vote of thanks, given in the approved manner, was thoroughly enjoyed.

Saturday night, 21st Sept., saw a number of cars at King's Park ready for the Fox Hunt. At 2015 the signal came on—boy what a signal—must be close handy or is it? Under the call sign 6ZAA/P. After some running about the fox was run to earth at Mill Point—the nearest place to King's Park, across where the Narrow Bridge is being built. The signal seemed to be sometimes fixed and then mobile, anyway he was very much portable when run to ground by Don 6ZAV and Roy who ran the car broadside across the road, at the time Ralph 6ZAD was right behind the fox, so the result was a dead heat. The fox's car was driven by Don 6HK with Wally 6ZAA in the back. Don, by the way, was supposed to be a missing link for the night owing to a previous engagement. I know what it was now—trying to fool us.

The clues make good reading, so here goes: Clue No. 1 open at 2100 hours. "Have you tried the new bridge? Remember it is only temporary and that you can't walk across it yet. Perhaps you had better look for a boat." Clue No. 2 open at 2130: "The transmitter? Carried by boat! Yes a Mayflower—94-358. per courtesy Mr. Don Graham. What a hound."

Never mind, it was a good night and chewed over during the very enjoyable supper and yarn that followed.—6ZAV.

YL CORNER

BY PHYL MONCUR*

"SATELL-ITIS"

We were going to the pictures, we were actually going to have a night out and an event like that, all XYLS will agree I'm sure, doesn't happen very often as there is always a sked or some other such thing to keep the OM home on a Saturday evening. It was to be one night when I could enjoy the sort of thing that normal human beings seem to find entertaining and it was really something to look forward to. For one night in my life I wouldn't have to listen to that incessant "CQ, CQ, your signal is so and so, the line up here is such and such, I'm using a pair of something or other in the final." Oh, if I don't know that routine off by heart.

Then half way through the morning the OM comes tearing down the passage shouting, "Quick, turn on the radio, the whole world's gone mad with excitement." Well I didn't know about the whole world, but I could certainly see the OM appeared to be imbued with some sort of madness. He was breathless, his eyes were nearly popping out of his head and excitement was a very mild term for the sensation he was obviously experiencing. Of course, the news was that the Russian satellite had been successfully launched and it wasn't long before our three harmonics and myself were beginning to feel some of his enthusiasm.

The youngest harmonic started to tune up his crystal set, the second harmonic got to work on his one-valver, and the eldest harmonic turned on his brain-child, a glorious contraption he has been creating for several months past specially to receive the satellite, while the OM made a wild dive to unearth from amongst cob-webs and years of dust, his 15 metre rig. The harmonics, of course, were all certain they could hear the signal; every scratchy bit of atmospheric was the signal to them. The OM, too, had imagination for some time, but then as the satellite, in its orbit, came nearer to us, a signal came through and there was no mistaking that it was coming from the satellite, itself. Slowly but most surely it became louder and clearer and we had the feeling we would be hearing key clicks at any moment.

The effect on your feelings was very exhilarating as the realisation dawned on you that such a wonderful feat had been accomplished here in our own time. To Radio Hams another great new wonderful world of possibilities had been opened up and even XYLS, both the enthusiastic type and the anti-radio ones, could all appreciate this.

My OM rang up every other OM he knew and every other OM that knows him, rang him also. Life became a series of listening to the signal and telling everybody else about it. Speculations went on as to how they got it up there and how long it would stay up. How were they managing to transmit on the frequencies they were and how was the signal getting through the ionosphere. Didn't we wish it was us who had put it up there.

Oh yes, we were going to the pictures that night. The OM never gave that another thought, and as for myself, I gave it just the briefest and then dismissed it. Do you know, for once in my life, listening to Amateur Radio seemed more important than anything else, believe it or not. The satellite signal, for the time being, had become the beginning and end of all. Nobody had any desire for meals and that was just as well as there was nobody at our QTH who had any inclination what-so-ever to prepare any.

We didn't go to bed that night till very, very late, we just couldn't bear to leave the receiver, we had to stay up and listen to make sure the signal was still going and to dwell in very pleasant amazement on the fact that the thing was still whizzing around out there after all that time had passed.

When the satellite began to slow down it was like waiting for the inevitable death of something you regarded highly. You didn't want it to stop but wished it could go on for ever and ever.

Well maybe Ham Radio and Ham husbands do get in your hair and nearly drive you crackers lots of the time, but at times like this, Ham Radio and its allied sciences are just gosh darn interesting even to the "anti-est of XYLS."

* 235 Union Road, Ascot Vale, Vic.



FEDERAL

50-54 Mc. FOR I.G.Y.

Federal Executive is pleased to announce that following representations to the Amateur Administration, approval has been granted for the Amateur Service to use the 50-54 Mc. band until December, 1958.

In view of the activity in meteor scatter propagation during the I.G.Y. and other fields of experiment, it is expected that the band will regain its former popularity.

VISITORS AT EXECUTIVE MEETING

Some Interstate visitors attended a recent Executive meeting which had been called for the purpose of discussing the forthcoming I.T.U. Conference.

Said visitors had been attending a C.D.O. school at Mt. Macedon and came down especially to hear details of the organisation at the I.T.U.

Bob Goodsell, VK2ZRG (VK2 Federal Councillor); Vince Jeffs, VK4VJ; and Evan Fell, VK4EF, were given a warm welcome by the President and entered fully in the discussions.

LIST OF PERSONS WHO QUALIFIED FOR AMATEUR OPERATOR'S CERTIFICATES

New South Wales

- L. R. Baber, 1 Roslyn Street, New Lambton.
- A. W. Ballantine, 34 Finlayson St., Lane Cove.
- M. D. Bested, Box 446, P.O. Griffith.
- *C. J. Charman, C/o. Post Office, Bolwarra.
- *E. G. Clare, Box 146, P.O. Griffith.
- V. W. Davey, 152 Sutherland St., Paddington.
- *B. J. Foster, "Avoca," Glials, via Gunning.
- R. Grivas, Box 20, P.O. Griffith.
- H. E. Jacobs, 8 Whitton St., Griffith.
- J. F. Jorgensen, 142 Edinburgh Rd., Castlecrag.
- R. E. Lynch, 33 Temple St., Stanmore, Sydney.
- R. M. Marsden, 43 Houston Rd., Kingsford, Sydney.
- *I. M. McCosker, 122 Warialda St., East Moree.
- *W. T. Nickoll, 1 Rex Ave., New Lambton.
- *T. Rilks, C32 Vowels Rd., R.M.C. Duntroon, Canberra.
- G. H. Simpson, 19 Degnane St., West Tamworth.
- L. R. Williams, B5 Quarters, Royal Military College, Duntroon.

Victoria

- *R. J. Abell, 87 Marshall St., Ivanhoe.
- S. J. Beaton, 101 McKinnon Rd., McKinnon, S.E.14.
- *R. A. Bourne, "Baroque," Main Rd. Lower Plenty.
- *K. G. Bridger, 261 Wood St., Preston, N.18.
- *C. G. Broadhurst, 65 Church St., Geelong West.
- *J. Clark, 2a Sefton Place, Camberwell.
- *G. W. Cunningham, Armidale Rd., Sth. Grafton, N.S.W.
- *R. J. Daldy, 18 Valentine Ave., Horsham.
- W. J. Dennis, "Marandee," Hexham.

CONTEST CALENDAR

Compiled by the W.I.A. Federal Contest Committee.

★

R.S.G.B. PHONE CONTEST—

Bands: 21/28 Mc., Phone only.
Date: 23rd-24th November.
Rules: As for 1956.

ROSS HULL MEMORIAL—

Bands: 50-54 Mc., 56-60 Mc., 144-148 Mc., 288-296 Mc.
Date: 1st December to 31st Jan.
Rules: As published. Amendment: 50-54 Mc.

B.E.R.U.—

Date: January, 1958.
Rules: As for 1957.

- *N. D. Dunn, 6 Sussex St., Blackburn.
- *O. P. Fudge, 65 Elliott Ave., Carnegie.
- *A. F. W. Haddrell, 13 Reid St., South Morang.
- *K. J. Hartigan, Sldonia, via Kyneton.
- *W. J. Hewitt, 25 Victoria Ave., Ballarat.
- *E. S. Hobson, Devon North, via Yarram.
- *J. Hudson, 46 Donald St., Highbett.
- A. E. King, 1 Bevan St., Balwyn.
- E. L. McCarthy 512 Bell St., Ballarat.
- *L. G. McCluskey, 13 Holloway St., Newport.
- G. J. McDonald, 41 Norman St., Wendouree, West Ballarat.
- K. J. D. Moore, 94 Middlesex Rd., Surrey Hills.
- *C. P. O'Brien, Sgt's. Mess, School of Wireless R.A.A.F., Ballarat.
- *M. J. Owen, 466 Burke Rd., South Camberwell.
- *C. W. Quirk, Burwood East P.O. Store, Burwood Rd., Burwood.
- M. A. Tralli, 84 Argyle Rd., Kew, E.4.
- *I. C. Thomas, 4 Graham Place, Box Hill, E.11.
- M. A. Webb, 41 Porter St., Prahran.
- H. A. Willis, 3 Westbourne Gr., Camberwell.
- *J. M. Withers, 32 Devon St., Heidelberg.
- *L. Zschech, Parkside, Hamilton.

Queensland

- E. A. Gardiner, 63 Svensson St., West Bundaberg.
- R. D. Grandison, Mt. Crosby.
- J. D. Griffin, 14 Aubrey St., Camphill, Brisbane.
- W. A. E. Flannery, 220 Gladstone Rd., Dutton Park, Brisbane.
- M. T. K. Power, 101 Wrls. Regt., Cabarlah Barracks, Cabarlah.
- L. L. Sharp, 19 Carl St., Thompson Estate, Brisbane.

South Australia

- *L. A. Bull, 14 Harcourt Rd., Payneham.
- D. A. Carthew, C/o. Station 5PA, Penola.
- B. A. Andersbe, 15 Holm Ave., Lower Mitcham.
- *H. A. Fisher, 17th St., Renmark.
- R. C. Grivell, 16 Silver St., Clearview, Adelaide.
- *A. B. Hollebbon, 26 Nelson St., Port Pirie.
- K. L. Metcalf, 60 Castle St., Edwardstown, Adelaide.
- R. A. C. Washington, 40 Swaine St., Rose Park, Adelaide.
- *G. Wilde, 112 George St., Norwood.

Western Australia

- *N. S. Gardiner, 24 Frederick St., Midland Junction.
- Tasmania
- *R. D. Summers, 355 St. Leonards Rd., St. Leonards.
- *M. J. Watson, 68 Lochner St., Hobart.

DO NOT FORGET!

The closing date for copy for the January issue is 2nd December.

FEDERAL QSL BUREAU

Cards have recently come to hand from ST2AR for contacts made in 1953. It never pays to give up hope—altogether.

Up to mid September, Chas. VK0AB had worked 106 countries. Apparently previous experience has been a factor in this fine effort.

Bob Cheesman (G3KDE), who operated VR3G during recent nuclear operations at Christmas Island (Pacific), advises that there are now no Hams left at the island. Bob QRT on 19th August while VR3G/F and H left a little earlier. VR3G ran 80 watts to a Globe Chief into 232 feet long wire. Rx was an AR88. Bob previously operated at SUIMQ and 5AITQ. He has confirmed all contacts made from Christmas Island.

AP2AD advises that the correct address for the AP QSL Bureau is Box 4074, Karachi, Pakistan.

The S.A.R.L. (Johannesburg Branch) has taken the initiative in organising action against commercial stations encroaching into Ham bands. In a circular to other branches and member societies, they suggest ways and means—if concerted action is taken—to force the interlopers from our bands.

The S.S.A. states that during the past seven years since the W.A.S.M. award was introduced, over 1,000 certificates have been issued. They have received many commendations over the nature of the award, which is original and in the shape of a small table cloth. How-

ever, due to rising costs of manufacturing the award and to increased postage charges, they have been reluctantly compelled to increase the charge to 10 Swedish Crowns or its equivalent but NOT in international reply coupons. The amended conditions are available from the VK Awards Manager. Arrangements are solicited whereby claimants for the award can submit their confirmations to the VK Awards Manager for checking to avoid the long delay in posting the cards direct to the S.S.A.

Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The general meeting of the New South Wales Division was held at Science House, Gloucester Street, on Friday, 27th Sept. Mr. Hans Ruckett, VK2AOU, who is known for his articles in "Amateur Radio" and his work on T.v.i., gave a very informative and interesting lecture on the necessity for selectivity in transmitters. Hans described various experiments he had made in checking harmonic content of different methods of coupling, illustrating each method by drawing the different circuits and setting out in graph form the results of the tests made. At the conclusion of the lecture a discussion on the points in the lecture was led by Max 2OT and a hearty vote of thanks to Hans was moved by Maurie 2VV.

There were several points of interest arising from the formal business of the meeting. A notice of motion, which had been given by Graham 2AGH, "That the Wireless Institute of Australia should be represented at the International Telecommunication Union Conference to be held in 1959," was discussed and carried unanimously. Members speaking quoted the statements made by representatives of commercial interests over the last few years of the value the Amateur bands would be to them. Also it was noted that more and more commercial interlopers are appearing on our frequency allocations. The feelings of all speakers was that every effort should be made to ensure that a representative of the W.I.A. attend the Conference in order that our views along with other Amateur Societies are fully voiced.

It was noted with regret that Roy 2HO had, through personal reasons, found it necessary to resign from Council and would be unable to take part in the discussions at the C.D.O. School at Macedon, Vic. To fill the vacancy on Council, Dave 2EO, our Engineer at Dural and well known to you all, was co-opted by Council. Dave takes over all the responsibilities of the Divisional Station at Dural. To take over the duties of C.D.E.N. officer and attend the school at Macedon has become the responsibility of our Public Relations Officer, Bob 2ARG, whose appointment as Federal Councillor for N.S.W. was confirmed by the meeting.

The Chairman, Pierce 2APQ, gave an outline of discussions which had been had, on the desirability of obtaining a paid assistant to attend to the large volume of clerical work and that Council had decided that the move was long overdue, and was essential in order that better service could be given to members generally and particularly those outside the metropolitan area. It was pointed out that at the present time it is thought that the title of Paid Clerical Assistant would be the best, who would be required to carry out duties specified by Council under the guidance of the Hon. Secretary. The suggestion of a three-month trial period commencing 1st October was discussed and a motion that the period be extended until February was carried.

(Members are advised that position has been filled and remuneration is an honorarium.)

Another appointment was also confirmed. The position of Divisional Auditor has been accepted by Bill 2AWY, of Orange. Our thanks go to Bill for accepting the position.

The Divisional A.O.C.P. Classes will recommence on 6th and 7th November, and will be

SILENT KEY

It is with deep regret that we record the passing of:—

Ex-VK6LA—John Jamieson.

**ANNUAL
FIELD DAY
N.S.W. DIVISION W.I.A.**

will be held on
SUNDAY, NOVEMBER 17

★
Registration commences 10 a.m.
at the
GOSFORD SAILING CLUB

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Competitions for all—
7 Mc. Scramble, 144 Mc. Hidden
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VICTORIA

held in the Railway Institute rooms, Castle-
reagh St. There will be a series of forty-six
lectures which will be given by Leon Parr-
Smith, 2AOJ. Full details will be given upon
application to the Secretary, Box 1734, G.P.O.,
Sydney.

The meeting also discussed action to be
taken in regard to unfinancial members and
it was decided to notify all who are unfinancial
and take action in accordance with the Con-
stitution.

The Divisional Field Day will be held at
Gosford on Sunday 17th November, in the
Gosford Sailing Club premises and adjoining
Park. A full programme is being arranged—
all the usual events, 7 Mc. scramble, 144 hid-
den tx hunt, swap section, disposal gear, and
events for the XYL, YL and harmonics. Reg-
istration will be at 10 a.m. Come along to the
Annual Field Day at the new location.

A successful Field Day was held at Black-
alls Park by members of the Hunter Branch
on 5th and 6th October. See the Hunter Branch
notes for full report.

As these notes are being written much activ-
ity is taking place tracking the Russian satel-
lite's transmissions on 20.002 and 40.005 Mc.
Among the stations heard comparing notes
were 2ADT, 2WH, 2AGH, 2ARG, 2JR, 1AIL,
2APP. No doubt there are many others and
it is hoped detailed reports will be sent in
to the Federal Secretary for compilation into
a complete report from the Amateurs in Aus-
tralia.

HUNTER BRANCH

The Sept. meeting of the Hunter Branch was
held at the usual location with 15 members in
attendance. Lionel 2CS lectured on a g.d.o. and
illustrated his points with a display of gear.
Discussion followed on arrangements for the
6th Blackalls Field Day and a committee meet-
ing was arranged for Sept. 25 at 2XT's resi-
dence to finalise matters.

Quite a few of the locals experienced the
peculiar conditions when the Aurora Aus-
tralia was at its peak on the night of Friday,
13th. Our worthy President, Lionel 2CS, was
right on the ball and is forwarding a report
to the I.G.Y. people via VK2 Division Hq.

At Matland, Vic. 2AKP has been in the
news, Vic., who is Deputy Sheriff of that
fair city, provided the communication in a
mock "flood emergency" staged by the Hunter
Civil Defence Organisation. Although he only
transmits on his beloved 10 mx band, Ernie
2FP, the old "Fox Trot Papa," does not miss
any doings on the other bands. Congrats to
Vice-President Stewart 2ZDF, who made his
debut on 144 Mc. with a DX QSO with Gos-
ford. Billiards champ., Bill 2ZL, and his pupil
Bob 2AQR, have been getting across the Tas-
man in fine style on 40 mx phone.

Secretary Chas. 2ARV is chasing yet another
DX award and seems certain to get it. This
time it's for QSO with 30 Hams in Virginia
this year. All were pleased to hear former
Branch member Bill ex-2MC, now 7MC, call
in on the 2AWX hook-up recently. Varley 2SF
is another who has been running regular
skeds to ZL on 7 Mc. phone. Hearty congrats.
to Bill Nichols, who recently got his ticket,
and will be adding to the QRM soon. Ears
were pricked when 2BZ's call sign was heard
on 40 mx, but it was Jack 2ADT on the mike.
He was staying with Dave during school holi-
days and visited some of his old Hunter v.h.f.
cronies. With spring in the air, our young
blood, namely Rodney 2CN, can't spare much
time for hamming. Lucky boy!! Harry 2AFA
has had a spot of rx trouble, but received his
90th and 100th countries confirmed and is now
applying for his DX C.C. Treasurer Bill
2XT will go to town on h.f. and v.h.f. when
he gets new 70 ft. poles (complete with cat-
walk) erected. A recent visitor to local shacks
was Harold 2AWH, who was installing v.h.f.
gear in this area. Leo 2QB has been having a
crack at the Ws on 20 mx phone in the early
evening.

The next meeting of the Branch will be held
at the University of Technology at Tighes Hill
at 8 p.m. on 8th November. Listen for 2AWX,
the official Hunter Branch Station, each Mon-
day evening on or about 7050 Kc. at 2000 hrs.

BLACKALLS FIELD DAY

The attendance at the 6th Hunter Branch
Blackalls Field Day, held on 5th and 6th
October, was over 100 persons comprising Hams
and their families, associates, visitors and the
Radio Inspector.

Those present came from Brisbane, Kemp-
sey, Muscle Creek, Singleton, Cessnock, Wyong,
The Entrance, Gosford, Sydney, Tamworth and
Newcastle.

The show opened on Saturday afternoon with
heats of the Blindfold Tx Hunt (an event
originated by the Hunter Branch). This was
followed by a Hidden Tx Hunt on 144 Mc.
commencing at 7 p.m. The tx was found by
Ken 2ANU in 25 minutes, closely followed by

John 4FP with Neil Connors, associate, in 3rd
place. Films were shown by Vice-President
Stewart and the Saturday events concluded
with a business discussion with the State Pres-
dent, Perce 2APQ.

The Sunday events commenced with a 144
Mc. Hidden Tx Hunt from 9 a.m. to 11 a.m.
The tx was hidden 6½ miles from the Black-
alls Park and was found in 38 minutes by
Geoff 2VU, in one hour 2 min. by Harold
2AHA, and in one hour seven min. by John
4FP. Following this was the 2WI broadcast
from 2AHT's QTH and the 7 Mc. Scramble at
11.30 a.m.

After lunch further heats of the Blindfold
Tx Hunt were held including heats of the
Ladies' Blindfold Hunt. The All-Band Scram-
ble was then held and the activities closed
with the presentation of prizes and the pre-
sentation of a reading lamp to Pat Lobigar, the
District Radio Inspector, who is being trans-
ferred from the district.

The results of the Contests were as follows:
Ladies' Blindfold Tx Hunt: Mrs. R. Bailey, 1st;
Mrs. G. Sutherland, 2nd. 144 Mc. Hunt (Sat-
urday): Ken 2ANU, 1st; John 4FP, 2nd. 144
Mc. Hunt (Sunday): Geoff 2VU, 1st; Harold
2AHA, 2nd. 7 Mc. Scramble: Harold 2AHA,



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1st; Noel 2AHH, 2nd. All-Band Scramble: Frank 2AFP, 1st; John 4FP, 2nd. Blindfold Tx Hunt: John 4FP, 1st; Noel 2AHH, 2nd. Ladies' Lucky Number: Mrs. C. Archbold. Men's Lucky Number: Norm Otley.

The Hunter Branch Social Committee thanks Jim 2AET for making his station available for 2WI broadcast, Bill 2XT for providing accommodation at his lakeside QTH, Doug 2ADS for providing the hidden tx, Lionel 2CS for selecting the sites for the hidden tx, Les 2AOR for hiding the tx's, and to any others that assisted in any way, the Committee extends their thanks.

VICTORIA

By the time these notes are being read all the preliminaries leading up to the Annual State Convention to be held at Colac on 9th and 10th November should be about complete. The South Western Zone will also be hoping for fine weather no doubt. Here's hoping they get their wish and the best of luck for a very successful Convention.

The night of the 2nd October was rather cold and attendance at the general meeting on that night was below average. However, those who did attend were well rewarded as that was the occasion on which Roth Jones, 3BG, presented an illustrated travelogue on his recent trip abroad. Roth has only recently returned and it was very interesting to hear and see slides of events which were only three or four months old. As Roth explained his trip was for business purposes and naturally this theme was evident in his lecture, but Roth is also a Ham and his observations in this direction were equally well covered for our benefit.

Actually his journey consisted of a trip around the world because, after leaving Australia he visited the U.S.A., Great Britain, Europe, the Middle East and then home again to VK.

The slides did not cover the U.S.A. as the camera was not procured until reaching G.B. but Roth made up for any deficiency on this account by giving a brief resume of his travels through that large country. Of particular interest was a system he unearthed over there for catching rare DX. Various groups roster themselves for all night vigils, then, when the rare one is heard, members are alerted by means of a very elaborate 2 mx alarm system. Some blokes sure get keen!

From there on we not only heard about the places visited, but were also shown slides of very great interest from an historic and educational point of view. Roth is to be congratulated on his very able photography and extremely interesting commentary. By means of the latter it was very easy to imagine oneself by the speaker's side at those far away places and I for one was with him at every stage of the voyage.

The only trouble with talks such as these is that they whet your appetite for the real thing. Perhaps the Middle East would be a bit hot and arid for most, but the remainder would be very acceptable. Must remember to take up oil on my next visit to this globe.

News is a bit hard to glean these days. Except for commercials, activity on the domestic bands is rather scarce of late and those who do operate don't seem to be particularly interested in Institute matters or the "Gentleman's Agreement." In a way the c.w. men do not assist from their side regarding the latter as they are seldom heard on these bands and not so terribly much on the DX bands for that matter either. It seems a pity that activity, generally, has dropped off to such an extent within VK, as apart from keeping the local organisation alive, this is usually where the newcomer looks for his early contacts. Nothing dampens one's ardour for Ham Radio more than fruitless searching for a QSO, so, for the sake of the oldster and the newcomer (the backbone of the Institute) alike, what about a bit more local activity? There are always plenty on during "tests" so why can't we popularise other forms of activity likewise? Perhaps the days of rag chewing, skeds, and round tables are out of date, but why can't we have regular times, properly organised, for other mutually interesting objects? Has anyone any ideas he would like to air on this subject? If so, let's have them and help to get things cracking.

Complaints of inactivity are also evident in other directions. For instance both the 80 mx tx hunt and the 2 mx fox hunt are languishing for the want of support. These activities are arranged for the benefit of all interested

members and their continuance depends entirely upon your attendance and participation, so what about giving the organisers a little encouragement. These activities are particularly suited to the newcomer to Ham Radio and all are invited to attend.

This subject can probably be best rounded off by re-stating the old adage that "you only get out of a thing what you put into it." If you are not getting all that you expect out of Ham Radio then why not try putting something in? The method of approach is up to you but there are plenty of avenues as yet untouched. Don't leave things to the enthusiastic few. It's your organisation so protect your interests. Moral support will not do this for you.

Of interest to "slow morsters" is the following message copied from ZKF by Don Bauch, of region five in the fire net.

"It is regretted that for technical reasons this broadcast will be discontinued after September, but it is hoped that the service will be available in the New Year."

New members admitted at the October meeting: Full Members—W. H. Kerr (3AWK), W. A. Ferrer (3GF); Associates—J. P. Inglis, H. C. McClellan, S. G. Reid, M. S. Maddern, D. E. Hosken.

MIDLAND ZONE CONVENTION

These notes open with an apology for the absence of any last month, but, unfortunately, the Asian flu caught up with your correspondent, amongst other things.

The long-awaited Zone Convention to establish this new zone came and went with a very mild fan-fare of one trumpet softly blown by Neville 3ACN who put in a lot of time and energy towards the organisation of the Convention, with a disappointing return. However, those who did get along to Bendigo found the time passing very agreeably, and enjoyed themselves. Those present included: SYS, 3WJ, 3DG, 3APJ, 3KO, 3AIM, 3ED, and 3ZAW. 3FO was present for a short time on Sunday afternoon. 3TG and 3ARS also made an appearance on Sunday and Neville has informed me that he was calling Pix 2ARS all week-end. Whether this is a compliment, or otherwise, doubtless depends on where you live. Having no wish to pick a fight, I will remain strictly neutral.

Saturday night was spent at Neville's QTH where a film was screened, followed by supper. Peter Symons, the local Police Technician, attended, in an unofficial capacity we are glad to say, as also did 3VV and 2AMK. The new R.I. displayed a transistor portable to the delight of all present.

On Sunday the group visited the local Telephone Exchange where interest was restricted to the apparatus and not the attendants.

On Sunday afternoon a tour of Bendigo mining sights under the able direction of Cyril Michelsen was made, and although the only free samples available were taken from the mullock heaps, the history of gold and the quantities taken out of the Bendigo district in the past must have made some of the vis-

itors wish they had been around when it was freely available.

Unfortunately, the small numbers present precluded any large scale activity or official business concerning the zone, but even so, a pleasant week-end was helped along by pleasant company and weather.

The R.D. Contest has been and gone with the most notable performance being displayed by Peter 3IZ, who worked stations all night and on into Sunday afternoon. Feeling somewhat tired he decided to have a refreshing bath, but promptly went to sleep in it for the rest of the afternoon. If his score does not become the highest for VK3, at least he will have the honour of being the cleanest operator. 3FY aimed for 200 contacts, but was flat out searching out 86, mostly due to a recalcitrant 807 which developed an internal short immediately prior to opening of the Contest. A hard learnt lesson therefore is to check one's bottles beforehand, and not afterwards.

WESTERN ZONE CONVENTION

We had an extra good Convention as 18 full members, six interested, and a number of YLs, XYLs, etc., totalling well over thirty had dinner at the hotel. It was a very successful gathering. Those present came from Serviceton, Berrillock, Ouyen, Birchip, Nhill, Horsham, Stawell and other places in this area.

The meeting decided to send two agenda items for the State Convention. The Scramble on 40 mx was won by Allan 3HL, of Callawadda, assisted by Keith 3AKP, of Stawell. The trophy for outstanding contacts on v.h.f. during the past year was won by Max 3ZCW.

Office-bearers for the coming year are: President, Bob 3ARM; Vice-Presidents, Trev. 3ATR and Herb. 3NN; Secretary and Treasurer, Bill 3AKV.

After proceedings finished in Warracknabeal we all adjourned to Trev. 3ATR's place where he and his good XYL, Lynette, entertained us with afternoon tea. Some of the more fortunate were also able to stay for tea. All were greatly impressed by Trev's transmitter, receiver and antenna set-up. The impressive antenna array consists of lattice steel masts 84 ft. high supporting the various vee beams which originate from the main apex mast. This latter mast also carries the feeder selecting device. At a later date we will have to ask Trev, for a detailed description of his set-up as I am sure this information will be of great interest to all, especially those interested in working DX.

EASTERN ZONE

Fine weather gave a good start to the monthly fox hunt which was held on 28th Sept. in Gordon 3TH's locality at Yinnar. The Hazelwood Plains proved to be unsatisfactory as the five hounds could follow the fox, Ian 3AAV and Gordon 3TH, by the cloud of dust from the gravel roads. To overcome this, the last run was in the form of a hidden tx hunt, in which Ian became firmly bogged. This always seems to occur in our hunts.

David 3DY, Margaret and Stan 3ZAB were the winners for the day, making quite a few catches, with s.w.l.'s Ron and Allan from Moe, second, and Geoff Orton third. Jack 3AJK and Terry were fourth, and George 3ZCG and Ken Rogars from North Yallourn were last. Graham 3QZ and Ron 3PR followed the hounds in their car.

Stan, from Yarram, who was successful in passing his examination, is awaiting his call sign. Graham and his wife are now back from their holiday in the Pacific. Ian 3AAV and George 3ZCG have now moved into Moe, and are busily setting up their equipment again.

There will be no 2 mx fox hunt this month as it will be so close to the State Convention being held at Colac. Try and make the State Convention, everybody, and bring your hounds along to put on a great show.

Our next fox hunt will be held on the last Sunday in November at Moe, starting after 1 p.m. Everybody is welcome.

SOUTH WESTERN ZONE

Most news this month is centred on the Geelong-Colac area. By the time this goes to press the State Convention will be ready at Colac, where Chris. 3AXU and Gordon 3AGV are hard at work preparing for all and sundry. Gordon is back on 2 mx and by now should have worked his 100th station. He was heard in Geelong and worked by 3AWZ and 3ZAV. Jack 3SY is very keen on television, but in spite of this interest, conducted us over the local b.c. station and all had a most enjoyable evening.

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A night on home-made receivers for Ham bands drew a good crowd and the pros and cons of many designs was discussed. Converters and their advantages also extended the discussion.

An 80 mx tx hunt was held in the Lovely Banks area—a good crowd rolled up. Vic Clarke won both hunts by finding Bob 3IC and K. Mills in quick time.

The recent hobby exhibition in our city saw a strong support from local Hams as over 20 items of equipment were exhibited. 3ZAV and 3IC did an excellent job with contacts throughout the State on 80, 40, and 2 mx.

Ted 3AEH led a discussion on mobile equipment (he knows all the answers). The type of power supply, whip antenna, receiver requirements necessary were debated, and a list of points on the above was presented.

Our congratulations go to Bill 3BU on his fine recording of signals from the recently released satellite, and his publicity of Ham activities in this location.

See you at the State Convention at Colac on 9th and 10th November.

MOORABBIN AND DISTRICT RADIO CLUB

It's a long time since we have sent in notes on our activities, so here are some to remind those non-attending members that we are still going strong. Congratulations first of all to Club President, Stan Beaton, formerly 3ZEB, who has now been able to drop the "B" and become 3ZE. That speaks for itself. Congrats also to member Jack Hudson, who recently became 3JEF. Stan has now deserted 2 mx for 40 metres, and Jack is active on 2 mx. Keep at that key, Jack!

The Club had an emergency get-together on Sunday morning (6th October) when we had to turn out in a hurry to remove our antenna mast. The land was being cleared for a new building. When we got there guy wires on the steel mast had been cut, the mast had come to rest on a nearby tree which in turn had been chopped down, thus lowering the mast to the ground. It saved us the job.

The new tx (Geloso, 807 pi-coupler) has been built, thanks to the hard work of Cliff Williams, who made the chassis and cabinet, and Max Nichols, who built the rig. It looks a nice piece of work. Thanks are due to both boys for a fine showing of club spirit, and many thanks to all who donated parts. When we get a wire up again, and when the power supply is hooked up, then maybe 3APC will be heard on the band again.

The annual general meeting and election of officers will be held this month on 15th Nov. and the annual picnic will be held early in December. Watch for the date.

QUEENSLAND

MARYBOROUGH

4DJ is building a converter with high power gain. Grahame has been doing most of his operating on 10 and 40 mx and soon hopes to have a quad working on 10 mx. 4CB, after working a W with his 10 mx quad a foot off the ground hoisted it onto the top of his 60 ft. tower and has been getting among the DX. He reports four new countries, 4AI and 4GH are still silent, but 4AI is doing some work on his table-top rig. 4BG worked UA00M in zone 23 on 14 Mc. c.w. At Gympie, 4HZ has his tower complete but no beam yet. 4LN made a comeback on 7 and 14 Mc. 4LN and 4XR are getting gear going on 2 mx, so look out you Brisbane 2 mx men for some DX soon.

TOWNSVILLE

At the last general meeting the boys were very disappointed that Joe 4JH, who was the lecturer for the night, failed to turn up. Quite a number of the other stalwarts were also absent. However the 10 members present settled down to a real honest to goodness rag-chew and the time passed very quickly. Eric 4EL was heard to promise on the air that Ted 4EJ would be the first to slip off the stool. VK2 and VK5 please note. It was heard on the grape vine that Nick 4WT is disposing of his Ham gear in preparation for assuming double harness. All the best of good wishes from the Club, Nick.

Vern 4LK was again unsuccessful in getting a signal on 144 Mc. down to Townsville even though 4ZAK, 4ZAY, 4CE, 4RW were trying hard with different types of antenna to receive him. Norm 4ND, at Home Hill, is back on the air again after a long absence and is busy modifying a receiver for the Ham bands. Bob 4TK is busy getting his v.f.o. working and suitably calibrated for all bands, and is asking all and sundry for information. Basil 4ZM appears to be having a spell off the air, while Bill 4XM is making a comeback. Andy 4BW can still be relied upon to come up and give

signal reports and if time permits he will join the ragchews. Alan 4BE, John 4DD and Ted 4EJ are still managing to work into England on 10 mx on a few occasions, but band does not hold in more than 30 minutes at a time. Two associate members will face the barrier in October for a Z call sign. The gang wish these members all the best at this time.

Amongst the many visitors this month were 3AHJ and 3AHL. Ron and Lance were visiting the north on a flying holiday. I was very glad they dropped in as I now have my SCR522 working on 144 Mc. We hope they enjoyed their stay on South Molle Island and are still fancy free. I paid a visit to Frank 4FC at Ingham, who besides being interested in Ham Radio, finds time to be an amateur cook. His buns would put many an XYL to shame. He did not have time to put in the mulberry pie though when I dropped in. News is very scarce this month due to the fact that I was unable to listen because of a high noise level and low voltage.

SOUTH AUSTRALIA

If anyone ever kicked against the wind, our lecturer at last meeting, Ray Tuck, 5BT, did in a big way. He was to have shared the lecturing with Bob Roper, 5PU who at the last minute had to take to the cot with 'flu, so Ray valiantly carried on alone. In spite of this Ray did a splendid job, in first of all setting up the gear, some of which he had not handled before, and then demonstrating harmonic leakages via power lines and methods to minimise them, a vital factor in modern transmitter design. A super-regenerative detector circuit was used as a harmonic indicator, a very successful one at that due to the squelch when tuned to a signal; the output of this was fed to an audio amplifier to enable all present to hear results.

An 8 Mc. xtal osc. was used as a harmonic generator, which gave out readable frequencies to 85 Mc., this was modulated fully by an audio osc. using a 7183 to a 6V6. The power leads from this oscillator hook-up were variously brought through a network of filters, each with different choking and by-passing, which Ray used to demonstrate the effectiveness of the networks.

The field strength meter, as per "A.R." Nov., '56 was on display and is the one the T.v.I. Committee will be using to locate our harmonics when the "call to cure" arrives. A very business-like job of work too. All in all, a good down-to-earth lecture that gave us all plenty to think about and some real ideas of what to do and how to do it.

The lecture was preceded by the formal business of the meeting, including the welcome to 15 visitors, amongst whom were R. S. Sanders, VK1CI, and Pat Daveron, VK5KM.

The ballot for disposal gear distributed the whole of the previously acquired emergency net equipment, the indicated net members getting first priority and the remainder shared the rest. By large numbers of the sets will have been tried out and ready for use. The amount of work in obtaining these items, checking same and final distribution fell heavily on the shoulders of the disposals committee to whom we must give credit for a fine job done.

A very interesting letter from Tom 5TL gives the latest from that neck of the woods, advising a spate of visitors to "The Alice" including Gordon 5XU, Brian 5CA, Graeme 5XV and Bob 5RI, and it is understood, all in the course of science!!

Tom quotes some interesting items on QSL, etc., and as his location is a "sought after" one for contacts, quote the rest of his letter as received. "Today I heard a well known c.w. man using phone. The last time I heard him on phone must have been nearly 10 years ago and he informed me then that perhaps I might not be able to understand phone from his c.w. tx. Seemingly, it was one c.w. man to another and neither might understand the spoken word. Also heard a question of the ethics of QSL cards being despatched. The case in question was one where a certain VK5 had received a card from an SM6, reporting signals 449. As the party concerned was sure he had never worked the SM6, someone had blundered. Perhaps the SM6 really did hear the station concerned. I have overseas cards here and I have been told from elsewhere the station concerned really did call me. The whole thing must be taken as it lies in the log and not as outlined in a recent issue of "Amateur Radio," where the possibility of this sort of thing was explored.

"From time to time we have had the doubtful pleasure of seeing in print that certain VKs have 'fallen down' in the courtesy of a

QSL to an overseas station. This is bad enough goodness knows, without having the QSL position further confused.

"For the information of overseas stations I would state that, being a much sought after N.T. contact, I have carefully attended to the QSL position and cards have been sent, via the Bureau, for all contacts made unless arranged otherwise.

"SEW has returned to the U.S.A. and might show up under his old call sign of W5WVA. SEW has established himself about 130 miles out from here and is on the air using a Type 3. Saw him this week. 3AE has been on holidays and after flying to Sydney and back, left here by motor cycle for Darwin and Queensland. Frank reports calling on several of his VK4 friends and making more friends during his 7000 (and some odd) miles travelling. SEW reports interest in the erection of a cubical quad for 21 Mc. He is also the owner of a transistor equipped converter for five bands 'up' to 28 Mc. Even 5UL was amazed to see such a thing in Central Australia. Output is about 1600 Kc. Bob's only howl is that it has no r.f. stage and he is a bit far away from home (W8) to use it without. He also has a nice 80 watt Heath tx which he got from home. His W call was W8UHN.

"My time here is rapidly drawing to a close and I expect to be coming south early in the new year. Where to? Well, you tell me and we will both know. Everyone seems to be a bit secretive over it and, so far as I am concerned, there is no great hurry in view of the amount of time between this and the end of the year. Have commenced building one of the pre-selectors as per 5AX's article, after being assured by 5AX that 'it is really the goods.' Thanks to Les for bringing the piece of gear under notice. I have heard several comments on it and none unfavourable so far. Here's hoping mine works as well as the others when it is finished."

Many thanks Tom, pleased to be able to include some "Territory" news for the benefit of those who are anxious to contact you.

The unexpected sometimes presents itself in least expected places, as we found out at a recent Council meeting. It's not known whether the absence of Jim 5FO was responsible or not, but Jim Paris who normally would least be expected to delve into contemporary art, demonstrated most ably just how versatile was his mind and actions in that regard. The impact on his audience was alarming and held the supper programme up—ask him for a demonstration some day. Then not to be left entirely in the background on radio matters he reported, and very seriously too, that he had sent in a report on the recent Red Cross transmissions from Europe to the effect that he never heard them. We presume the report was readability 50 degrees below zero, with strength minus 9 plus. It would be hard to give a report on a signal not heard, and to date haven't been able to find out how you "don't hear" them and if you don't, how you fit it into the RST system. Give us the drill Jim for 1 m sure it would be handy for some of the phone blokes when a c.w. station calls them! Hi!

Then we have another really scientific character, Les 5AX, who has been carrying out some experiments on infra red lamp heating. Someone told him that the theory of such was that the ray from such penetrated the substance and heated from the centre outwards. Right, well now he wanted to keep his toes warm whilst sitting at the operating console, so installed one of these things to shine on the feet, figuring he wanted to heat the toes and not the shoes. Get it? Well, he was yapping away on 80 when suddenly a strong smell of burnt flesh prompted a QRX to investigate. Yes, Sir, the toes were hot all right, in fact the sock was charred and he has kept it to prove the story. Of course, a theory has been suggested that the infra-red ray frequency was such that his toes formed a self resonant circuit—you may be on to a new "cooking" method Les, don't give up easily.

You would imagine John 5KX would have an all-electric-plus house—well he has even external lighting in a big way for the benefit of visiting car parkers, but falls down on the lawn mower. Not only is the said lawn mower a two-tooter, but it has to work all day and night to keep the lawns clipped to keep himself fed to make his wool grow so that the revenue from the wool can provide the ready to buy chemicals to put on the lawn to keep the grass growing fast enough to keep him (the lamb, not John) fed. All very involved, but only a Ham could think out such a scheme.

Frank 5MZ has been playing up again, this time in Sydney. Stayed at Bondi with a team of 42 physical culture girls, thence on to Melbourne and Ballarat. Happo, you had time to catch up on some of the VK2 and VK3 boys, Frank.

The Mount Gambier boys are all going strong, Colin 5CJ sometimes on 40, but mostly on 2, Stewart 5MS not heard often but grabs any DX that is about, Bram 5AB doing some alterations to the sky wires changing the leg lengths of the vee beams, putting them up higher and erecting a tower—a lot of activity down his place generally. Tom 5TW back after holidays and on the job whilst Erg 5KU doesn't appear on the bands over much, did the contest toss you Erg? David SZAM has knocked the morse over and will be heard with two-letter call soon, Don (Associate) has his b.c. ticket now congrats to him, now follow it up with a Z and get cracking on v.h.f.

Claude 5CH has himself a new tower which with beam atop will bring the DX that much closer and easier to work.

Ron 5FY dropped in at an opportune time the other day, just as I was about to give the garden away, so over a cuppa we learned about the doings up the gibber way at 5WC. The boys here are still keen, even if depleted in numbers these days. Ron busy on mobile gear again now that the "bomb" is finished, in fact the said bomb now graduates to the classy car stage and if it is to sport a mobile rig it will really move up still further.

Keith 5MT and Col 5RO also visited this QTH recently and an enjoyable evening was had by all—that is except poor DX, but then the bands were bad that night, except one contact we had when the DX bloke complained of having a cold and his XYL having taken away his sure-fire cure, to wit: a supply of cold 807s. Spoil sports even in KA land apparently.

Wal 5DF, whilst still busy on 50 cycles, manages to get on 40 now and then and also to make some progress on the tabletopper. Alf Mack has his rx coming on well and may even out-do Wal yet. Pat 5LT was to have raised his cubical quad by the end of September, but poor weather on the days the muscles felt like it and good weather when they didn't, slowed the job down a bit, hope it's up by now.

George 5GA and Norm 5YM not heard on these days, how come fellows? Even an occasional break will get you into the feeling again, so let's hear the voices.

WESTERN AUSTRALIA

At the Divisional meeting on 17th Sept. the programme included a discussion and demonstration of "Some Aspects of Modern Side-band Transmitter Design" by 6RU. Jim gave a very able and interesting description of the gear, and this was recorded and broadcast over 8WI on the following Sunday very successfully.

C.D.E.N. rules are being promulgated for the inauguration of C.D.E.N. in this State. 6MK is in charge of the operations and with his experience in such matters, success is assured. Co-ordination is an essential, and once the network starts to function, an efficient emergency communication system will soon be built up.

As many towns in W.A. are dependent on one single wire for contact with the city, Amateur Radio is the only alternate link for immediate emergency use. Quite a number of VK8 Amateurs have indicated their willingness to co-operate, and where there are vital gaps that need filling, a special effort will be made to arrange Amateur participation to provide full coverage.

The 40 mx scramble took place on 22nd Sept. and from observations there must have been a record number of VK8s on the band. An hour between 11 and 12 a.m. and another from 2 to 3 p.m. gave ample time for any station to make two contacts with each other during the day. Over 800 miles separated the northern from the southern QTHs. At the time of writing these notes, results of the scramble are not yet to hand, but the winner will receive the President's Trophy. Last year's winner was 6TH.

This year has been the first for many years that 8WI has provided good coverage with the 40 mx band only, and as the winter conditions are now nearly over it should not now be necessary to use 80 mx and 40 mx to cover the near and distant areas.

Short distance communication on 40 and 80 mx seems to have been little affected by the appearance of the Aurora during the latter part of September. Signal strengths generally remained as usual, or perhaps a little better, but rapid flutter was noticeable on the more distant stations on these bands.

6JG and 6TL have given their 101 sets a face lift and produced a very good portable, by adding 6V6s and Helmsig modulation. 6FD was for many years on the Goldfields and recently took a few days off to visit the home town. 6DX, no doubt, had the red carpet out! 6BE also visited Kalgoorlie and was heard

working portable. 6MO is to move from Wathorpe when the magnetic observatory is shifted to a location nearer Perth. City Hams should then see more of Alan.

We regret to record the death, during September, of an old timer, John Jamieson, of Kalgoorlie. Although John had not held a call sign for many years, the older members will remember him as the original holder of the call VK6LA.

TASMANIA

NORTH WEST ZONE

There is no doubt that we live in a rapidly advancing age. It is only a short time ago that television was head line news as it made its debut in Australia. Now, of course, we have been supplied with an artificial satellite; Hams throughout the world "sat hunched over their receivers" as our newspaper said, early in October listening to the emitted signal. I presume one would call the transmitter Airborne Mobile? In any case it's right out of this world!

Congrats to Len 1LE and Bill 7YJ for their efforts in the matter. Back to more mundane things I guess. Our bi-monthly meeting was held at the home of our new Secretary, Max, at East Devonport. Max already has his shack with his home-brew on the bench. Receiver that is, not intoxicating liquor. All he needs now is a tx to go with it. There is even a half wave doublet on 40 mx. Terry Tongs, one of our new associates, brought along a transistored xtal set. Gives loud speaker volume with only 1½ volts on the plate, er, emitter or wherever the h.t.—er—I.t. connects. Well, it works anyway, I heard it.

DO NOT FORGET!

The closing date for copy for the January issue is 2nd December.

By this time our President, Sid 7SF, had arrived, so the meeting commenced. The tape recorder which George Graves has been building for the last two years was produced to replay a lecture given in Hobart recently. Unfortunately, background noise became very severe on two or three occasions during the recording. Good work anyway, George, it worked well.

The meeting closed in harmony with the usual auction conducted by Ted 7EJ. I understand Dennis 7DR has at last acquired two masts. Forty-five feet long, no less. Anybody with a spare helicopter to erect same?

President Sid 7SF heard on early in October. Did the satellite scare you, Sid? Leon 7JP paid a recent visit to Burnie on business and was entertained by yours truly at Wynyard.

PAPUA—NEW GUINEA

This month I would like to give a big welcome to Mrs. Ruth Donovan who will be the one and only VK9 YL. Ruth hopes to get her old call sign back. She is busy building a house at present so it will be a while before her rig is going again. I would also like to welcome an old timer, VK9BP. Bernie has been silent for some time but now he is back in Moresby he hopes to be here for some time and become active again. Hope it will not be long before we hear you from your new QTH Bernie and all the best in DX. Doug 9SF has gone QRT. He is moving to a new location and is dreaming of a W8JK antenna which he hopes to get out of the scrap heap. Norm 9NT is pushing so much power up the antenna that he is having trouble keeping power transformers up to it. How many have you blown up now Norm?

I would like to draw everybody's attention to the slow morse transmission from VK9WI every Friday night at 8 p.m. This broadcast continues for one hour and can be heard on 3560 Kc. Reports on this transmission will be welcome and should be addressed to the Secretary, Box 204, Port Moresby. Student members may have their work corrected if they send it with a stamped self addressed envelope to the Secretary.

A letter was received from F.E. reminding members that they can send guest editorials to "A.R.," so if any members of this Division have a pet subject they would like to put forward we would like to hear it. So what about it chaps?

Believe Frank 8FN was a very sick boy while crossing the Coral Sea, travelling on the Bulolo. I thought you were a better sailor than that Frank. A Christmas break-up dinner

will be held in the Boroko Hotel on 20th December and it is hoped to see a good roll up. If any of the members from New Guinea will be in Moresby on that date we would like to see you there, but please notify the Secretary so that a place can be reserved for you. A good night is assured with plenty of 807s, 886s, and more 813s, and the best part of the evening will be when the XYLs supply 88s as a desert.

The next meeting of the Division will be held on Thursday, 28th November at 8 p.m. in the R.S.L. Club Rooms, and it is hoped we will see a good roll up. Until next month best 73 and good DX.

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

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QRT. For Sale: H. duty dual pwr. supply 300v. 250 Ma., 800v. 200 Ma. 6.3v. and 12v., choke input, 866s, first class job, sacrifice £10. P.a. 814 two metres coils for 20 mx with fil. trans. on chassis, snap £5. H. duty modulator unit, 807s AB2 with s. amp. and power pack on one chassis, 6J7, 6C5, 6L6s, needs some under chassis wiring but components in 1st class order, gift £9. A. Shaw, C/o. P.O. South Brisbane, Qld. Phone J 6526.

SELL: Collins AN/ART13 Tx, complete with all tubes, cal. xtal and manual (2 x 837, 2 x 811, 1 x 813 new). Nearest offer to £55 takes it. J. K. Herd, Box 73, Wangaratta, Vic.

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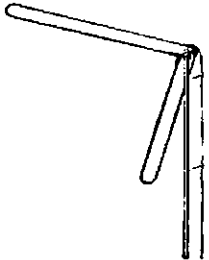
FB 3711

TV for the Amateur

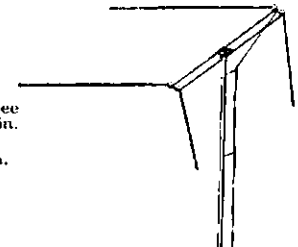
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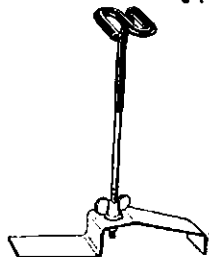
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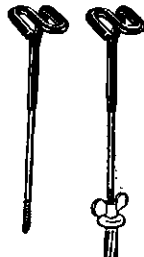
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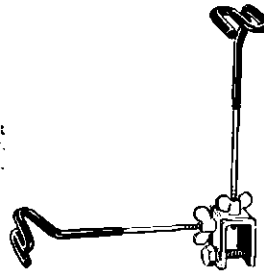
Cat. LA5994 Tile Clip including Insulator.
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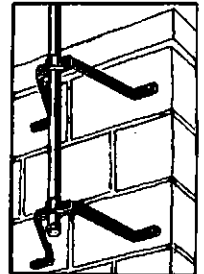
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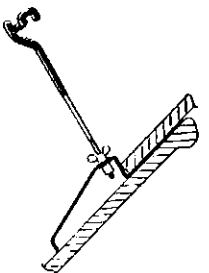
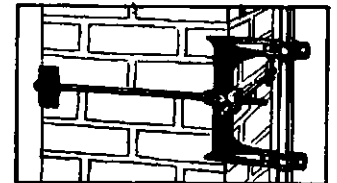


Illustration of Tile Clip and Insulator in position.



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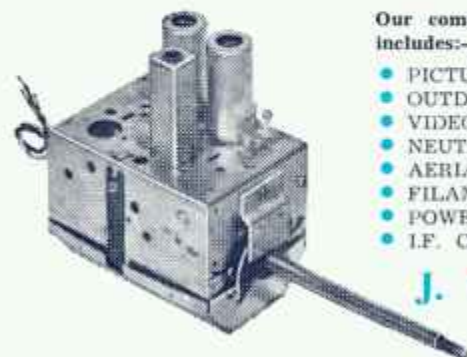
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EDITORIAL



RETROSPECT

The sudden advent of Sputniks I. and II. has thrown the world into a dither. Organisations especially formed to track the U.S. satellite were literally caught napping, and once again the Amateur fraternity were alerted to breach the gap. This they did expertly and with the usual celerity. The Federal station VK3WIA was quickly in operation accepting reports from widely separated parts of Australia and the islands and collecting the data on signal reports and details of tracking by directional antennae.

The earlier reluctance of official organisations to enlist the aid of the Australian Amateur for the I.G.Y. activities was quickly dispelled in view of their own unpreparedness. The Amateur did his job and did it unselfishly—how well will only be known after the sorting, sifting and correlation of the reports have been made. Events such as these were of great public moment and the Amateur in turn was not without his rightful share in the ensuing publicity.

In retrospect, however, there are questions we should searchingly ask of ourselves. Are we fully exploring and exploiting our erstwhile heritage as experimenters? Are we keeping abreast of new technological and electronic developments? Are

we doing our part fully in promoting goodwill and friendship internationally? Are we completely employing our ability and usefulness to public service in the community as we could? Is the Amateur's Code our guiding light in our approach to daily life?

Only our conscience will allow us to answer these questions without evasion. Introspection is very appropriate to the approaching Christmas season so see that the results of your soul-searching are for your own peace of mind and the good of Amateur Radio generally.

Take more interest in the activities of your local Division, find out how the Institute as a whole is run and organised if you do not know; commit your experiments and circuitry to paper for publication in your own magazine; contact your overseas contemporaries and pass more than the time of the day with him to gain his friendship, and lastly operate by the Amateur's Code. In these various ways you will put back something into Amateur Radio as well as gaining something from its acquaintance.

The Federal Executive, on behalf of the Federal Council of the Institute, wish ALL members the Season's Greetings and a Prosperous and Fruitful NEW YEAR.

FEDERAL EXECUTIVE.

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How's Your Receiver?

BY N. BURTON,* BERS11494

IT is somewhat of a chastening experience to listen round the Amateur bands and note the apparent number of what might be termed sub-standard receivers that are in use. It is not uncommon to hear a description of the station equipment which includes a well known receiver and then hear the rider, "but this _____ receiver needs doing up."

This state of affairs is hardly a good advertisement for the Radio Amateur and as the same state of things has been noted visiting shacks, one is tempted to wonder is the average Amateur frightened to touch a commercially built receiver? It is something none of us need be afraid of; if you can build and maintain a modern transmitter, then you can overhaul your receiver.

Taking everything into account it stands to reason that many of the receivers in use today could, with benefit, stand an overhaul. Many of them are of surplus origin and even assuming it was a new one in 1945 it is now 12 years old. Some of the more popular ones are even older and if you have one very popular receiver it can be 22 years old! Time indeed for overhaul!

It is as well to start by removing the receiver from the cabinet. This can be a job (the writer's own receiver needs 32 screws and bolts removed to do this). Once free of the cabinet, there is room to work. Remove all the valves first and then find every earthing tag. Many of these will be nut and bolt with star washer efforts. Remove each individual bolt and clean the parts that are to contact; it will often be found there is rust and/or enamel beneath the bolt fixings. Once this is done check the replaced tags with a megger if possible. A few ohms here and there can make a lot of difference to a receiver's performance.

Having done this, now turn to the fixed condensers. Many of these will be of the paper variety and probably leaky. Starting at the r.f. valve remove and replace each by-pass and coupling condenser up to the diode or whatever circuit is used as second detector. It will be found possible in many cases to substitute modern small mica condensers in place of the original paper ones with advantage. Make sure the condensers have an adequate working voltage figure and do not, under any circumstances use "surplus" condensers. These can be anything up to 18 years old. The actual substitution will involve only clipping one out and soldering in another, in most cases without disturbing any other component. In the case of condensers located beneath a coil pack, certain manufacturers have the happy knack of so arranging the r.f. end of the receiver—not only will the coils have to be carefully removed and replaced, but the various leads to the coils will have to be "dressed" into the right positions. If you feel your skill is not up to this work enlist the

aid of someone whose skill is, as these condensers in the r.f. end affect the receiver performance so much.

Once the condensers have been attended to as far as the second detector, those in the audio end can be tested. If they are alright they may be left in as their effect is far less on the overall performance than the replaced condensers.

Resistors can now be checked for value and any more than 20% out in value replaced with new ones of like wattage. Few of the older receivers used any other tolerance value of resistor than 20%.

Having done this, the time is ripe to consider if any improvements can be made to the receiver. A more modern noise limiter for instance, noise limiter circuits have improved a lot in 20 years. Here the thoughts turn naturally to more efficient modern valves to replace the originals. It should be pointed out that no hard and fast rule can be laid down. It is quite easy in many cases to put in new high gain valves and get amazingly improved "S" meter readings but the signal-to-noise ratio is not of necessity improved—it may even be worse. The thing to aim at is better signal-to-noise ratio, and this is, as a rule, far easier to achieve than high gain and good signal-to-noise ratio.

The problem of valve substitution, and it is a problem, is closely linked with the actual coils used in the receiver. If these are of the old high efficiency type put in to overcome the deficiencies of the then available valves, trouble will almost certainly be encountered with self oscillation of the stage. It has been authoritatively stated that to hook up an EF50 to one of the high gain coils of the late 20's or early 30's, copper screening an eighth of an inch thick would be needed for a start; this is hardly a practical proposition.

In the case of receivers using valves of the 6K7 class an improvement is made by substituting valves like the EF39. If you can obtain some of the Osram (English) octal-based valves even better results may be obtained. These Marconi/Osram international octal-based valves have in many cases no exact counterpart in the American range and the English valves have rather better characteristics.

If you are using a surplus receiver of English origin make an effort to obtain the recommended English valves. This may seem a small point, but it is a fact that one popular English surplus receiver can be re-valved entirely with American valves and will perform well, however when the recommended English valves are installed the performance is far superior in every way.

These are the maximum alterations that seem logically possible as regards the valves, and increased gain. It is as well to bear in mind that the designer knew what he was doing and designed the coils and valves to work as a team and aimed at, and got, a certain gain

from that stage. The substitution of high gain valves ad lib is not recommended; it has been the author's privilege to handle some rx's thus "hotted up" and the curing of the instability after the modifications resulted in a performance that was little better, if any, than the original set—in some cases it was worse.

Do not confuse big "S" meter readings and a lot of noise for sensitivity to weak signals. It is quite easy to arrange to deliver several watts of noise from the output. If any modifications to the valve line-up outside the simple substitution of valves with a lower noise figure and slightly better slope are contemplated, this should at the most be limited to the r.f. valve in the first stage. This is usually a pentode and the substitution of a twin triode cathode coupled will preserve the high input impedance and at the same time improve the noise factor of the stage. An efficient valve to use thus is the ubiquitous 12AT7. Such a modification will not increase the "S" meter reading.

In the event of the feeling persisting that the r.f. gain is not enough the installation of a good two stage pre-selector should be given serious thought. Two stages are recommended as one is apt to be disappointing. Two stages allows the use of three tuned circuits (one valve is thus t.p.t.g.) with consequent beneficial effect on the front end selectivity. Such a device is carefully constructed and designed with a low noise figure in mind will add measurably to the performance of any receiver. Apart from the improvement in front end selectivity, the a.g.c. and noise limiter circuits work far more efficiently and on the higher frequency bands signals can be brought in without having the i.f. gain wide open. This is far easier on the ears. The installation of such a device hardly adds to complication of receiver operation as on the Amateur bands only a lazy rocking of the dial is needed. It is hardly ever necessary to look at the preselector as it can be heard working. The author has used such an arrangement for many years with highly satisfactory results. Four r.f. stages are well worth while.

The mixer stage in many cases can be improved. The original mixer may be a triode pentode of early design and it is often possible to substitute a more modern valve having similar operating conditions but better conversion conductance. This results in lower noise and as much noise originates in the mixer, this point should definitely be given attention. In the case of a conversion circuit using a separate oscillator replacement of the actual mixer tube with a more efficient counterpart should be given thought, especially if one is available as in the previous case, with like operating conditions.

As regards the actual oscillator valve itself, this will in many cases stand quite a bit of work on the circuit as the conditions pertaining then do not apply today.—t.v.i. is in mind.

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Many communication receivers are excellent producers of t.v.i., as mentioned in a previous article one well known receiver will produce t.v.i. at 75 yards. It is as well to measure the grid current of the actual oscillator valve and if this is excessive, steps must be taken to reduce this. This may seem on the face of it rather unnecessary but there are cases on record where the drive available from the oscillator was quite sufficient to have driven an 807, allowing the owner to have had easy operation on the broadcast band! The drive should be reduced to that recommended for optimum injection of the heterodyne voltage. It is advantageous at this stage to check the receiver for t.v.i. If under these conditions t.v.i. is caused, then a trap must be fitted in the cathode circuit of the oscillator valve. This should clear up the oscillator stage, except for voltage stabilising it, if this has not been done.

Continuing possible improvements, if there is room on the deck the installation of a separate circuit for supplying the a.g.c. voltage to the r.f. stages alone is worthwhile. Such a circuit needs room for an extra i.f. transformer and a diode pentode valve, and repays the installation by improving the response to weak signals, as regards audible tuning.

In the event of the receiver not possessing a crystal filter and it is felt the selectivity can be better, then the installation of a pair of miniature i.f. transformers back to back in place of one of the originals merits thought. There is usually ample room as the older i.f. coils were of large physical size and two of the modern coils will fit in the space of one of the older kind. Another way out of this selectivity problem is to replace one i.f. with a Q multiplier, this means an additional panel control too!

This just about brings up the stage of re-aligning the receiver. The receiver should be returned to the cabinet and the base plate, etc., fitted into position. Most receivers are meant to be aligned in the cabinet and holes are provided for this purpose in the base plate.

For the actual alignment, follow the manual instructions or if the manual is missing and the receiver has an "S" meter and crystal the method recommended by R.M.E. of Peoria, Ill., may be used. Briefly, the method is this. Tune the receiver to a local station as near to the i.f. of the receiver as possible, replacing the aerial with a length of wire long enough to give half scale deflection on the meter. Allow an hour for warming up. Now switch in the filter and tune the station in with the filter in the narrowest position. Rock the i.f. trimmers about until no more deflection can be obtained on the "S" meter. The i.f. is now lined up.

For the r.f. end a 500 or 1,000 Kc. oscillator is more useful than a signal generator. Do not be afraid to spend

one or two nights getting the receiver "spot on" over the entire range. It is pleasing to have an accurately calibrated receiver. The trimmers and padders should be adjusted as per manual and the "S" meter is a valuable indicating device. In the case of padders encountered bearing the legend "do not touch" adhere strictly to this injunction as these are factory adjusted padders and once set do not need any more attention—this point was driven home vividly to the author on one occasion as rectifying the damage as it were by the owner, due to the movement of one such trimmer, meant several nights of most irritating and boring work to put the matter right.

For the receiver without crystal filter the i.f. can be dealt with by means of a borrowed signal generator, the more accurate the better, but it does not matter if the i.f. is a Kc. or so off so long as they are all aligned to the same i.f., the r.f. end trimmers usually are of sufficient tolerance to allow accurate alignment of the front end to correspond with dials.

A word about switches and cleaning may not be amiss. The author spent most of his life in a part of the world where the local atmosphere consists largely of sulphur dioxide which, when moist, makes sulphuric acid, albeit dilute. The effect on switches and contacts can be imagined. In time a black skin of sulphur compounds would coat the metal with the usual results of bad contacts. The switches would often not respond to treatment with carbon tetrachloride but it was found by experience that a thin coating of sewing machine oil would soften the deposit and allow the contacts to cut through it. This oiling is against most textbook teaching, but it was effective. Many Yaxley type switches are lubricated when installed with a soft grease and this whilst not affecting the electrical efficiency does eliminate wear between the metal surfaces, hence treatment with carbon tetrachloride removes this protective film and wear on the switches is increased. If switches are cleaned then the gentle oiling should follow afterwards and let it be gentle! If the contacts are accessible to the finger smear them with a drop of oil on the tip of the finger. Only a film is needed.

It is hoped these notes will be of assistance to those hesitant about tackling a commercially built receiver. There is no need to be afraid providing you are willing to be patient and careful. The job may be a little tedious, but it is not impossible.

In conclusion, how long is it since you checked your receiver? Even if performing well and it is over 12 months since it was touched, the effort of checking the alignment and re-trimming the r.f. end will not be wasted, and don't forget the old Amateur chestnut—"If you can't hear them, you can't work them!"

VALVE DATA

12BH7

MEDIUM-MU TWIN TRIODE

The Radiotron 12BH7 is a medium-mu twin triode of the 9-pin miniature type used in the vertical deflection circuits of television receivers. In such circuits, one unit of the 12BH7 may be used as the vertical deflection amplifier and the other as the vertical oscillator. This valve is adequate for picture tubes with up to 90° deflection angle, when operated from the boost supply voltage.

The 12BH7 features two similar triode units in one envelope, separate base-pin terminals for each cathode and a centre-tapped heater to permit operation from either a 6.3 volt or 12.6 volt supply.

The valve may be used in other applications including phase-inverter and multivibrator circuits.

Electrical Data

	Series	Parallel
Heater voltage	12.6	6.3 volts
Heater current	0.3	0.6 amp.

CLASS A1 AMPLIFIER (Each Unit)

Maximum Ratings:	
Plate voltage	300* volts
Grid voltage:	
Negative bias value	50* volts
Positive bias value	0* volts
Cathode current	20* Ma.
Plate dissipation	3.5* watts
Peak heater - cathode voltage:	
Heater negative with respect to cathode	200* volts
Heater positive with respect to cathode	200*† volts

Characteristics:	
Plate voltage	250 volts
Grid voltage	-10.5 volts
Amplification factor	16.5
Plate resist. (approx.)	5300 ohms
Transconductance	3100 μmhos
Plate current	11.5 Ma.
Grid voltage (approx.) for plate current of 10 mA	-23 volts

VERTICAL DEFLECTION

AMPLIFIER

Maximum Ratings (Each Unit):	
D.c. plate voltage	450* volts
Peak positive-pulse plate voltage† (absolute maximum)	1500*§ volts
Peak negative-pulse grid voltage	{250* volts 400*¶ volts}
Cathode current:	
Peak	70* Ma.
Average	20* Ma.
Plate dissipation:	
For either plate	3.5* watts
For both plates with both units operating	7.0* watts
Peak heater - cathode voltage:	
Peak negative with respect to cathode	200* volts
Peak positive with respect to cathode	200*† volts

Maximum Circuit Value:

Grid-circuit resistance:	
For cathode-bias, 2.2* megohms.	

* Maximum.	
† The d.c. component must not exceed 100 volts.	
‡ The duration of the voltage pulse must not exceed 15 per cent. of one vertical scanning cycle. In a 625-line, 25-frame system, 15 per cent. of one vertical scanning cycle is 3 milliseconds.	
§ Under no circumstances should this absolute value be exceeded.	
¶ As vertical deflection oscillator.	

FOR SALE

**BASE STATION AND
4 MOBILE A.M. UNITS**

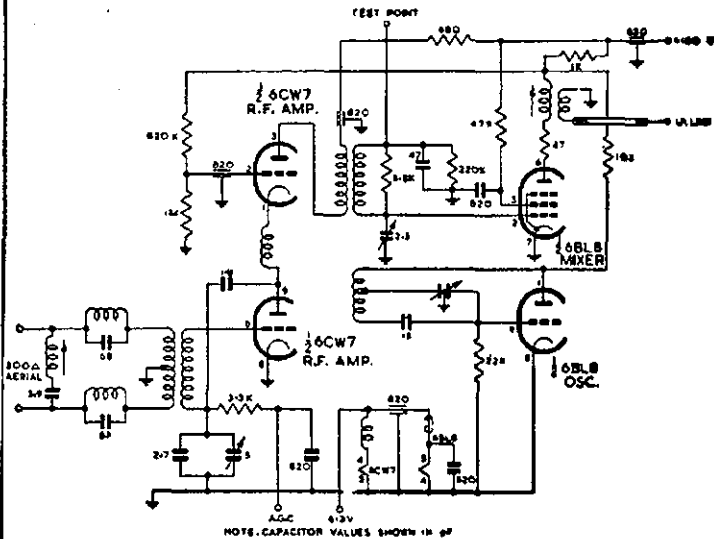
as new. Owner must switch to F.M.
Selling cheap.

Apply Box A, C/o. Amateur Radio

B.D. CONTEST RESULTS

Owing to last minute delays in checking it is regretted that the results of the R.D. Contest were not available for this issue. They will appear in January.

Mullard TELEVISION VALVE SERIES



6CW7 TWIN TRIODE CASCODE AMPLIFIER

HEATER RATINGS

Vh 6.3V
Ih 330ma

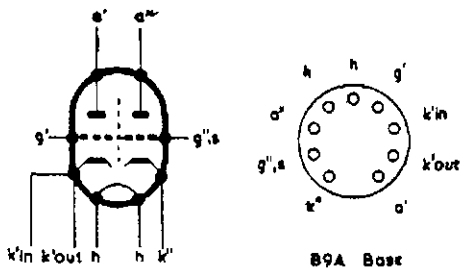
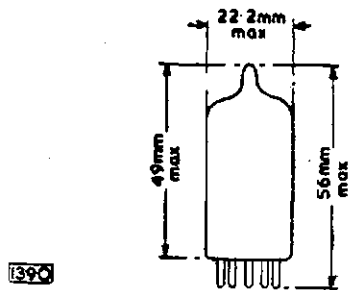
CHARACTERISTICS (each section)

Va 90V
Ia 12mA
Vg - 1.5V
gm 6.0mA/V
u 24
* Rin 2.0K ohms

* measured at $f = 200$ Mc/s with cathode connections pins 7 and 8 strapped.

The Mullard 6CW7/ECC84 is a double triode specially designed for use as a cascode amplifier in the R.F. stage of television receivers. The first triode is connected as a neutralised grounded cathode amplifier and drives the second triode which is connected in a grounded grid configuration. This arrangement results in a low noise level for the input stage being achieved in the first section, combined with high gain in the second section.

The capacitance between the two triodes is kept to a minimum by an internal shield connected to the grounded grid electrode thus reducing feed back and contributing to stability under AGC conditions. The high gm of 6.0mA/V is obtained with an anode voltage of 90V thus allowing the two triodes to be series connected across a 180V H.T. supply.



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Harmonics and Selectivity of Transmitters

BY HANS RUCKERT,* VK2AOU

PART ONE

WE are used to talking about selectivity as one of the main features of receivers because the ideal receiver would allow only one signal to be detected. Now the shortage of frequencies and the advent of television makes it just as important to introduce selectivity requirements for transmitters, to ensure that only one frequency or one narrow band of frequencies is radiated by a particular transmitter. The receiver lacking in selectivity only means QRM at the receiving location. It may be more serious with a transmitter radiating on many frequencies, for most of these will be outside Amateur bands where the operator has no licence to transmit. Just listen to those Hams in your neighborhood who call "CQ 40" on 20 and 15 metres as well as on 10 metres and even shorter wavelengths. If you have a v.h.f. receiver you will hear some of them as high as 2 metres and even further up the spectrum. The higher your fundamental frequency is, the stronger will be your harmonics. Often you will hear signals from v.f.o.'s. and frequency multipliers on lower bands—these signals are not sub-harmonics. These days we don't use the regenerative t.r.f. receiver with 1-3 valves and the Hartley m.o. has also disappeared, but it seems that there have been far more improvements in receiver selectivity than in transmitters.

After describing rather complicated complete receivers and transmitters in "A.R." which included most of the modern means of obtaining the desirable selectivity, it may be interesting to study the fundamentals by discussing some simple measurements which have been carried out with ordinary Amateur gear. If some readers get confused looking at a complete circuit, which is nothing more than an accumulation of many similar components and even nearly identical stages, they should have no trouble in understanding just what a single capacitor and one simple coil is doing.

In the description of the following examples we don't claim to cover the subject completely, nor can we expect a high order of accuracy from the measuring results obtained with simple gear, but the principles are always the same and interesting enough. This article was not written for those radio operators who do not wish to learn what is going on behind the dials and panels of the receiver and transmitter, but it should help us as Radio Amateurs to understand our electronic equipment.

WHERE DO HARMONICS COME FROM?

Harmonics start with the oscillator and each further stage, which does not work as a linear amplifier, contributes to the harmonic content of the output signal.

Test: We used the Amateur band receiver (described in April '56 issue of

"A.R.") which has a calibrated S meter. A short aerial was connected. Various oscillators were placed at such a distance from the receiver that the 3.5 Mc. signal from the oscillators gave a reading of S9 plus 50 db. (30 mvolts). A BC221 frequency meter had a three ft. long antenna, the grid-dip meter used the unshielded coil, and a further e.c.o. frequency meter had a four ft. long test antenna. The signal strength of the harmonics is listed below:

Mc.	BC221	G.D.O.	E.C.O.
1.75	(fundamental)		
3.5	S9+50 db.	S9+50 db.	S9+50 db.
7	S9+50 db.	S9+10 db.	S9
14	S7	S7	S6
21	S9	S6	S4
28	S9	S5	S2

One S unit is a step of 6 db. or a voltage ratio of 1:2.

Compared with the fundamental frequency, the—

2nd harmonic	is down	20-50 db.
4th	"	50-60 db.
		(about 1:1,000)
6th	"	50-60 db.
8th	"	50-65 db.

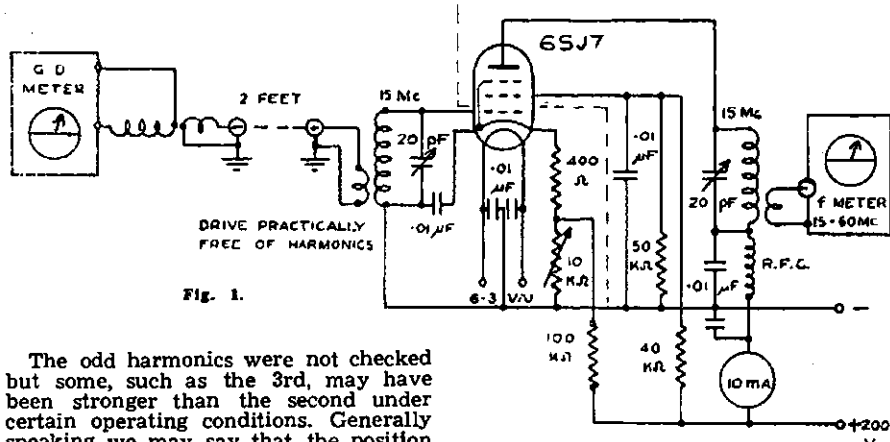


Fig. 1.

The odd harmonics were not checked but some, such as the 3rd, may have been stronger than the second under certain operating conditions. Generally speaking we may say that the position does not seem to be too bad because an antenna coupler and a low-pass filter should provide enough selectivity if the stages following the oscillator do not make things worse. The Clapp or Colpitts oscillators may have less harmonics because the large capacitors could reduce the higher order harmonics to some degree, but a lot depends on the operating conditions of the valve.

HARMONICS FROM THE CLASS C STAGE

L. Retinartz gives some typical figures which are interesting as most of our transmitter stages are operated class C. These figures assume that the class C stage is driven by a harmonic-free signal and that the tuned circuit is replaced by a pure resistor or by a choke which has no resonances or holes over the tested frequency range, so that all harmonics have the same chance.

The harmonics generated by the class C stage alone (non-linear operation, 140° current flow angle) are as follows:—

Fundamental and Harmonics	E.F. Current %	db. Power Level
1st	100	4.0
2nd	89.4	-3.2
3rd	30.8	-10.3
4th	5.6	-25.8

Remember that each 10 db. power level change is equal to a power ratio of 1:10.

The amount of harmonic energy generated in a class C stage is quite substantial. The situation will be far worse if the driver stage following the v.f.o. feeds a signal into the p.a. which already contains strong harmonics. It is absolutely clear that one pi-tank in the plate circuit of the class C p.a. stage has no chance whatsoever of giving us a t.v.i.-proof transmitter or of reducing all harmonics to a level which can be tolerated.

HARMONICS WITH DIFFERENT OPERATING CONDITIONS

When we build our Amateur transmitters we intend to use class C operation in the frequency multiplier, driver

and p.a. stages. This means that the negative grid bias applied is at least twice the voltage required for class B operation (twice cut-off bias). The stages will then work with the highest efficiency. For frequency multiplication we need even more bias to get strong harmonics. Let us now see what our frequency multiplier and p.a. stages are generating when we vary the bias and operating conditions.

It is also interesting to see what effect the tuning of the tank circuit has, as many v.f.o.'s. have an output circuit tuned by valve and stray capacities instead of a correctly tuned condenser.

The Test Set-up: As shown in Fig. 1, a grid-dip meter served as the r.f. generator, which did not have strong harmonics. The two link coils, with two feet of co-ax and the tuned grid circuit reduced the harmonics to a negligible value. This means that any harmonics detected at the plate of the 6SJ7 plate tank had been generated or formed by this stage alone. The grid and plate circuits were well separated

and no regeneration was present. The absorption type frequency meter, mentioned several times before, served as frequency analyser.

The tank circuit was loaded only by the frequency meter and was therefore sharper than with an antenna connected. This test was made mainly to see what harmonics we get (and their relative strengths) when operating a driver or p.a. under various conditions.

No harmonics were detected when operating the stage as a true class A linear stage. When operated as a frequency doubler, the second harmonic became nearly as strong as the fundamental, and all other harmonics increased in power.

In the four cases shown in Table 1, normal class C drive was applied, so that for class A and class AB operation there was far too much. (This is a standard Amateur Radio practice which is wrong!)

Approximate Relative R.F. Voltage of Harmonics

(full drive as for usual class C operation)

Fundamental Frequency—15 Mc.

Class	2nd Harm. 30 Mc.		3rd Harm. 45 Mc.		4th Harm. 60 Mc.	
	L.	C.	L.	C.	L.	C.
A	0.30	0.80	0.17	0.08	0.09	0.01
AB	0.64	0.76	0.15	0.15	0.07	0.01
B	0.80	0.60	0.14	0.11	0.05	0.01
C	0.30	0.40	0.10	0.04	0.05	0.05

Table 1.

In all these cases the strongest fundamental signal was observed with the lowest grid bias (class A). The fundamental signal was 10 to 30 times as strong as the strongest harmonic due to the selectivity of the tank circuit. The stage was running with two watts d.c. input.

We see now that even such a small amplifier is capable of generating many millivolts of harmonic energy. How much more must we expect from a 100 watt rig with 800 volts of B+? Even these mV. harmonics could block out your t.v. set if they happen to fall on a picture carrier. We know that in the old days world-wide DX was worked on c.w. with two watts input!

We also see that the high Q tank circuit with the correctly tuned air capacitor (C-table values) will reduce the harmonics more than the L-tuned choke (L-table values). That is why some operators screw out the slugs of their Gelooso v.f.o.-exciters and place a 50 pF. air capacitor in parallel to peak the desired signal. This method reduces the harmonics, increases the selectivity and increases the drive.

In the test set-up it was observed that by slightly detuning the tank above or below the 15 Mc. fundamental frequency, changed the harmonic content considerably.

This test shows that we must expect harmonics of volt strength in the tank circuit of any class C final. If the v.f.o. has too much power and the driver not much selectivity (perhaps too much power also), then things must be bad for the p.a., because this stage can and will amplify the whole range of fre-

quencies pumped into its grid circuit. Certain accidental resonances of components, leads and valve capacities often cause higher order harmonics to be amplified with considerable strength.

THE SELECTIVITY OF A TRANSMITTER

We have just seen that we will get strong harmonics in all our transmitter stages. Even if the v.f.o. and driver had a lot of selectivity and were driving the p.a. with a practically harmonic-free voltage, we would get harmonics in the p.a. stage as soon as we use class B or class C operation.

We will now investigate the tuned circuit to see why the tank cannot sort out the harmonics any better. Let us think of the problems in a receiver. In contrast to the receiver, we do not need much selectivity near the resonant frequency, but we do need to suppress any signal from the v.f.o. or doublers (half the transmitted frequency) and also any signal with twice (or more) the frequency of the transmitted signal. To get some idea of the selectivity of tuned circuits far from resonance, we will discuss the results of some practical measurements.

Test One

A single tuned circuit with 50 pF. capacitance working on 14 Mc. was placed between a signal source and a v.t.v.m. so that the tuned circuit was not damped by the measuring set-up (Fig. 2).

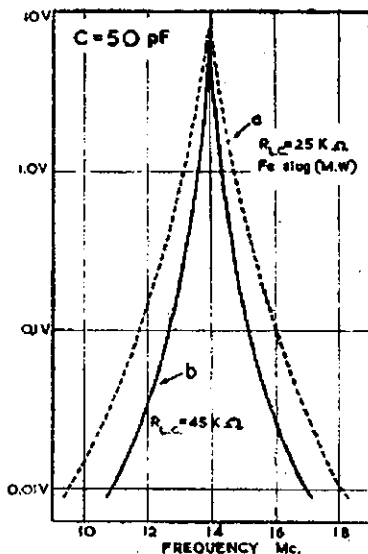


Fig. 2.— Selectivity Curves 14 Mc. Tuned Circuit.

- (a) Image rejection 1 : 12 (2 x 455 Kc.)
- (b) Image rejection 1 : 50 (2 x 455 Kc.)

We see that the 10 volt signal at 14 Mc. is attenuated by 60 db. (1,000 : 1) three megacycles either side of 14 Mc. In other words, there is still 0.01 volt at 11 and 17 Mc. A similar coil with a medium wave iron dust slug is even worse. If we used this circuit in a receiver with a 455 Kc. i.f., the image frequency is only attenuated to one-twelfth of its value. This is why many Amateurs receive broadcast stations in the 14 Mc. band or have W stations appearing twice on 10 metres (near 28

Mc. and again near 29 Mc.). In the actual receiver or transmitter application our tuned circuit is not nearly so selective, because with the higher frequencies decreasing input impedance of valves and the loading of tuned circuits (transmitter plate current, antenna transformation) are lowering the peak of our curve considerably.

Test Two

Fig. 3 shows what happens when we connect a valve and an aerial to our r.f. stage. R.f. stages in receivers and transmitters are similar in principle. Here a t.r.f. detector receiver was tested. The near resonance selectivity or bandwidth is quite good due to the use of regeneration (phone and c.w. case), but the far-off-resonance selectivity leaves a lot to be desired.

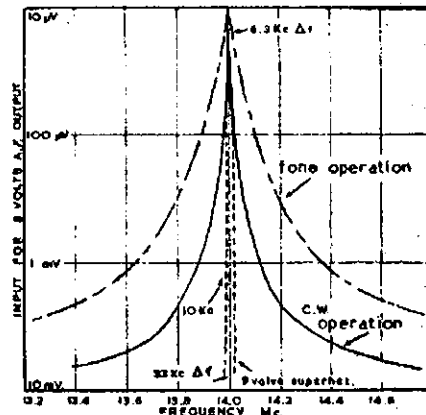


Fig. 3.— T.r.f. Receiver Selectivity Curves (regenerative detector).

As soon as an incoming signal reaches S9 plus 40 db. or 10 mV., it matters little if the transmitter is 0.5 or many megacycles away in frequency. That is why the t.r.f. receiver was replaced by the superhet. and is also the reason why our old transmitter with the tank circuit alone between the p.a. and the aerial is attenuating the harmonics only up to a point and everything else is going out, whether it is the 3rd or 20th harmonic. The dotted line in the middle of Fig. 3 indicates the improved selectivity provided by the three band filters of a superhet.

Test Three

Fig. 4 gives the selectivity curves of two superhet receivers the writer built. We see the vast improvement we get with cascades of tuned circuits and band filters. The first superhet. the writer saw (back in 1927) had a true band filter of four or five tuned circuits between the i.f. stages which looked like the low-pass filter now used to reject harmonics of transmitters.

From these receiver examples we draw the conclusion that band filters are the answer to t.v.l. proofing the transmitter in regard to higher selectivity. Shielding of stages and filtering of leads is also required. So band filters between the frequency multipliers and the driver, and between the driver and the p.a. help to sort out the desired signal before we generate high power.

After the p.a. stage we use the tank circuit and an aerial coupler which

form a sort of band filter taking care, to some degree, of those harmonics generated in the final stage.

The low-pass filter has to be added to all those cases where further attenuation of harmonics is necessary. In this way we have a good chance of reducing the higher order harmonics above the cut-off frequency of the low-pass filter which may be set between 35 to 41 Mc. If our p.a. stage is driven by too strong harmonics of frequencies below the cut-off range of the low-pass filter, we may have difficulty in preventing the radiation of low order harmonics such as the second harmonic of 3.6 Mc. (outside our band). When this occurs, the selectivity of the tank circuit is insufficient and an aerial coupler may be satisfactory.

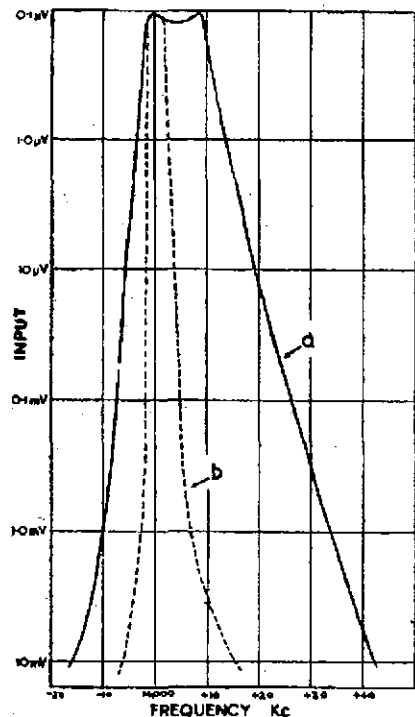


Fig. 4.—Receiver Selectivity Curves.
(a) Nine-valve superhet. Tuned circuits: three at 14,000 Kc., six at 465 Kc.
(b) Eighteen-valve superhet. Tuned circuits: five at 14,000 Kc., seven at 5,300 Kc., nine at 352 Kc., and two crystals at 352 Kc.

Input	Bandwidth Kc.	
	a	b
0.1 uV	10	3
0.1 mV	34	7
1.0 mV	44	9
10 mV	58	22

BOOKS REVIEWED

THE RADIO AMATEUR OPERATOR'S HANDBOOK—4th Edition, 1957/8

Compiled by the staff of The Radio Constructor in collaboration with The International Short Wave League and published by Data Publications Ltd., 57 Maida Vale, London, W.9, England, this 44 page handbook contains a wealth of information for both Amateurs and Short Wave Listeners.

Amateur Prefixes are listed in alphabetical order of both countries and prefixes, the latter also including a useful record of bands worked or heard.

Provision is also made for a record of Counties of Great Britain heard or worked on various bands and a complete list of Zone Boundaries of the World as originated by Radio Magazines Inc. of New York ("CQ") occupies four pages.

Other sections are Time Conversion, a Mileage Table showing approximate distances from London of over 200 cities and towns throughout the world, Signal Reporting Systems, and a list of QSL Bureaux of the World.

Two short articles on "The V.h.f. Bands" and "Amateur Bands and DX Operating Technique" complete the book.

Our copy received from the publishers and the price is 3/- sterling.

R.C.A. TRANSMITTING TUBES

Published by Radio Corporation of America.

Here is a new edition of a well known book, last published in 1938. The original volume can be seen in many Ham shacks even today.

The book is similar in layout to the familiar Receiving Tube Manual, and lists some one hundred and twenty types of transmitting tubes and transmitter type rectifiers.

Chapters on power tube fundamentals, installation and application, as well as sixteen typical circuits of h.f. and v.h.f. transmitters are featured.

All in all a book every Amateur, Engineer and all others interested in transmitting tubes should have on their book shelf. (Price 13/6 plus 1/- packing and postage.)

Our copy from Technical Book and Magazine Co., 295-299 Swanston St., Melbourne, C.1.

R.C.A. RECEIVING TUBE MANUAL

Published by Radio Corporation of America.

The latest in this series has just come to hand. Coverage has been greatly extended to include the many new tube types recently introduced. It should be noted in the design of new equipment that many tubes widely used prior to 1950 are now being made for renewal purposes only. For this reason the presentation of the older types has been limited to basic data only, allowing greater space for the newer more important types.

The contents include a most interesting chapter on tube application and circuit design, as well as a chart giving full details on all television picture tubes.

This book should prove most valuable to all associated with the design of radio and electronic gear. (Price 10/-, plus 1/- postage.)

Our copy from Technical Book and Magazine Co., 295-299 Swanston St., Melbourne, C.1.

COUNCIL OF THE NORTH WEST COUNTY DISTRICT

RADIO SERVICEMAN

Applications, addressed to the undersigned and closing 9 a.m. Monday, 2nd December, 1957, are invited for the position of Radio Serviceman to the Council. Applicants should have a sound knowledge of the theoretical and practical side of radio, including F.M. transmission and receiving equipment to service, install and maintain Council's A.W.A. two-way radio installation. Successful applicant would be required to carry out duties in the Drawing Office and other engineering work if required.

Applicants to stage age, qualifications, marital status and when they can take up duties. A house will be made available if required at a reasonable rental. Salary £936 per annum to commence.

N. E. Tighe, Town Clerk.

P.O. Box 184, Inverell, N.S.W.



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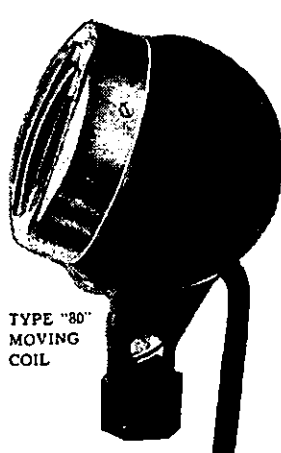


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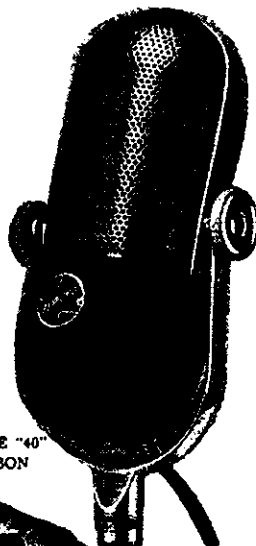


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- Full tilting head.

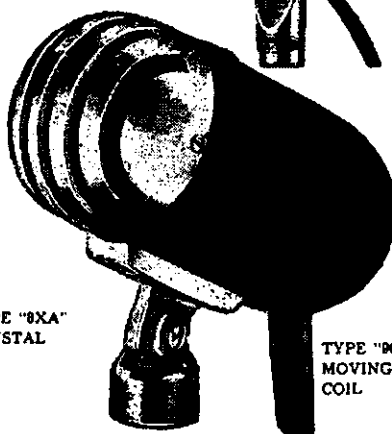


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AMATEUR CALL SIGNS

AUGUST AND SEPTEMBER, 1957

NEW CALL SIGNS

- VK— Australian Capital Territory**
 1ZAR—J. A. Roberts, 20 Dawes St., Kingston.
New South Wales
 2BB—E. M. Bailey, Eungella, via Murwillumbah.
 2DM—D. A. Macaskill, 96 Vernon Ave., Eastlakes.
 2DN—A. J. Harper, Lot 20 Richmond Rd., Kingswood.
 2LA—L. A. Lawson, 12 Charleville Rd., Wagga.
 2QA—N. T. Durham, "Shangrila," Rickard Rd., Warrimoo.
 2RI—G. G. Hoyle, 32 Manners St., Tenterfield.
 2TI—H. J. Trick, 18 Wakehurst Parkway, Seaford.
 2VV—R. M. Marsden, 43 Houston Rd., Kingsford.
 2AKZ—C. D. Bennett, Electrical Engineering Dept., Sydney University.
 2AND—B. H. Anderson, 14 Stuart St., Longueville.
 2ASG—J. F. Jorgensen, 142 Edinburgh Rd., Castlereagh.
 2AZE—G. R. Stewart, 33 Bon Accord Ave., Bondi Junction.
 2ZCE—R. R. M. Whitelaw, 85 Church St., Croydon.
 2ZCI—J. Dempsey, P.O. Box 252, Leeton.
 2ZCQ—B. J. Clarke, P.O. Box 8, Bellingen.
 2ZEB—R. E. Birley, 101 Burns Bay Rd., Lane Cove.
 2ZJA—N. H. Stanley, 16 Morris St., Birmingham Gardens.
- Victoria**
 3BI—M. A. Trull, 84 Argyle St., Kew, E.4.
 3NL—E. A. Martin, 12 Scott St., South Caulfield.
 3NV—A. B. Ayling, 46 Emily St., Murrumbidgee.
 3VG—R.A.A.F. School of Radio, Radio Club, R.A.A.F. School of Radio, Ballarat.
 3VK—M. F. Spiller, 46 Maling Rd., Carterbury.
 3ZE—S. J. Beaton, 101 McKinnon Rd., McKinnon.
 3AOL—B. E. Lloyd, 40 Westgate St., Oakleigh.
 3ZED—K. C. Oldroyd, 515 Waterdale Rd., West Heidelberg.
 3ZFL—T. K. Long, 32 Bladen Ave., Brunswick East.
 3ZFP—O. P. Fudge, 65 Elliott Ave., Carnegie.
- Queensland**
 4AE—R.A.A.F. Radio Club, R.A.A.F. Station, Garbutt, Townsville.
 4BN—W. S. Beaney, 9 Sirius St., Coorparoo.
 4BG—B. P. Bowdler, 62 Swinburne St., Lutwyche.
 4CW—K. C. Woskett, 17 Hunter St., Mackay.
 4LF—L. S. Dixon, 34 John St., Redcliffe.
 4NS—L. L. Sharp, 16 Carl St., Buranda.
 4ZAZ—J. C. Bickford, Dee St., Mt. Morgan.
 4ZBF—A. J. Fuller, 31 Maple St., Wavell Heights.
- South Australia**
 5AW—D. A. Carthew, Penola.
 5CR—W. F. Couper, 21 Battams Rd., Rayston Park.
 5DE—R. A. Washington, 40 Swaine Ave., Rose Park.
 5OB—L. O. C. Baker, Building 254, R.A.A.F., Edinburgh.
 5ZDY—R. L. Dyer, 61 3rd Avenue, Sefton Park.
 5ZJM—J. B. Mitchell, 29 Manningford Rd., Elizabeth South.
 5ZKY—C. G. Luke, 16 Kennaway St., Tasmore.
- Western Australia**
 6AB—A. B. Ward, 44 Ullapool Rd., Mt. Pleasant.
 6HG—G. C. High, James St., Canning Vale.
 6SC—B. J. Schofield, C/o. 6AM Broadcasting Station, Northam.
 6ZAI—A. J. McCarthy, 81 Napier St., Cottesloe.
 6ZAU—W. R. Cooper, 22 Watson Place, Maylands.
 6ZBP—F. M. B. Paget, Upland St., Wagin.
 6ZBU—J. Burrows, 140 Floster St., Subiaco.
- Tasmania**
 7ZAK—M. J. Watson, 68 Lochner St., Hobart.
Papua-New Guinea and Other Islands
 9EP—E. P. Black, C/o. P.M.G.'s Dept. Single Quarters, Radio BPA, Port Moresby.
 9LE—L. K. Earp, C/o. Dept. of Civil Aviation, Cocos Island.
 9RD—R. G. Donovan (Mrs.), Station: Allotment 23 Section 42, Boroko, Port Moresby; Postal: C/o. P.O., Port Moresby.
 9SB—D. S. Brown, C/o. Posts and Telegraphs, Port Moresby.
 9ZAN—A. D. Nutt, Rugli, via McHagen, T.N.G.
- Antarctica**
 0AT—E. S. Trigwell, Davis, Antarctica.
 0KT—E. G. Heinrichs, Macquarie Island.
 0PC—P. E. Clemence, Davis, Antarctica.
 0PT—P. B. Turner, Davis, Antarctica.

CHANGES OF ADDRESS

- VK— Australian Capital Territory**
 1ACG—A. Morris-Reeds, C/o. Reid House, Canberra.
- New South Wales**
 2CD/T—C. Preston-Smith, 40 Tobruk Ave., Cremorne.
 2IT—W. R. Beveridge, 18 Murdoch Ave., Turramurra.
 2MU—L. J. Case, 66 Mercury St., Beverley Hills.
 2NF—R. Innes, 34 Colane St., Concord West.
 2NK—D. E. Melbourne, "Kuranda," Honour St., Lawson.
 2OY—J. C. A. Young, 41 Mepunga St., Concord West.
 2SG—S. E. Molen, 17 Margaret St., Strathfield.
 2TJ—J. W. Thompson, 59 Wollie Ave., Earlwood.
 2UH—N. G. Hansen, "Hazelhurst," Murdoch Ave., Cremorne.
 2AGM—W. C. Berry, 29 Norton St., Ballina.
 2AHJ—G. C. Paterson, 32 Beswick Ave., North Ryde.
 2AIZ—B. G. Powell, 156 Moorefields Rd., Kingsgrove.
 2AJS—E. J. Smyth, 41 Ordinance Ave., Lithgow.
 2AMN—R. D. Martin, 338 Chloride St., Broken Hill.
 2ANL—J. B. Doran, 153 Lockyer St., Adamstown.
 2APA—A. F. Ashby, 1745 Pittwater Rd., Mona Vale.
 2ARU—F. N. Sizemore, 2 Bourke St., Botany.
 2ASZ—R. L. Lear, 40 Brisbane St., St. Marys.
 2AVJ/T—W. B. Jones, 86 William St., Bankstown.
 2AWW—G. D. Wheaton, 738 Anzac Pde., Kingsford.
 2AXB—E. Carruthers, Radio Branch, Tasmania.
 2AXH—W. H. Hannam, 22 Merley Rd., Strathfield.
 2ZAW—P. Salinger, 5 Rickard St., Balgowlah.
 2ZBB—G. P. Pearson, 2 Kethel Rd., Cheltenham.
- Victoria**
 3BU—W. A. Brownbill, 75 Gheringhap St., Geelong.
 3GU—H. Chapman, Flat 22, "Lorna Court," 51 Maltravers Rd., Ivanhoe.
 3IJ—D. R. Twigg, 6 Kennedy St., Glenroy.
 3IR—K. M. Maroney, 37 Tanti Ave., Mornington.
 3PQ—J. E. M. A. Wilkinson, Lot 224 William St., Thomastown.
 3QU—C. H. Buckingham, 28 Perth Ave., Albion.
 3SU—S. G. Edwards, R.A.A.F. School of Wireless, Ballarat.
 3VH—L. W. Hoobin, 56 Reserve Rd., Beaumaris.
 3WC—C. C. Chirnside, 8 Blake St., Caulfield.
 3AFC—F. Clark, 32 Collins St., Mentone.
 3AKD—A. K. Fielden, 41 Fakenham Rd., Ashburton.
 3ZAK—E. R. Kelly, Cottage No. 3, Radio Australia, Shepparton.
 3ZBY—A. I. Morrison, "Killeavey," Eltham.
 3ZCH—J. Howden, 285 Elgar Rd., Box Hill.
 3ZDD—J. E. S. Day, James St., Fakenham East.
- Queensland**
 4HM—H. J. Murphy, 476 Stafford Rd., Stafford, N.12.

- 4ZAG—J. C. E. D'Alton, Callaghans Rd., Narangba.**
- South Australia**
 5RE—H. Hobcroft, 40 Beatty St., Linden Park.
 5UZ—H. E. E. Brock, 44 Asquith St., Nalls-worth.
 5VC—J. G. Mason, 15 New St., South Plympton.
 5WA—C. J. Waterlander, Hill St., O'Sullivan's Beach, via Morphett Vale.
 5ZBD—C. Taylor, 16 Rowland Rd., Magill.
- Western Australia**
 6AJ—A. J. Jeffery, 8 Harper St., South Perth.
 6DF—M. A. Du Feu, 14 Kildara Rd., Florest Park.
 6EE—R. R. Elkin, 35 High St., Fremantle.
 6ZBA—J. Bartlett, 48 Grafton St., Bayswater.
- Tasmania**
 7DW—D. M. Watson, 35 Corena Rd., Lindisfarne.
 7SD—D. M. Smith, 15 Augusta Rd., New Town.
 7TR—R. E. Conrad, Marys Hope Rd., Berriedale.
- Papua-New Guinea**
 9TZ—C. D'Evelynes, Rugli, via Mount Hagen, Lae, N.G.
- CANCELLED CALL SIGNS**
- VK— New South Wales**
 2DS—G. H. Diedrichs.
 2FK—T. W. Kinsella.
 2GR—T. Storer.
 2MV—C. W. Welsh.
 2AAF—A. J. Fisher.
 2ACV—A. C. Mulcahy.
 2ANB—R. J. Baty.
 2ANQ—J. D. Watson.
 2ZEN—D. Nutt, Now VK9ZAN.
 2ZBS—W. J. Steuart.
 2ZCR—R. M. Marsden, Now VK2VV.
- Victoria**
 3QG—C. Preston-Smith, Now VK2CD/T.
 3AGN—M. G. O. Nielsen.
 3AMZ—B. G. Powell, Now VK2AIZ.
 3AQH—L. W. Hoobin, Now VK3VH.
 3ZCL—M. A. Trull, Now VK3BI.
 3ZEB—S. J. Beaton, Now VK3ZE.
- Queensland**
 4ZAS—L. L. Sharp, Now VK4NS.
- South Australia**
 5CW—W. R. Clifton.
 5EW—E. W. Evans.
 5FA—F. B. Anderson.
 5FN—R. J. Poole.
 5SE—D. S. Brown, Now VK9SB.
 5WB—W. S. Beaney, Now VK4BN.
 5YL—L. Lindley.
 5ZAM—D. A. Carthew, Now VK5AW.
 5ZDF—R. A. Washington, Now VK5DE.
- Western Australia**
 6ZAE—L. K. Earp, Now VK9LE.
- Tasmania**
 7BK—S. G. Kitchen (Capt.).
 7WN—W. R. Jon, Now VK3AIO.
- Papua-New Guinea**
 9LW—L. J. Wright.
 9MF—F. M. Nolan.
 9YG—G. E. Smith, Transferred to Victoria.

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DELEGATE FOR I.T.U. CONFERENCE

Matter Raised in Federal Parliament

Now that members are giving earnest consideration to sending an Amateur representative to the next I.T.U. Conference at Geneva in 1959, it is interesting to read the following extract from "Hansard" (Senate, 30th October, 1957).

Senator Hannan: "I wish to refer to the Postmaster-General's Department. This department is responsible for the licensing and control of all radio communications in this country. In particular, I refer to the control of amateur radio operators. Part of the function of the department is to keep a watch on the operating frequencies to see that amateurs operate within the prescribed power limit, which is 100 watts in this country. Other countries seem to trust their amateurs more. New Zealand allows them 250 watts and the United States allows them 1,000 watts.

"The matter on which I seek assistance involves the International Telecommunications Union, which determines the radio frequencies used throughout the world. It meets about every five years and the next meeting will be at Geneva in 1959. On a governmental and an organisational level—two distinct levels—the nations will allot the frequencies which amateurs and others may use. The Wireless Institute of Australia represents the radio

amateurs of this country. The cost of sending a delegate from Australia to the conference at Geneva is estimated to be £1,500. In view of the extraordinary contribution that these men make to the national well-being in peace and in war, will the Minister examine the possibility of providing assistance on a £1-for-£1 basis to send a delegate to Geneva? The Minister for Repatriation (Senator Cooper), who represents the Postmaster-General in this chamber, and indeed the Postmaster-General (Mr. Davidson) himself, have been remarkably sympathetic to this fraternity in the past.

"I emphasise the need for their good offices at the moment by indicating that at present the 20, 40 and 80 metre bands, which are the normal bands of communication for amateurs, are being used by what are known as intruders or commercial pirates. When a commercial organisation infringes frequencies belonging to amateurs, the only redress available to the amateurs is through the government of the country concerned. They have no legal standing to enforce their rights. Therefore, I ask the Minister to consider providing assistance to send a delegate to this important conference so that these men may have reasonable protection for their hard-won rights."

Amendments to National Field Day Rules for 1958

These amendments are based on suggestions from the Division.

RULES

1. There shall be six sections to the Contest—

- Single operator portable and mobile transmitting phone.
- Single operator portable and mobile transmitting c.w.
- Single operator portable and mobile transmitting open.
- Multiple operator portable and mobile transmitting.
- Fixed stations working to portable and mobile stations.
- Reception of portable and mobile stations.

SCORING TABLE

Portable and Mobile Stations:

- For contacts with fixed stations within the competitor's own State 2 points.
- For contacts with fixed stations outside the competitor's own State 3 points.
- For contacts with other portable or mobile stations within the same State 5 points.
- For contacts with other portable or mobile stations outside the competitor's own State, 10 points.

Rule 2 (last paragraph):

Extend so that it may read: "... except in the case of stations entering for the multiple operator section, where several bands may be used simultaneously."

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Papua and New Guinea

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DEPARTMENT OF POSTS AND TELEGRAPHS

SENIOR RADIO TELEGRAPHIST—£1258-1318 p.a.
(2 positions)

QUALIFICATIONS.—First Class Certificate of Proficiency (P.M.G.) or equivalent; ability transmit at 25 w.p.m. and use typewriter for reception radiograms at 30 w.p.m.; two years' commercial experience desirable, preferably in coastal radio or marine service; ability control and train staff.

RADIO TELEGRAPHIST—£988-1198 p.a.
(2 positions)

QUALIFICATIONS.—Second Class Certificate of Proficiency (P.M.G.) or equivalent; ability transmit at 25 w.p.m. and use typewriter for reception of radiograms at 30 w.p.m.; one year's commercial experience desirable.

SENIOR TECHNICIAN—£1258-1318 p.a.

QUALIFICATIONS.—P.M.G. Senior Technician (Telecom.) or equivalent; automatic and manual telephone experience.

DUTIES.—Install and maintain equipment at main exchange or in charge small district.

GENERAL INFORMATION

SALARY.—Rates quoted are actual for unmarried appointees and include allowances and adjustments. Married officers receive a further £125 p.a. Additional Territorial allowance of £25 p.a. after 5 years' service and a further £25 p.a. after 7 years' service is also payable. Minimum rate applicable, unmarried male is £995 p.a.

ELIGIBILITY.—Adult male British subjects under 45 years.

APPOINTMENT.—Permanent subject to satisfactory probationary period.

LOCATION.—Appointees are required to serve anywhere in the Territory.

ACCOMMODATION.—Single quarters only available. Married accommodation not available under 21 months from date of appointment.

SEPARATION ALLOWANCE.—Payable at discretion of Territory Administration; designed to compensate for added expense of married appointee obliged to maintain family outside Territory.

LEAVE.—Three months after 21 months in Territory. Additional 3 months' leave after each 6 years' service and 6 months' furlough after 20 years' service.

TAXATION.—Income derived by residents of Territory from sources within Territory, is not at present taxable under Commonwealth legislation.

FURTHER INFORMATION.—An information handbook on the Public Service of the Territory is available from the Department of Territories, Canberra, or Sydney, or from any Commonwealth Public Service Inspector, Commonwealth Employment Office or official country Post Office. Other enquiries to Department of Territories, Canberra (phone U0411, Ext. 29A).

APPLICATIONS.—Submit on prescribed form available from Offices mentioned under "Further Information" to The Secretary, Department of Territories, Canberra, by 31st December, 1957.

YL CORNER

BY PHYL MONCUB*

WHAT IS A HARMONIC?

A harmonic is the son of a Ham who for the first few months of his life squeals with all the piercing intensity of a solid hetrodyne.

Between the ages of two and four he spends his time turning Dad's switches on and off and calling "seek-you", "seek-you".

At six he builds he first wireless set. The cabinet from a fruit case, the coils are springs from an old couch; for the dial he uses the face of a broken alarm clock, and Mum's soap saver is just the thing for a microphone.

At eight he still has the fruit case but has added a broken vernier dial and some pre-historic condensers which somehow or other Dad has managed to part with and Dad also graciously gives him a couple of burnt-out tubes.

At 12 he really starts building; he rewinds a burnt out transformer and attempts making a variable condenser from ends of jam tins he's been saving up. He's getting the bug fast, he's Dad's pal and Dad is as proud as can be.

At 14 he's at the experimental stage. He's doing science at school and he tries making a battery with Mum's preserve jars and some strips of lead he's removed, unbeknown to Grandma, from the slate roof up at her place.

At 15 he's full of questions, at first they're quite within Dad's scope, but it's not long before he's got Dad guessing and we find Dad secretly swatting up text books so as not to lose his prestige.

At 16 his reading is completely comprised of radio books. He treats with disdain such things as cowboy yarns, thrillers and the movies. Girls are most definitely taboo. His bedroom is fast becoming the second shack in the house and pieces of radio gear are to be found on top of his wardrobe. In his cupboards all mixed up with his clothes, under his bed, and side cutters and pliers can often be found even in his bed. Mum is going through it all for the second time in her life but somehow, being so well seasoned, is more tolerant this time and takes time off to appreciate the fact that bogdies do not come in this category.

At 17 he masters the code and shames Dad by sending it much faster than Dad can receive.

At 18 he gets his licence and really digs into the building side of radio, but unfortunately for Dad he's always short of cash and is continually borrowing parts of Dad's gear and when Dad wants to go on the air he has to ask for a loan of them back again. He gets interested in v.h.f. and borrows Dad's QQE/40 to try out a new rig he's built up. He switches it on and up goes Dad's QQE. Having got his licence he feels he knows everything there is to know about radio and proceeds to educate his elders in the theory of this science. There is no Ham of whatever vintage or experience could possibly know as much about radio as he does when he's 18. To him poor old Dad is just plain dumb, his own knowledge, he feels, is just so far beyond that of his father's.

By the time he's 22. Dad reluctantly begins to admit that perhaps he's right!

* 235 Union Road, Ascot Vale, Vic.

"OK DX CONTEST 1957"

International C.w. Competition

On the occasion of its fifth anniversary the Czechoslovak Central Radio Club invites foreign Amateurs to take part in the 1st International C.w. DX Competition—"OK DX Contest 1957".

CONTEST RULES

1. Stations participating in the contest will contact stations of other foreign countries (the countries to be understood as per the "Official List of Countries for the DX C.C.").

Contacts between stations of the same country as well as repeated contacts with the same station on the same band are not allowed.

2. The contest period starts on 0000 G.M.T. and ends at 1200 G.M.T. December 8, 1957. Bands used are 3.5, 7, 14, 21 and 28 Mc.

3. Stations participating in the Contest will call "Test OK".

4. Stations will send six-digit numbers indicating the signal report (RST) and the current number of the contact, starting from 001. Contact must be numbered consequently irrespective of the bands used.

5. One point is earned upon sending an exchange and two points upon receiving correctly an exchange; hence three points can be earned for a complete contact. Contacts with Czechoslovak stations earn double value of points.

6. Continents worked during the Contest (i.e. Europe, Asia, Africa, North America, South America, and Oceania) serve as multipliers. The multipliers are considered for each band separately and, consequently, the maximum attainable number of multipliers is 30.

7. Entries may be made in one of the two classifications: (a) Single-operator stations, (b) Multiple-operator stations. Multiple-operator stations are those obtaining assistance, such as monitoring other bands, keeping the station log and records, etc.

Each station will state in its log whether entry should be made for: (a) One band operation (in this case the log data from other bands will serve for inspection only), (b) All the bands used by the station during the Contest.

8. Separate logs must be used for each band. The logs should contain the following data: Date, time, station worked, exchange sent, exchange received, points, multipliers (with the first contact only).

The logs should include the following statement: "Herewith I declare that I have observed the rules of this Contest as well as the regulations of the licensing authority in my country, and that all the data stated in this log are true."

9. Stations of the two separate classifications which have achieved top scores on individual bands and on several bands, respectively, will be awarded a certificate and a flag, while two further stations will be awarded a certificate.

In addition, a list of records of stations in individual countries will be prepared, and the first station of each country will be awarded a certificate.

10. (a) Stations which contact 100 different Czechoslovak stations will obtain the "100 OK Award". (b) Stations participating in the Contest may obtain the "S6S Award" in recognition of their working all continents; also special endorsements will be placed on these awards if all continents have been worked on a single band.

No confirmation is necessary for the awards as the contacts will be verified from the logs of other participants.

11. Logs should be sent to the Czechoslovak Central Radio Club, Box 89, Prague 3. Logs must be mailed not later than 15th Jan., 1958.

12. Decisions of the Award Committee are final.

W.I.C.E.N. NOTES

The new title proposed for C.D.E.N. has now been accepted and preparations are well in hand for the printing of the Authorisation Cards.

The advent of Sputniks I. and II. demonstrated conclusively the speed and efficiency with which Amateurs rise to the occasion whenever necessary. We "dips our lids" to all who took part. Furthermore, the important part the Amateurs can and will play in I.G.Y. activities has now been forcefully brought home to those who were very doubtful of his reliability and worth.

One point recent activity clearly demonstrated was how important it is for Amateurs to learn to abide by a strict operating procedure and cease engaging in unnecessary matter. The latter feature was responsible for slowing down correlation of information during the first few hours when time was most important. terse but concise reports and "out" should be the goal for which we should all strive; thus ensuring that the maximum information is passed in the minimum time. Practice and more practice is the obvious way to achieve the desired result.

One question which arose from the publication in August "A.R." of section 1 of Instructions to W.I.C.E.N. Operators was regarding (1.5) the frequencies 3501 and 7002 Kc.

Answer: These frequencies were chosen as national guard frequency for W.I.C.E.N. after consultation with the Amateur Administration. In the interest of safety they should be strictly adhered to in the same manner as Air and Maritime Services maintain close watch on international guard frequencies.

Change to local network frequency should only be made after contact has been established. Under no circumstances should guard frequency be used for traffic handling; however, should more assistance be required, it should be sought by calling on guard frequency.

We cannot stress too strongly the necessity of putting the welfare of W.I.C.E.N. as a whole before local beliefs and customs.

In order for W.I.C.E.N. to be accepted by the community as a vital force, it must operate in principle as a national body not as a number of isolated groups. Naturally in times of emergency it will be necessary to improvise, but if on the whole we all follow the basic pattern laid down in the rules we will achieve much better results and greater recognition.

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DX ACTIVITY BY VK2QL†

It is my unhappy task to mention an addition to the list of "Silent Keys"—VK2CM and VK5HI. 2CM can be classed as one of the "Fathers" of DX. It is a far cry these days from the type of equipment Charlie used in his early DX experiments. I do not propose to mention it further here as I feel sure there will be an article in this magazine on Charlie's early DXing. For 5HI, Amateur Radio was a great boon as he had been crippled for his 20 years of life. John became very well known to the DX fraternity.

Early this month very good conditions were experienced on 14 and 21 Mc., but the last ten days showed little promise of good DX. However, it is an ill wind that blows nobody any good for with the falling off on those two bands, 28 Mc. and the 50-54 Mc. have come into their own for DXing. For those who had the receivers to cover the 20 and 40 Mc. bands, a new type of DX, to wit, "UA/SPUTNIK No. 1" produced some interesting things to think over for those interested in propagation. I wonder how many theories will be knocked cockeyed in the final washup of all the information that is gained.

NEWS AND NOTES

There is not a great deal this time. This is the section of the page I would like to see build up, as there is very often a great deal of general information each one may pick up that would be of interest to all DXers. So if you come across anything which could be of general interest, let's have it.

Any doubts that CR8AC was not OK have been dispelled by the receipt of his QSL. He is ex-CR4AL.

SV0WQ was active from Crete on 14, 21 and 28 Mc., but there have been no reports of activity from Rhodes, although he was reported to be going there.

CR8AB is reported to be active on 14 Mc. c.w. round 1300z (5WO).

UA00M is now active on 21 and 28 Mc. A lot of QSLs arrived in the VK2 Bureau from him this month.

CB9AE is active from Chilian Antarctica on 21 Mc.

7LZ worked GB6SF at the International Song Jamboree. This GB prefix is allocated in the U.K. to special Amateur stations operating from special locations such as the Jamboree. I do not know where the GB stations mentioned later in these notes were operating from.

An HVI station was expected to be operating from the c.w. part of the "CQ" Contest. What a score he should be able to produce? (7LZ).

VF8BY is active on 21.205 Kc.-around 0030z (7LZ).

K56AF is active on 14.240 Kc. from 0900z (7LZ).

ZL5AA sez that absorption is so heavy in the Antarctic regions that rarely are any signals heard below 50 Mc. This has been mentioned to me before by OAB, so a 3.5 Mc. contact with Antarctica is a matter of being around at the right moment. ZL5AA reports hearing one VK3 early in the year.

For those interested in the story of AC4YN should try and get hold of the book "Captured in Tibet," written by Robert Ford. I have only seen a resume of it so far.

ACTIVITIES

8.5 Mc.: NI1 reports.

7 Mc.: 2AMB: VS1HU*, DU7SV, SP5WH, ZS6APL, ZS6EQ, ZS6AT*, 2QL: ZS, OZ, W, KLT7, JA*, KG6*, Rod de Balfour: JA, KH8, W, BBR819*, FX8UA (a strange one there), HRIJH, DU7SV, KR8AK, KLT7, UH8AB, UA3, XE2RC, YQ3FB, YU2QT, ZE2JG, ZE2JM, ZE2JX, ZS6ASX.

14 Mc. CW: OAB: VQ8AP*, 3V8AB*, YK1AT*, UM8KAA*, XW8AG*, UR2KAA*, 2AIR: SV0WR*, 9S4CM*, SV0WQ/Crete*, EA6AW*, ZC4IP*, DLOHM*, UBSKAB*, OQ5IE*, PY4AO*, I1ADA*, LU*, UA0*, OA4FA*, ET2KY*, ZC5AL*, UC2AF*, VQ2FC*, GB3AWR*, CT3AB*, UA00M*, IT1AT*, HR2CL*, IS1MM, IS1FIC, EA8DE, VQ3JG, FL8AB, FFAAC, ZP5CF, 2AMB: TIZPZ*, ZL5AA*, OA4AP*, ZC5AL, FP8AP, ZK1AU, FB8ZZ, CR8AC, KZ2TH, VS9AD, KC4UA, 2AGH: ZC4GT*, PY2BAU*, FO8AO*, UA0CD*, ZP5HK*, KC4USA* (the op. being ex-KP8AA), CN8ID*, UNIAE, VQ4DO, 2QL: UQ2AG*, CR1CS*, SV0WQ/Crete*, UQ2KAA*, FFA9J*, ET2KY*, VQ8AB*, 5ASTH*, JT1AA*, UM8KAA*, ZP5CF, ZP5HK, VQ3GC, VP2LU,

† Frank T. Hine, 30 Abbotsford Road, Homebush, N.S.W.

* Call signs and prefixes worked.

z—zero time—G.M.T.

SUIIM, HE9LAC, XW8AE, VQ8AC, G2CFZC, UD6AL, EA6CE, YK1AT, HH2CL, 4DO: UF8AC*, FFA9J*, ZM6AS*, UR2KAA*, HL2AM*, KC4USA*, KC4USV*, ZC5AL*, UA00M*, HA1KSA*, ISIZEI*, ZC5AB*, VP9Y*, UR2KAA*, HL9*, UA0*, UA1*, UA8*, ZS2CV*, UBSKAB*, UBSKAA*, UR2AK*, TI2PZ*, JT1AA*, 9S4CM*, VP9DB*, OQ5IE*, SE1JV*, FE8AE, SV0WQ/Crete, UP2AN, CR8AC, W4FCB/KS4, UR2KAA, VQ5GJ, VQ8AC, LZ1KZ, 5WO: VP9DB*, SV0WQ/Crete*, UAIDZ, UA5LG, 60M, who has reactivated himself with new gear: DJ*, OA4*, VE2*, OZ*, HB9*, ON*, U18*, ZC5*, SP8*, CT1*, YV5*, VU2*, 5RK: W*, JA*: 7LZ: VK0PK*, ZP5CF*, HL2AD*, OA7I, BERS-195: CR7AD, CR8AC, CE1BD, CE9AH, FB8XX, GB3AWR, FB8ZZ, FR7ZC, HL9KT, HL2AM, KC6JC, KC4USA, MP4BBE, OQ5CP, OQ5IE, OX3MA, OQ0VN, SV0WQ/Crete, SUIIM, TI2PZ, DL6GF/TA, UNIAE, U18KAE, VP8LN, VOIEK, VQ8AC, V58BE, VQ3JTW, VQ5GC, VS9BR, KZ2TH, YK1AT, ZETJN, ZD8DT (phone). Don Grantley: EA, UA0, OA4AP, CT3AB, VQ4AV, UNIAE, ZC4FM, CN8FW, CR8AI, CN8FH, CO3YP, XE1MB, OQ5IE, VQ6WR, VQ5GJ, BVIUS, UC2KAB, YN1AA, OA1K, WIA-L3088: HL2AM, VQ8LQ, ZC5AL, ODSAF/AM, KZ5BE, KB6BC, XE1JW.

14 Mc. Phone: 2AMB: YV5BS*, HK7AB*, HK7LX*, TI2OE*, CO7FH*, CN8AB*, OA4EP*, ZETJR, KP4ZC, YV5ABD, OQ5FH, HL1KT, FA8CF, ZE3JU, 5WO: FB8CD*, K56AF*, ZE2JE*, ZS8CY*, VQ4AP/P*, CO2OZ*, FR7ZC*, OQ5FH*, FW8AA*, ISFL*, F9UC/Corisca*, ZD8DT*, OA1K*, UBSWF*, EA3JE*, 5HW: OA1K*, 7LZ: TI2LDT*, CX1FB*, PJ2AA*, TI8MA*, VU2PK*, 4STP*, HK4DP*, K56AF*, B. Smith (VK2-SWL): ISFL, ZD8DT, I1MU, CT1PK, FUB8A, FK8AS, HK4DT, LA3G, OA1K, HP3FL, K56AF, HK4DP, EA7EB, Don Grantley: K56AF, VR3C, Rod de Balfour: A long list, the pickings of which are ISFL, ZD8DT, ZEZKR, UC2KAB, VQ4AQ, ZS, LU, OA1K, PY, HClAGI, HK4DP, HK3FV, VP1EE, HH2HH, VP2LU, VP9CY, CE0AC, K56AF, ZL5AA, KAOLJ, BVIUS.

20 Mc.: UA/Sputnik/SM. Many of the DX gang.

21 Mc. CW: OAB: OQ5PB*, SV0WQ/Crete*, 5A5TE*, CE9AF*, CR10AA*, TF3TP*, SV1AB*, 3A2BP*, 2AIR: FA30A*, UC2CB*, UB5UW*, CE9AG*, CE3RE*, 4X4C*, W4FCB/KS4*, FA8ZZ*, UD8KAB*, SV1SP*, HE9LAC*, SV8CY, 2QL: ZB1CR, CE3RE*, CE9AG*, ZP5CF, PY-7YC*, SV0WQ/Crete*, 3A2BT*, 4X4DR*, 2AG: UC2CB*, W4FCB/KS4*, UA00M*, SV8CY*, SV1SP*, UQ2KAA*, UL4HU, CN2AY, UR2KAA, ZD9AB, VP2LU, 5ASTE, 6WO: OK-3DC*, ZSSU*, UAIDZ*, ZC5AL*, 7LZ: UR2KAA*, FK8AT*, UAIDZ*, KR8CI*, FA9VN*, 21 Mc. Phone: 2AGH: KB8BH*, 2AMB: PY-2EQI*, PYIAQT*, OA4V*, CE3GI*, FUB8AD*, EA8*, 5WO: KB8*, P15AA*, CX3BH*, 7LZ: KB6BH*, CO2BH*, CE2AY*, CX3BH*, PY4AKT*, VK0DC*, VK0DJ*, CN8MM*, FUB8AD*, Rod de Balfour (excluding the more usual ones in his list): SP5KAB, UA1FE, GC8FQ, GD3GMH, 5A1TG, CN8JO, MP4BFB, AP2Z, HS1B, OD5AV, 4X4HK, 4X4CK, VE9AHU/SU, BVIUS, HL9KT, FUB8AD, TG9AD, VP9CY, VP5EM, CO-2BH, HH1HB, VP7NV, HClES, HK4DP, PJ-2AA, OA4DE, OA4V, CX3AA, CX2CO, CE9AB, VP1EE, HR3LW, Good DX Rod.

28 Mc. C.W.: 2QL: ZC5AL*, CE9AG*, K8TSQ/KG6*, ZSSJM, JA*, KM6, Europeans. 5WO: HA5BI*, DL*.

28 Mc. Phone: 5WO: SV0WQ/Crete, 4STYL*, ZS*, OQ5RU*, VR2DB*, ZC4IP*, TIZES*, TI-2LA*, W*, VE*, Europeans. Rod de Balfour: KR8DQ, KA, VU2RM.

40 Mc.: UA/Sputnik/SM. 2ADT, 2AIR.

60 Mc.: 2WH: JA*, 2ARG: JA*.

QSL SITUATION

QSLs have been received as follows: 2AIR: CR8AC, VP7NM, 2AMB: KR6FM, KC6CG (7 Mc. phone), CR8AI, PZ1AP, 2QL: CR8AC, 9S4CM, KC6CG, ZS2MI, 5WO: FB8CD, UQ-2KAB, WGUOU/KS6, KB6BH, FE8AE, HH2LD, HH3L, W7FNP/KP8, ZK2AD, CR85P, VOIEK, XW8AB, VP5DS, 7LZ: VR8TC, CR8AC, BERS-195: KP4AO, KR8AK, KZ5LB, PY8YY, UA-OKFF, UA00M, ZC4IP, Rod de Balfour: KC8UZ, VP5EM.

My thanks this month to 2EG for his QSP of OAB, 2AGH who has been not quite so active due to a rebuilding programme, 2AIR trying to find out his propagation from the raised g.p. antenna, 2AMB who is happy regarding the QSLs he is receiving these days. We welcome 4DO to the page. Trx Hal, it all helps. 5WO who has been busy with shack rebuilding, 5RK for his QSP of 6GM and 6HW. Your work very much appreciated Ray, Rod de Balfour for his relay of 7LZ. Hope your cubical quad gives the desired results Hod. Barney Smith a new subscriber from Sydney

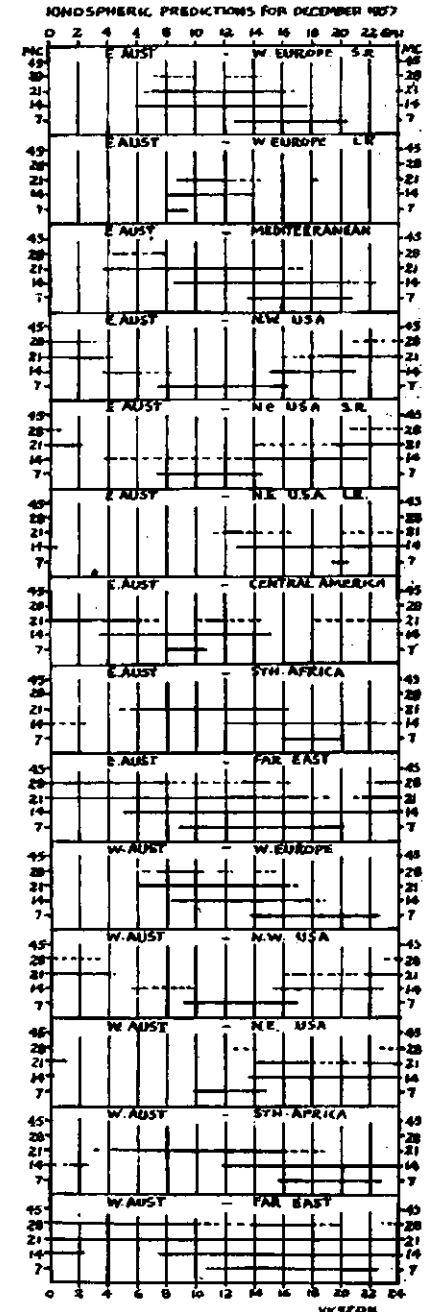
we also welcome. Don Grantley who, like WIA-L8038, finds milking quite a handicap to DX activities.

Although it may be early, next issue will be too late, so I will take this opportunity of wishing all readers the best of Season's Greetings, and a special one for all those who have helped me keep the page going for 1957. Let's hope the year 1958 finds a return towards that "Amateur Spirit" amongst all DXers. Sometimes it seems a thing for the "historical record" of Amateur Radio. If we lose that, it is just another step where Amateur Radio itself will become the "historical" all too soon. One night recently I checked 14000-14200 Kc. and counted 14 commercials operating in there. 73 and good hunting. P.S.—Don't forget deadline this month, 20th Dec.

QTHs OF INTEREST

ZP5HK—Box 512, Asuncion (2AGH).
KB6BH—Box 583, U.S.P.O. 68/50,000, Canton Is. (2AGH).

5ASTH—Via R.S.G.B.
VQ8AB—Via R.S.G.B.
SV0WQ—Box 564, Athens. Also via W8GHM.
3A2BT—Via R.S.G.B.





*The Season's
Greetings
to all our Customers*

*Deck out the Walls with Garlands gay,
And let the kindly laughter play,
Hear the Chimes so sweetly sounding,
Christmas happiness abounding,
All that's good and true be thine,
At this merry festive time.*



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FIFTY MEGACYCLES AND ABOVE

October, month of months for the 50-56 Mc. gang. Top of the ladder for JA contacts to VKs 4NG, 4LK, 4ZAZ, 4WD, 2RU, 2WH.

DX.—Granted 50 Mc. for use during the I.G.Y., 4NG immediately swung into operation, finding the band open to JA in the evening. Not unexpected seeing that Bob had been working cross-band 25/50 Mc. with the JA stations from Aug. 30 to Oct. 8 and the 27/28 day cycle was due to peak. Two JAs fell to him the first evening between 1900-1910 E.A.S.T., then nothing until Oct. 14 when his run started. Here it is: 14th—JA1, 2, 3, 1942-1910, six contacts; 15th—JA1 to 8, 2023-2330, 16 contacts; 16th—JA1 to 7, 9, 2030-2330, 20 contacts; 17th—JA1 to 4, 6, 7, 9, 2018-2315, 17 contacts; 18th—JA1, 2, 4, 6, 2040-2215, 7 contacts; 19th—JA1, 2, 3, 6, 2015-2218, 8 contacts; bedtime. Bob had a total of 151 JA contacts between Oct. 9-25.

For Vern 4LK, news of the switch came very belatedly out of the blue. He only recently changed his beam to 56 Mc. But not undaunted, Vern tried that and succeeded. For a week he monitored the band and heard nothing, but Sunday, Oct. 20, started at 2025 and heard the band full of JA signals; between 2040 and 2215, Vern had 14 contacts. Through the evening he remembered how successful Athol 3CP had been when using his 144 Mc. beam on 50 Mc., so Vern switched over to his 16 element 144 Mc. beam, found that it loaded much better and gave a vast improvement in signal strength, both tx and rx. From then on Vern worked them consistently until Oct. 26, when the run of openings appeared to close. He worked all districts including JAS. His biggest surprise on Oct. 23 was to hear VK2ARG calling VK2WH at 2040, then at 2111 to be called by VK2WH. During the contact Hugo rose to S8, but believe it or not, was then lost in the JA QRM.

Later in the evening, 2WH (Forbes) made his first JA contact on 50 Mc. with JA4HM who reported Hugo as mostly S4 to 5. Earlier in the evening Hugo had been hearing the JAs at S2 to 3, too difficult to copy or identify.

There are no details to hand of the contacts made by 4ZAZ (Mt. Morgan), 4WD (Brisbane), or Major 2RU (Gosford).

VK Openings.—Oct. 30, VK3 to VK4s NG and ZAZ, at 1830, last heard 2127, signals to S9, no sign of the Brisbane boys. Oct. 31, at 1730, still going, bedtime 2315. VK4 to VK2, 3, 5; VK7 heard. VK2 to VK3, 4, 5. Sigs to S9, often meter stop. Rockhampton 4NG, Melbourne 4KK, 4GG, Brisbane 4WD, 4JO, 4ZBF, Ipswich 4ZAT. Reg 2ATS Inverell, almost paralysing VK3 rx's with his huge signal. After 2100 some of the Sydney gang to S6, but by then they and the VK4 gang were flat out working VK5. Where was VK8? Then nothing more up to the time of writing—Nov. 7.

Comments.—As VK4LK sums up the JAs. They are not as good as I have heard them on other occasions (pre. 58 Mc. days), a lot of fast QSB and in addition their modulation carried a lot of fast ripple. Generally speaking, some of the JAs have such a poor idea of our English they sound like a lot of children gurgling. It is pathetic to sit and listen to them go over the pages of a bilingual dictionary trying to find one suitable word; others have a very good grip of our language and are able to frame intelligent questions, the chief one being, "Why we never hear any other signals than VK4s? 4NG and 4LK only v.h.f. stations we hear in long time." It is hard to tell them, and get them to understand the length and breadth of Australia and the way the signal tapers off as it gets south. Still, I hope some of the VK2 fellows will hear something of the JAs ere long. Your wish has been granted, Vern.

The silent gang—4ZP (Sarena) and 4GA (Atherton)—consistently hearing JA, but both without transmitters.

DX to look for, active on 56 Mc.—DU1GF, KX6, KG8. VR2DB is preparing to come on. Regular Sunday W skeys also.

The pleasure of hearing so many of the old 50 Mc. gang on the air in VK2, 3, 4, 5—the latter being called. Tons of dust blown off idle equipment. The switch on, the temporary antenna or the 56 Mc. beam used back to front. The lucky ones who have retained 50 Mc. rx and beams for I.G.Y. observation, whose converters and tx cover both bands. The keenness displayed by some of the Z call boys. The whole of a time the 50 Mc. gang are in for. The need to co-operate in I.G.Y. observation, the reason we were given the use of 50 Mc. again. Prove your worth by keeping accurate logs and forward to the appropriate I.G.Y. authorities in VK, with comments.

The following message (via Norman Burton) has been received from KH6CCZ: "Advise will have 50 Mc. beacon in KH6 as from 28/10/57 on a frequency of 50.225 Mc. Call and transmission c.w. 'V V V V de KH6UL'. Power 200 watts, antenna is a ground plane."

ROSS HULL CONTEST

Rules have been altered to include 50-54 Mc. as an additional band with the scoring as for 56-60 Mc. With the band open so early and extended DX such a possibility, coupled with the rules as they now are, help to make the Contest the best ever, and there have been some good ones in the past. Give the Contest Committee some work to do by sending in your logs at the conclusion of the Contest, so indicating that you appreciate their interest in seeking to make rules suitable for all bands used in the Contest and to satisfy all those taking part. And be prepared for a certificate for the greatest distance covered beyond 3,000 miles. Your chance is as good as anybody's. —F. O'Dwyer, VK3OF.

NEW SOUTH WALES

Meeting.—The V.h.f. and T.v. Group held its monthly meeting at Gore Hill Technical College on Friday, Nov. 1 at 8.15 p.m. The lecture for the evening, which was on astronomy, was given by Mr. Gordon Patston and was entitled "The Expanding Universe." Mr. Patston illustrated his lecture with slides and at its conclusion answered questions put to him by many of the 30 odd members present. He also answered many questions concerning his recent experience with the "Sydney Amateur Astronomers" in attempting to track Sputnik, the first earth satellite. A most apt vote of thanks was moved by Charlie 2NP.

Dave 2AWZ presented, on behalf of the Contest Sub-Committee, the rules of the next monthly day-hunt. This will be a mobile fox hunt concluding with a hidden tx hunt at the end of the day. The meeting ended at 10.30 p.m. and supper was served, as usual, by 2NP and 2ABZ.

The Spring Field Day was held on Sunday, Oct. 6. Three classes of stations participated in this event, viz. city, portable and country. Points were awarded for contacts and distance multipliers, that were designed to encourage portable stations to venture as far as possible abroad, were applied. The results were: City—2MZ (1018), 1st: 2ZBQ (702), 2nd: 2EW (857) 3rd; Portable—3OA (3168), 1st: 2HL (1575), 2nd: 2ANF/2ER (782), 3rd; Country—No logs were received.

Monthly Night Fox Hunt was held on Oct. 23, the starting place for the hounds being Top Ryde. Like the previous night event, this was a mobile fox hunt with the same rules as used previously. The fox was Phil 2ZBB. It was Phil's first experience at being fox and we think he is to be congratulated on both the route he planned when mobile, and for his choice of final location. Only one hound was able to catch him when mobile, this being Bob 2OA who intercepted him on the Mortlake Punt. Bob gained three points for the catch and thus became the outright winner of the event. 2ZBD/2ER tied with 2AZO/2ATO in being first in at the end. The final location was in the Baulkham Hills area.

2ANF has a new mobile outfit working in his own car. 2ZBD and 2ZBH are about to shed their Z's after having passed the last morse exam. A gent from Parramatta has worn out the engine of his car, chasing foxes and has to have a complete overhaul. 2ALU at Wollongong has been heard and worked in Sydney regularly. 2MZ has built himself a 2 mx walkie-talkie and has worked 2ZAC. 2ZAL has been working VK4s on 5 mx.—2ER.

VICTORIA

Don't forget fellows, there is a V.h.f. Field Day on 15th of this month.

Fox Hunt.—Here is the report on the Oct. hunt as submitted by the fox. "On Oct. 9 the usual monthly fox hunt was held. Norm 3ZBU being the fox. There were four hounds—Roy 3ARY, Eric 3ADU, Tom 3AOG and a newcomer in Maurie 3MS. The rules were that the fox should be mobile for most of the hunt and that each catch be worth one point. The hunt commenced when 3ZBU came on the air outside Parliament House. Heading through the city, he was first caught near Flagstaff Gardens. The route then took fox and hounds past the Shrine into the South Yarra area where considerable consternation took place amongst the maze of narrow streets and lanes. From there, the fox took to his heels and headed for South Melbourne where 3MS, in hot pursuit, lost his beam while making a

sharp turn into a narrow lane. The fox then made his way northward to the North Melbourne Football Ground where he got balled up by a night-watchman. However, he got away and continued on through Travencore, Moonee Ponds and Essendon, finally stopping at his own QTH. The results of the hunt were as follows: 3AOG 7 pts., 3ARY 6 pts., 3MS and 3ADU 5 pts. each.

"It is anticipated that with the coming of summer and more pleasant evenings, others will follow in the footsteps of Maurie and dive into their junk boxes, build up a 2 mx rx for the vehicle and participate in the hunt. So get cracking and be in the next one chaps. It is grand fun." Thanks Norm for that report on the hunt, and gentlemen, note well Norm's last remark.

V.h.f. Group Meeting.—The advertised lecturer for the Oct. meeting, Ray Price, was unable to attend because of illness and so Jock 3ZDG took Ray's place at short notice. Jock spoke on "Oscillators" and he discussed at length the Butler overtone circuit and a new "push-pull single ended" affair. The gang showed their appreciation of Jock's effort in the usual manner. The remainder of the meeting was spent in discussion on the satellite and on the reallocation of 50-54 Mc.

288 Mc.—Activity on this band appears to be on the up and up again. Two stations in 3ATK and 3AFJ have made a reappearance on the band after a couple of years of inactivity and a third "oldtimer", 3ALK, is believed to be getting some 1 mx gear together. Both Max 3ATK and Ken 3AFJ are running mod. occ., super regen. outfits. Max is using a 16 el. horizontally polarised beam and Ken has a 16 el. array vertical and a 3 el. array horizontal. Together with the two stations mentioned last month, 3OM and 3AMT, as well as 3QO, 3AAF, 3ZAF, 3ZAQ, 3ZBN, 3ZFA and one or two others, who use the band on field days only, will put 1 mx activity up to the highest it has been for some time.

144 Mc.—I have been very inactive on this band of late, partly because of beam trouble, but I have managed to find out a little of the goings on. Stan 3ZEG is the latest newcomer to the band. Welcome Stan. Conditions into the west have been quite good recently and Gordon 3AGV and Eric 3ANQ have been putting reasonable signals into Melbourne quite frequently. I believe that George 3ZCG, now at Moe, has an exceptionally good signal in Melbourne. Haven't heard you yet George, but I will catch up with you. Ray 3ATN has been on recently and had solid contacts with Les 3ZCN and 3ANQ. Ray 3ZDX and Ben 3RK have been very quiet of late, both stations going through a process of reorganisation. Ray hopes to get a QEQ08/40 stocked up to full power very shortly. On Oct. 31 7PF worked into Ballarat and Geelong, then on Sunday, Nov. 3 Max 3BQ made the long haul to VK5, signals being S4/5 each way.

50 and 56 Mc.—The announcement that 50 Mc. was open to us again seemed to be the signal for a mass migration from 5 mx to 6 mx. Only three stations have been logged on 5 mx at this QTH since the addition—3ZFH, 3YJ, 3SF. So far, to my knowledge seven Melb. stations have come up to 6 mx, plus one other country VK3—3RR in Horsham. Anyway, most of the active gang were on deck on the night of Oct. 31 when VK4 and northern VK2 signals came through in fine style. Here, I logged seven VK4 stations including two Z calls—4ZAZ and 4ZBF—and one VK2 station. Since I had no tx I could not work them. Boy, was I frustrated.

David 3ZDJ, who is doing a turn of duty at Radio Australia, sent on details of doings—or lack of same—up that way. Alan 3UI is QRT on 5 and 2 mx for the time being because his beam feeders have come adrift. Les 3ALE has converted his old 50 Mc. gear to 56 Mc., but he has no beam as yet. A problem in itself, Les suffering from the effect of old war injuries. However, he hopes to make a move in the right direction soon. Peter 3APF has been very elusive and David has not been able to find out anything about his doings. Thanks David for passing on that info.—3ZAQ.

QUEENSLAND

Since our v.h.f. activities were last reported, we have had two hidden tx hunts. One hidden near Cooperso, was swiftly found by Jack 4JO and his crew. Consequently Jack was required to hide the tx for the following hunt. He did this most successfully, as he had everyone running around in circles, trying to dodge the puddles caused by a downpour previously. The tx was located only by Mick 4ZAA at the northern tip of Cribb Island. The boys decided that Mick's car floats anyway.

We detected a note of relief in Jack's voice when he announced that the tx was going off the air. The mosquitoes and the sandflies

we were as big as grasshoppers, so he says! Once again we returned to Jack's QTH where Mrs. 430 had a very nice supper waiting. Once again many thanks for your understanding of the inner-man, Mrs. Boss, it is truly appreciated. A discussion of the newly released 6 mx band took place, while some of the boys inspected John's new G4ZU beam next door.

Quite a few of the boys have reported hearing JAs, the band has been wide open on occasions. Stimulus enough!

The next tx hunt will, as usual, be held on the first Friday of December. Merry Xmas all!—4ZAE.

SOUTH AUSTRALIA

Which VK5 will be the first to break 4LK's record of 18 JAs on one day? Congrats fellow, it must have been a thrill.

Master Sputnik brought quite a bit of favourable publicity to a number of both h.f. and v.h.f. types, and was the means of spurting quite a bit of activity. Let's hope next time the 108 Mc. frequency will be used and the gear prepared for it brought into service. What with space ships, high sunspot counts with mounting r.u.f., there is a busy time for v.h.f. ahead.

It would not be right to omit some details of how one well known "all-band" type worked to get back on 6 mx. Like a lot of others, his 6 mx gear, including the 4 el. beam, was dismantled, put aside, or just given over to spider webs, so out it all came, dust removed, crystal located and first of all the converter put back into service; no signals heard on it, but functioning well on ignition QRM, and a real dandy on electric drills and welders. Next item the tx. Now being in a hurry to get back on, a very hasty breadboard layout was decided upon, starting with an XYZ tube as xtal osc. into a 12AT7 into a mystery tube that looks like it will bluish badly at 20w. input. Coils and condensers tuned up by means of grid dipper, and right on the nose, wiring checked OK, a.c. switched on and voltages appeared normal—but no osc!! After frantic searching, checking re-resonating circuits, etc., and generally wasting a lot of time, finally discovered there was no xtal in the holder. Who swiped it? That's the 108 dollar question and who are we talking about is the other. No, not me, but my nearest neighbour Ham and who he had made, why he nearly re-vamped his 2 mx gear in disgust.

John 5ZBA has his 6 mx gear going using a line-up of 6G6, 12A6, 832 tripler, 829B final, running 400v. on the plates and 150v. on the screens with a cunning device in using a 6SS7 as a diode monitor for the output.

Keith 5MT not far behind, but he is being generous in giving away most of his 6 mx gear (for conversion to the h.f. bands above all things), found he had to start from scratch. It won't take him long to get there and in passing a little bird tells me he put his beams in order at 11 p.m. one night.

Hughie 3BC heard again quite consistently on 2, passed his QTH quite recently and really envy that location. A perfect spot for take off in any direction, so we are expecting great things from you my friend.—5EF.

WESTERN AUSTRALIA

The Oct. meeting of the Group was held on Sat., Oct. 5, at D.C.A. as usual. Very welcome visitors were Geo. 6GH, Dave 6WT and Ken Allen. The lecture for the evening was given by Mr. John Hart, of D.C.A.; subject, Klystrons. Mr. Hart gave us a good insight into the construction and working of these valves, complete with slides showing exploded views of the different sections of the Klystron. Afterwards in the workshop we saw a Klystron working and also explored the various bits of gear and equipment that are used by D.C.A. We are very much indebted to Mr. Hart for his very fine lecture and also to Mr. Geo. Rann, of D.C.A., who made the whole evening possible.

Meeting nights have been changed from Saturday nights to the fourth Monday night in the month. This should help a lot of members who have been unable to attend on Saturday nights.

The fox hunt was held on Sat., Oct. 26. The fox was an unknown quantity, and to cut a long story short, the tx was found hidden under a bridge; the beam was suspended under the bridge and fring down the valley. John 6GU was the culprit.

The first Monday night meeting was held on 28th Oct. and the attendance showed improvement. Harry 6ZZ came along and was made very welcome. Members enjoyed a color film taken by Jack 5ZBU and his XYL, Mary, of a trip by road to Geraldton and included spear fishing, beautiful flowers and shots of the cray fish industry. Many thanks Jack.—6ZAV.

S.W.L. SECTION*

To begin this month's notes I must say how sorry I was no notes appeared in last month's issue of "A.R." The reason for this was that I received only one letter for the month and so I did not feel inclined to prepare any notes with such little support from other s.w.l.'s. So if you wish to see this section in the magazine, continue regularly to put your pen to paper and let me know about your activities.

SHORT WAVE LISTENERS' GROUPS

Recently a circular was forwarded to the Council of each Division of the Wireless Institute under the sponsorship of the Victorian Division Council by the Victorian Division S.w.l. Group. These Groups can only be conducted on a Divisional basis and it is not practical for a Group to admit members from within another Division. The Victorian Group, bearing this in mind, suggested in the circular that Groups should be formed in each Division. So far, to the best of our knowledge, Groups have been formed in the Victorian, South Australian and Papua-New Guinea Divisions, the latter of which we have heard very little. However, we have been informed that a Group may soon be formed in Tasmania and we wish that Division much success in this project.

We also hope to hear of a similar move from the remaining Divisions soon. So if you are interested in the formation of a Group within your Division, why not write to your Divisional Secretary and let him know of your interest? If you do this it may help your Divisional Council in deciding whether or not a Group will be worthwhile and also give them an idea of what interest may be taken. The names and addresses of the office-bearers of each Division are published elsewhere in this issue.

NEW SOUTH WALES

The only letter received from N.S.W. this month is from Ken Goodhew. Very pleased to hear from you Ken. He requests information as to how he can join an s.w.l. group. That is up to your Division Ken. I suggest you act on my suggestion above. Ken is obtaining a short wave rx which needs some work done on it, so looks like being busy for a while. Hope you get it going OK. We'll be pleased to hear how you get on.

VICTORIA

October Group Meeting.—At this meeting we were pleased to welcome a newcomer, Gill Robinson, who we hope to see more of in the future. The report of the Group President for both the past year's activities and for the Annual State Convention were presented by Vice-President, Michael Ide, as the President, Len Poynter, was unable to be with us for this meeting. After business was concluded we were presented with a most interesting talk by Michael on fault finding in commercial rx's. This talk was accompanied by a demonstration on an actual faulty set which Michael had been left in his capacity as a suburban

* Compiled by Ian J. Hunt, WIA-L3007, 211 St. George's Road, Northcote, N.16, Vic.

serviceman to repair. The lecture proved most interesting and we thank Michael for his efforts. Incidentally, the owner of the faulty receiver sure got his money's worth as the set was gone over with a fine tooth comb. After the lecture was concluded we received a demonstration of 3WI in action, ably operated by our Council representative, George 3WJ. Thanks for providing this very interesting item George.

Group Gossp.—The President, Len Poynter, and Asst. Secretary, M. Cox, were recently congratulated on the arrival of YL harmonics. These two hearty members were recently seen at one of the Division's general meetings having apparently talked their respective XYLs into allowing them a night off from washing the naps, etc., besides the usual Group Meeting night. By all accounts they enjoyed themselves and might try it again soon.

John McClusky also merits our congrats on having obtained his A.O.L.C.P. Another worthwhile effort recently was that of David Fraser, who by consistent listening was instrumental in aiding in the location of a "pirate" station on the Ham bands. Good work David. Frank Nolan and Geoff Morris are still going strong logging stations as Official Group Reporters, whilst Ian Hunt has increased his countries heard total to 163 with UR2 Estonia and VR6 Pitcairn Is., the latest two.

Plans entertained by some of the members range from the proposed erection of masts and new antennae to the building and buying of bigger, better or more equipment. Max Hillard is currently constructing beams for 50 and 144 Mc. and is eagerly awaiting the arrival of an Eddystone 888 rx.

SOUTH AUSTRALIA

Sept. and Oct. Group Meetings.—The Sept. meeting of the VK5 boys took the form of a visit to the Central Telephone Exchange where they had a very interesting time. Thanks go to Arch Halliday for arranging this visit. The Group has shown a slight increase in membership and hope to be able to arrange a full programme of events to stimulate interest in the near future. A recent listening contest held by this Group was won by Denis Greig, to whom we extend our congratulations.

John Campbell is busy studying for exams, and Jim Paris therefore handed on the following information: The Oct. meeting proved most interesting as Doc. SMD gave a talk entitled "The Early Days of Amateur Radio in South Australia". He described early tx's and rx's and told of the many difficulties which faced the Ham during the period he was preparing to get on the air. The boys thank you very much for your talk Doc. OM.

DECEMBER MEETINGS

The December meeting of the VK5 Group will be held on Tuesday, 10th, when members will combine with the rest of the Division for the Annual Christmas "Do". This is always a popular function and no doubt s.w.l. members will assist efficiently in the disposal of the sumptuous repast provided for the occasion. Thanks for writing and letting us know all about these activities, Jim, and we hope to hear from you again soon.

To return to VK3 activities again I would like as many members as possible to turn up at the December meeting of the Group. This meeting will take the form of an informal get-together and will give all the opportunity to carwash some other poor s.w.l. about your achievements.

I would like to thank all who have made my task easier by contributing to these notes during the past year. May the Christmas Season be one of blessing and peace to all who may read this page and the New Year one of health, happiness and useful achievement.

Wireless Institute of Australia Victorian Division A.O.C.P. CLASS commences

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Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—
Secretary W.I.A., Victorian Division, 191 Queen Street, Melbourne (Phone: MY 1087) or the Class Manager on either of the above evenings.

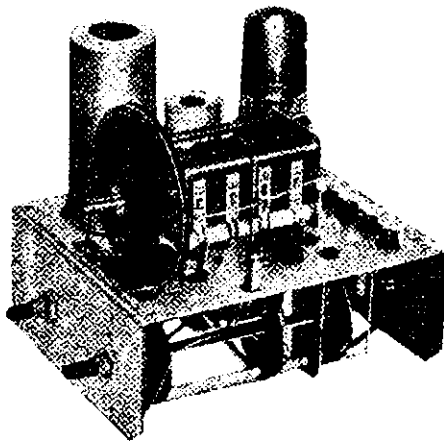
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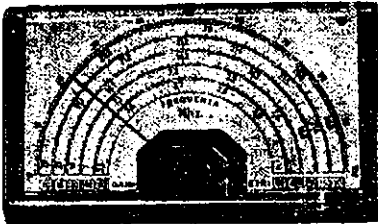


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 Victoria—Dave Wardlaw, VK3ADW.
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 Tasmania—Doug. Fisher, VK7AB.
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 Awards Manager: A. G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Perc. Healy, VK2APQ.
 Secretary: Keith Woodward, VK2ZAU, Box 1734, G.P.O., Sydney.
 Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
 QSL Bureau: Box 1734, G.P.O., Sydney. Frank Hine, VK2QL, Manager; assisted by Allan Smith, VK2AIR.

Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Newcastle: Les Sparke, VK2AOR, 18 Kahibah Rd., Higbfields, via Adamstown; Coalfields and Lakes: H. Hawkins, VK3YL, 9 Comfort Av., Cessnock; Westerns: W. Sitt, VK2WH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxlade St., Warrawang; 8th. Westerns: J. W. S. Edge, VK2AJO, Wallace St., Coolamon; Tamworth: F. W. Fowler, VK2APF, 4 Thompson Cres., Tamworth.

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President: F. G. Ball, VK5YS.
 Secretary: J. R. Lancaster, VK3JL.
 Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.
 Meeting Night: First Wednesday of each month at the Radio School, Boyal Melbourne Technical College.
 Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.

QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.I. Vic.
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 Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.
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 Secretary: N. T. Casey, VK9NT, Box 204, Port Moresby.
 Divisional Sub-Editor: R. Clark, P.O. Box 204, Port Moresby.
 QSL Bureau: R. Lloyd, VK9ZAL, Box 204, Port Moresby.

FEDERAL

LO.Y. ACTIVITIES OVERSEAS

As a result of the I.G.Y. many projects of an interesting nature are coming into being. One of these is an automatic station being operated on behalf of the R.S.G.B. The Postmaster-General has authorised Mr. K. E. Ellis (GBKW) to establish the station at "Hill Top", Well Hill, Chelsfield, in Kent. The call sign allocated to the station is GB3IGY and it will operate on a frequency of 145.5 Mc. using a power of up to 1 kilowatt.

It is also interesting to note that for the period of I.G.Y. the Norwegian Amateurs will be operating on the 50-54 Mc. band. The time of operation will be from 0800 to 1900 G.M.T. daily and emission can be A1, A2, A3 and F3.

PARIS CONFERENCE 1957

During April 1957 a conference of v.h.f. managers took place in Paris. Delegates came from a great number of Amateur Societies in Europe and G2MH, Mr. A. O. Milne, attended as Hon. Secretary of the Region 1 Bureau (I.A.R.U.).

Much of interest to v.h.f. operators was discussed; particularly a suggestion from V.E.R.O.N. re using the 144-144.2 Mc. portion of the two metre band for DX. After much discussion it was finally decided that the DX portion should be 145.8 to 146 Mc. because this portion of the band is relatively unused.

commences at 0000 G.M.T., Dec. 8 and ends at 1200 G.M.T. on the same day. Bands permitted are 3.5 through 28 Mc. The usual six digit number is to be exchanged. Entrants may work any country except their own and contacts with OK earn double points. Continents worked during the Contest serve as multipliers which are considered separately for each of the five bands, making a total multiplier of 30 possible. Three points are scored for each completed contact (six if with OK). Logs must be sent to the above address and mailed not later than Jan. 15, '58. The 100 OK Award and the S6S Award are available to competitors. Further details may be had from the Federal and Divisional QSL Bureaus.

KP4AIO is the latest call sign of Jules Wenglare, and it is his 10th call sign. Jules was stationed in VK4 during the war and is known to many VK Amateurs. He is on 14 Mc. c.w. daily between 1000z and 100z and desires contacts with VK Hams, particularly with Harold VK2AHA. He will QSL all QSOs.

This year's relief vessel for the Antarctica boys is the Thala Dan instead of the Kista Dan. The vessel is en route to Australia at the moment.

Ted and Virginia Westlake of the U.S. Civil Aviation Mission, San Jose, Costa Rica, who operated T12BX for a considerable period, advise that their station closed down as of 25th Aug., '57. They have returned statewise and hope to be heard under a K3 call shortly.

Cards from CPSEP for contacts in 1950 have recently come to hand! They bear the appearance of having been much handled. Indications of the tremendous activity of the holder of the call sign, Walter Lanz, the QSO numbers of the cards in this batch range in the 36,000 region!

Had a phone call on Cup Day from John Jones, VK2JJ, operator on the coastal vessel Irana. John was seeking information on the whereabouts of Harry Noon, ex(?) VK2EJ, who is alleged to have been a resident of VK3 for a brace of years. Have no record of Harry lifting out a VK3 call sign and apart from the

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.



ROSS HULL MEMORIAL—

Bands: 50-54, 56-60, 144-148, 288-290 Mc.
 Date: 1st December to 31st January.
 Rules: As published. * Amendment 50-54 Mc. Scoring on 50-54 Mc. as for 56-60 Mc. Special Award: Greatest distance over 3,000 miles.

"OK DX CONTEST"—

Date: 8th December, 12 hours—0000-1200 G.M.T.
 Rules: See this issue "A.R."
 Bands: 80, 40, 20, 15 and 10 mx.
 Logs: To Box 89, Prague, Czechoslovakia. Postmark 15th Jan., 1958.

B.E.R.U. (C.W. Contest)—

Date: 25th January to 28th January, '58.
 Duration: 0001 G.M.T., 25th, to 2359 G.M.T., 28th.
 Rules: As for 1957.
 * Amendment: Sections: High Power, Low Power (25 watts limit); Receiving Section.

NATIONAL FIELD DAY—

Date: 26th January.
 Rules: See this issue "A.R."

OV MUNICH—

Date: 1st October to 31st December, '57.
 Bands: All h.f. bands (3.5-28 Mc.).
 Purpose: To work as many Munich stations as possible. Stations identified by suffix "C12 after call sign". Example DZ7FB/C12.
 Rules, Awards, etc.: "CQ" Oct. '57, or Fed. Contest Committee.

FEDERAL QSL BUREAU

Malayan Amateur Radio Transmitters' Society announces the issue of the M.A.R.T.S. DX Certificate to Overseas Associate Members who submit cards in confirmation of having worked: 10 VS1s, 10 VS2s, 2 VS4/5s (VS4 and VS5 counted as one area), and 1 ZCS. Cards with three I.R.C. (for return of cards) should be forwarded quoting your membership number to the Awards Manager, Box 777, Kuala Lumpur, Malaya. Overseas membership is world-wide and costs 15/- Australian and entitles the member to "The Malayan Radio Amateur", which is published on alternative months.

The L.A.B.R.E. announce the addition of the following countries to their existing list of 57 for the W.A.A. Award: 58—San Andres and Providencia Is., HK0; 59—Navassa Is., KC4; 60—Sint Maarten, PJ2; 61—Saint Martin, FS7; 62—Aves Is., YV0; 83—Revilla Giledo, XE4; Corn Is., YN0; 65—Brit. Virgin Is., VP2. With regard to country No. 38, Newfoundland and Labrador, this counts separately from Canada when the QSO was made before December 31, '54. After this date VO contacts count as same as VE.

The Central High School Radio Club of Sioux City, Iowa, advise they will be operating in the State of South Dakota on Nov. 29, 30 and Dec. 1. The call will be W0LNI/0. They will use 750w. on 10, 15 and 20 mx bands on c.w. only. They feel this information may be of interest to stations chasing South Dakota for W.A.S. certificate.

Rules governing the International C.W. Competition "OK DX Contest 1957" are to hand. It is the first International Contest organised by the C.C.R.C., Box 69, Prague. The Contest

SILENT KEY

It is with deep regret that we record the passing of—

VK2CM—Charles Maclurcan.
 VK5HI—John H. Clifton.

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Glenhantly postal address shown in the Call Book, was reluctantly compelled to give John barred N.

The QSL Manager of the Aruba (Neth. Antilles) section of the V.E.R.O.N.A., advises that their QSL Bureau address has been changed from Box 80 to Box 382, St. Nicolaas, Aruba, Neth. Ant. QSL cards are accepted for the following: PJ2A (Aruba Is.), PJ2B, I (Bonaire Is.), PJ2C (Curacao Is.), and PJ2M (St. Maarten Is.). Also cards can be forwarded for all PZ stations.

Austine VK3YL confirms the already published information that the charge for the W.A.S.M. Certificate issued by the S.S.A. has been altered from 10 I.R.C. to 10 Swedish crowns. Other snippets from her interesting note are: Phil ET3S is now VE3RE; Ted SU1FX is now G3GUP; whilst Tony DL4JD is W6JDO/KL7 at Cape Prince of Wales, Alaska. Austine was the recipient of a fine memento of the A.R.R.L./YL Convention held at Chicago. Louisa Sando, W5RZJ, sent a programme signed by over 80 YL members who attended. Michel FO6AP/MM also sent her a picture of the Tahiti Nui taken on the day they drifted from Tahiti. Michel hopes to visit VK at some later date on a lecture tour.

Stations who made six contacts with the Genoa district of the A.R.I. during the recently staged Columbus Marathon are reminded that they are entitled to an "artistic certificate". Claims should be posted by 31st Dec. accompanied by the QSL cards to repeat to the Genoa stations worked to A.R.I., Casella Postale 347, Genoa, Italy. Further information from the Federal QSL Bureau if required.

Cards through this Bureau took a steep nose dive during October, which indicates that a heavy month during November and December can be expected. Writer suggests that many hours of listening to the beeps from the assorted Sputniks would be a pleasant change to working DX—and causing the card statistics to rise.

Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

On Friday, 25th October, at Science House, Gloucester St., Sydney, the N.S.W. Division held their usual monthly meeting. The lecture for the evening, under the title of "A Member Built It", was given by Norm Beard, 2ALJ, and Max Sobels, 2OT. Norm 2ALJ described a method for construction of a band switched v.h.f. receiver having a crystal locked converter covering 50-54 Mc., 58-60 Mc., 144-148 Mc., and 388-296 Mc., using a t.v. turret tuner as the basis and a 8.6 Mc. crystal for oscillator-multiplier, giving an intermediate frequency which could be fed into a t.v. i.f. strip. This was a rather ingenious method of producing a rx for commercial equipment for bands not catered for in the usual manner.

Max 2OT described and demonstrated the method of constructing a table-top tx capable of 100w., v.f.o. controlled, covering 80, 40, 20, 15 and 10 mx. The basis for the unit is an AR7 chassis and by reworking the coil boxes enable band changing to be carried out very quickly. The finished tx makes a perfect match for the AR7 rx. Max gave full constructional details and explained how easily the principles of selectivity in tx's could be incorporated to make sure those unwanted harmonics are suppressed.

The vote of thanks was given by Lyle 2GW, who expressed the view that this type of lecture was very good and really gave members the benefit of ideas others had in the construction of equipment.

To add to the ideas given by the lecturers, Joe 2JR gave details of a transformer he had designed which was suitable for use as a matching device for a single-ended output to a balanced transmission line.

During the business portion of the meeting Bob 2ARG gave an outline of the School of Civil Defence activities he attended at Mt. Macedon, Vic., when the problems of maintaining communications in time of emergency were discussed. Bob urged members to fill in the questionnaire which had been included in the Divisional Bulletin so that the full potential resources of the Division's emergency network could be established as this State's C.D. authorities were very interested.

The request from F.E. that the name of the Wireless Institute's network be altered to W.I.C.E.N. was discussed and the motion to ratify this change was carried unanimously.

Bob also outlined the discussions with F.E. on the necessity for the W.I.A. to be represented at the International Telecommunication Conference at Geneva in 1958.

Dave 2EO reported on a visit to Gosford he, the Divisional President (Pierce 2APQ) and Divisional Councillors Max 2OT and Norm

2ALJ, made to attend the inaugural meeting of the Central Coast Radio Club and Central Coast Section of the N.S.W. Div. W.L.A.

This meeting was well attended and its success seems assured. Some of the office-bearers elected were Mr. R. Dean, M.L.A., Patron; Major 2RU, President; R. Brook, Secretary. Rex 2YA will be in charge of the technical side of the club and has obtained the use of class room facilities for A.O.C.P. classes. A total of 22 have already enrolled for the class.

A very successful convention of the South Western Zone was held at Coolamon on 26th and 27th October. Congratulations go to zone officer Jim 2AJO and his assistants for a very fine effort. Full details are given elsewhere in this issue.

News from the far North Coast has been scarce of late, but Charlie 2AZK, who has just returned after three weeks at Murwillumbah, reports that he had spent some time assisting a newcomer to Amateur Radio, namely, Eddie 2BB, to re-build his final 807 and modulator, also a new antenna. Eddie is now operating on 40, 20 and 15 mx bands. Charlie also visited two other active amateurs, Bill 2ZY and Norm 2RK, and took the opportunity of attending the marriage ceremony of 2ZY and extended the congratulations of the W.I.A. to Bill and his wife.

Ramsay 4AB gave a demonstration of his latest camera from U.S.A., producing finished prints in 15 minutes.

Homeward bound with a stay at Grafton to see the Jacaranda trees, which one hears so much about, are indirectly lighted with fluorescent lights, and to spend a very pleasant evening with Roy 2NY and Bob 2WQ.

It is with very deep regret that we report the death of Charles Maclurcan 2CM on Saturday, 28th October. Charles was one of the signatories to the Memorandum and Articles of Association of the N.S.W. Division in 1922 and was well known for his work in the early days of broadcasting in Australia.

His experimental work in Amateur Radio is equally well known and will be the subject of conversation when the work done and progress made during the past thirty years is discussed.

Recently Charles presented to VK2WI the operating console from which VK2CM was heard. This is now being installed at the Divisional Station at Dural.

Deepest sympathy is extended to Mrs. Maclurcan and family from Council and members of the Division.

HUNTER BRANCH

A good number of members were present at the October meeting of the Branch held at the usual location, the University of Technology. Satellite "Sputnik 1", with its transmissions on 20 and 40 Mc., was discussed at length. Lionel 2CS described an interesting circuit of a harmonic xtal oscillator as developed in the Marconi Laboratories. Certificates of membership were presented to new members and associates by the Branch President. October brought visitors and new call signs to the district and we were very happy to welcome them.

The popular YL operator, Muriel 2AIA, has been holidaying at the Lake, and those two robust (?) gentlemen, Bill 2ZL and Bob 2AQR, have been entertaining the good lady with lemon drinks and oysters. Hearty congrats to Les Baber, who has gained the full ticket and call sign of 2RJ—VK2 Romeo Juliet should bring in the DX on moonlight nights. The writer remembers when Les got the first practical experience some years back in a National Field Day at Anna Bay, with 2AHA/P, 2ASJ, 2SF and our late friend, Ivan 2IS.

We have gained a well known and popular Ham in the person of Frank 2APF/2APG mobile who is now tolling in Newcastle. Congrats to Harry 2AFA who has 100 countries confirmed. Harry is waiting for a few extras before sending for DX C.C. Rodney 2CN has had modulator trouble. Quite a bit of 20 and 40 mx activity from Varley 2SF.

Harold 2AHA was well to the fore among VKs with accurate logging of "Sputnik", and was one of those who heard the QTC from "The man in the moon"! 2ASJ heard that howler, too. Dave 2BZ appeared briefly on 7 Mc. to discuss holiday plans with his pals, 2ADT and 2ZX.

New member, Gordon 2CI, has returned from a trip to the North West where he visited Ben 2ABT. Rumour has it that Allan 2PT is selling his gear and taking up photography which is a far worse disease. Shame on him.

The next meeting of the Branch will be held at University of Technology, Tighe Hill, at 8 p.m. on 13th December.

Listen for latest news of Branch activity at 8 p.m. every Monday night from 2AWX on or about 7140 Kc.

OBITUARY

CHARLES MACLURCAN, VK2CM

It was with deep regret that we record the death on 28th October of Charles Maclurcan, VK2CM.

Charles was one of the Pioneers of Radio in this country. These are a few memories of VK2CM received from Joe Beed, VK2JR, who, over the years, was closely associated with Charles.

Charles Maclurcan commenced operation in the spark days with a transmitter and receiver located on the roof of the Wentworth Hotel. For many years the tall wooden mast on top of the hotel with its insulated rigging was a familiar sight to the "oldtimers". This station was in operation several years before the 1914 war.

Charles was foundation member of the Wireless Institute of N.S.W., formed in 1910. His interest blossomed into the commercial field by the formation of the "Maclurcan and Lane" Co., who handled a wonderful range of spark, transmitter units, crystal receivers and even the early three electrode Audion valve as marketed by Hugo Gernsback's Electro Importing Co. of New York. (I have a well preserved copy of the Maclurcan and Lane catalogue of 1912 vintage.)

Immediately after the cessation of hostilities in 1918, Charles was one of the first experimenters to get "on-the-air" and in company with Charles, I helped build the little and famous ten watt transmitter which on 6th March, 1922, carried out two-way transmission with myself located at the P.M.G. Radio Service Station at Collin's House, Melbourne. The Sydney transmitter operated on 1350 metres, and the Melbourne station 2500 metres. This transmission handled the first "DX" third party traffic between experimental stations in Australia, for over the circuit I requested Charles to ring my parents in Summer Hill to inform them that I would be returning to Sydney in a week's time, consequent on the taking over of the P.M.G. Radio Service by A.W.A.

Very soon after my return to Sydney work was commenced on fitting the 2CM transmitter with modulation and before the commencement of commercial broadcasting. This little station was heard regularly on Sunday nights, broadcasting music and entertainment, even to the extent of having advance programmes published in the Sunday papers. The amusing announcements, "This is Station 2CM, broadcasting from Strathfield-on-the-strath" and the conclusion, "Now don't forget to wind up the cat and put out the clock", to be followed by the National Anthem.

Rapid strides were made following the early experiments on ten watts and 1650 metres. In 1923 a fifty watt watter was hitched to a 16 ft. quarter wave vertical radiator and contact made with G2OD (Mr. Simmonds), of London. Once on the move with power, the next step was with a 250 watt tube on 200 metres with which signals were exchanged with Major Mett, of San Francisco. To give the wrist a little rest a metal disc was cut with the letters MOTT and driven by a long playing Pathe spring gramophone for keying of the transmitter. Two-way contact was established. In later years examination of sunspot cycles showed that an excellent low sunspot period helped greatly in these transmissions.

When the first crystal controlled transmitters came into favour, Charles was well to the fore, and well before 1930 3CM had a long line of frequency multipliers to handle the relatively low frequency pieces of quartz then available.

In later years at Shell Cove Road, Neutral Bay, Charles had a G8FO rotary beam erected on the roof of the Maclurcan mansions. The lengths of the horizontal elements were a little too much for the spacing of the chimney pots, so Charles turned up the ends like buffalo horns and proceeded to bowl over the DX.

Towards the end of his most interesting life, Charles limited his activities to 80 mx and only a few weeks before his passing away he could be heard in contact with VKs 2HC, 2VN and 2JR, the "oldtimers", who so shortly after would gather for these last sad and solemn rites which must come to us all in the end.

Deepest sympathy is extended to Mrs. Maclurcan and family from members of the Wireless Institute of Australia.

SOUTH WESTERN ZONE

Our main item of news this month is of course the Fifth Annual Convention of this Zone held at Coolamon on 28th-27th October. Once again a very successful Convention has been held. Made possible by the members who attended from very widely distributed areas, both in and out of the zone. My very great thanks to all who attended.

On Saturday afternoon members who had arrived were registered, the first visitors to reach Coolamon being Jim and Ruth Corbin. Your scribe then showed those present our new town centre—the swimming pool—where very favourable comments were passed. Afternoon tea was then served. This was followed by the first 144 tx hunt (1st 2ZAA, 2nd 2PN). At 6 o'clock Dinner was served in the R.S.L. Hall, by the Coolamon Presbyterian Ladies, who as usual did an excellent job. At the conclusion of Dinner, your scribe, as Chairman, welcomed the visitors, read out apologies, and then called on the President of the N.S.W. Division, Pierce 2APQ, to officially open the Convention. During the opening, we heard of the passing of our fellow Amateur VK2CM, where all stood and observed two minutes' silence in memory of Charles.

The Chairman then called on Stewart 8PL to reply to the President. Stewart did so very ably. The Chairman then called on Mr. Kingden, of the local Press, who replied as an outsider, and made comments on the part played in emergencies by Amateur operators and stated he was very proud to be associated at Dinner with Ham operators and was very interested in the President's remarks regarding W.L.C.E.N.

A Ham's Amateur Hour was then held and all stated that it was a good show. All competitors received a prize; Stewart ("Bagpipes") Savage, 2PL, being the winner. Films were then shown by Mr. O. E. Mutton, our guest for the evening, which were interspersed by feats of magic performed by Harry James, of Griffith. At the conclusion of the programme supper was served. I think all had a good time.

Sunday commenced with the Scramble, the winner being Ross 8PN, second Stewart 2PL who won on a "count back" from Bob 2XP of Dalton. The 144 tx hunt was again won by Keith 2ZAA with Geoff 2BQ second. The "Hunters" commented that they were fooled for a time in our flat country. The 2WI official broadcast was conducted from 2AJO's shack, the President, Pierce 2APQ, on the mike.

The afternoon events commenced with the blindfold tx hunt and much amusement was caused; the winner of the gen's event was John 2NV of Griffith. The ladies' event went to Mrs. 2AJO, with Miss Druitt of Griffith, second. Disposals were then auctioned, the boys collecting the usual junk.

Afternoon tea was the final item on the programme and afterwards cars were loaded up, farewells given and we, regretfully, watched our mates leaving for their respective destinations, as far afield as Gosford, Sydney, Gundagai, Albury, Tumut, Hillston, Griffith, Wagga, Denilliquin, Dalton, Canberra and Ilubo. Approx. 60 members, XYLS, and harmonics attended.

In conclusion, I must say that the success of the Convention organizing was due mainly to the efforts of Assoc. Members Jock Ashley, Treasurer Stan Abbey (my Jack of All Trades) always on hand, to Stan's mother and to my good wife, for their efforts. Conventions are easily arranged with such helpers. Once again thanking all who attended, and looking forward to seeing you all again, at next year's South Western Zone Convention.—2AJO.

VICTORIA

Some months ago mention was made in these notes of the excellent lectures we have been privileged to hear month by month at our monthly meetings. Since then there have been many more and on 6th November there was yet another when the Rev. Bro. V. McKenna introduced us to the inner workings of the cyclotron and machines of a similar nature. As many will know, the speaker, in addition to his other qualifications, is also a Ham and holds the call of 3AVM, but hamming has had to take a back seat of late because of his present endeavours in attaining his Master of Science Degree. However, this does not prevent him from being a very frequent visitor at the monthly meetings and his keen interest in Ham Radio in general was amply evidenced by his lecture to this meeting. Not only did he give us an excellently presented lecture on

the cyclotron and associated machines, but he also took us up to the University and introduced us to the real thing. The art of dabbling with electrons, protons and neutrons sounded disarmingly simple in the hands of the speaker, but now that I come to commit thoughts to paper, I find I have been lulled into a sense of false security. Hi!

Our formal thanks were presented to Bro. McKenna at the meeting for his lecture, but the opportunity did not arise to thank him and his colleagues for the trouble they went to in ensuring that we saw all that was to be seen of the machines they use in this somewhat dangerous bullet-firing occupation and the digital computer which helps them to come up with lots of their answers. Many thanks chaps for a most informative evening. Your efforts were duly appreciated.

The general meeting held prior to the lecture resulted in the usual round of business and the following new members were admitted: Full Members—J. G. Goodall, 3ZBG; L. R. Schulz, JASA; Associates—B. R. Wilson, G. Weber, H. Schmidt, G. D. Robinson, D. McKenzie, W. McFarlane, J. Cunningham, J. Anderson, J. A. Moore.

About 60 attended the meeting including VR3B from Fanning Island, who until recently was very active on 14 Mc. from that location. He informed us that the chief activity on the isle is copra growing but his interest, apart from Ham Radio, was in the cable relay station in the Vancouver to Fiji link which is also on the isle. The population is only about 30 whites and 200 natives, but there is no QRM and DX rolls in 24 hours per day. This news could lead to a mass migration of DX hounds, I guess.

With all the recent excitement over "Sputniks" it was very gratifying to note that the Ham participation in recording data on these satellites was well to the fore in the daily press. This was due entirely to the untiring efforts and team work of the members of the fraternity who participated and illustrates once again that the Amateur is ready and willing to fill the breach when need arises.

A motion congratulating the W.I.A. on its commendable efforts in handling this matter, both from the technical and the publicity point of view, was put to the meeting and carried unanimously.

Council would like it known that they are endeavouring to build up the library so that more than one copy of the various publications will be available for issue. If you have a spare copy or copies of "CQ", "QST", R.S.G.B. "Bulletin", "Short Wave Magazine", etc., which you would care to contribute for this purpose, would you please forward them to the rooms. If desired, donations from the metropolitan area can be collected by arrangement with Mrs. May at the rooms, and country contributions may be sent C.O.D.

Recently a certain gentleman sallied forth complete with black box to take a look at the field pattern of the newest antenna. During his perambulations he was mistaken for an undesirable character by an observant neighbor, and ere long was on his way to the local constabulary per prowl car la D24. Moral, if you bear any resemblance to Max 3ATK confine your tests to your own back yard. It could happen again.

In accordance with usual custom the December meeting of the Victorian Division, to be held on the 4th, will be a social and a children's night, same time, same place, so bring along the XL, KYL and harmonics and make it a bumper night.

There will be no general meeting in January so the first meeting in 1958 will be on 3th February.

Christmas Greetings and a Prosperous New Year to all. See you next year.

SOUTH WESTERN ZONE ACT AS HOSTS TO STATE CONVENTION

The 8th State Convention was held at Colac on 9th and 10th November and Radio Amateurs met at the home of Gordon 3AGV, whose KYL very kindly provided us with afternoon tea. To you Mrs. Vincent, our sincere thanks. The boys working mobile on 144 Mc. were well catered for as 3AGV worked all who were on this band.

The Convention was officially opened before the Dinner by the Mayor of Colac, Cr. McLennon who welcomed all participants to Colac. The Dinner, which was excellently catered for, followed. After Dinner the usual meeting took place and many and various things were discussed including the next South Western Zone Convention which is to be held in Warrambool on a date to be fixed in March. Supper was served on completion of the meeting.

Sunday's programme commenced with visits to the shacks of the local Hams. At 10.30 a.m. the 144 Mc. hidden transmitter hunt was held, but the tx gave some trouble and was taken off the air. It was later located by Jack 3AJK from Moe who won the prize. Later Chris. 3AKU conducted a tour of the local broadcasting station 3CS and also displayed gear essential to b.c. stations and demonstrated same.

After lunch the 3.5 Mc. hidden tx hunt took place, but I was unable to discover the winner's identity. We returned to the Gardens for the 40 mhz scramble, games and competitions for the ladies were also held. The winner of the nail driving contest was 3APR's KYL, Mrs. Hallyburton. The sack race was won by a Dutch girl, name unknown. The lucky programme was won by Mrs. Phil Moncur and the men's by Bill 3AWZ. A prize was awarded to David Scott for the Ham travelling the longest distance to attend—David covered 282 miles.

We are pleased to announce that once again the S.W. Zone has been awarded the Kinnear Trophy, making it our third win. The actual attendance at the Convention was gratifying, approx. 100 in all.

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MAXWELL HOWDEN

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Now last, but by no means least, we owe the wonderful success of this Convention to Chris. 3AXU, Gordon 3AGV, Mart 3AKU, Ron 3CK and all others who assisted in any way, particularly Mrs. Vincent, Mrs. Cullinan, Mrs. Blackley and all the ladies who put on an A class afternoon tea. Many thanks to the Geelong boys for entertaining the kiddies, etc.

EASTERN ZONE

Interest was very high during the month, tracking and listening to the two Russian satellites, which were seen and heard by most of the gang. Ideal conditions on v.h.f. gave Gordon 3TH and Reg 3ZCR a good contact over difficult terrain between them. Stan 3ZAB who is thinking about putting a tower up worked into Melbourne, and George 3ZCG who now has his 32 element phased array up, worked 5ZAB at Mt. Gambier. All contacts were made in the two metre band. Most of the boys are now getting equipped for 6 mx.

Bert 3BB recently had trouble with one of his legs, which curtails his activities considerably. Take it easy Bert. We all hope you will be your old self again as soon as possible. Ian 3AAV had bad luck recently in transportation of his rig, which fell out of the utility. The explosion of the 813 could be heard quite well. The fox hunts are still being held on the last Sunday of each month, and the attendances are growing. Would welcome visitors from any other zone, if they can make it over the summer months.

MOORABBIN AND DISTRICT RADIO CLUB

Leading news of the month for all VK3s is that the Club has decided that in future only five contacts with Club member stations will be necessary for DX stations to gain the certificate of honorary membership. So let your DX contacts know this when they inquire. Also don't forget VK stations need fourteen contacts for this certificate.

At our October meeting we welcomed as a new member Reg, formerly 7WN, now 3AIO. Hope to hear you on soon from Moorabbin Reg! At the same evening we had an excellent lecture by Jacques 5ZEE on the very topical subject of "Tracking the Satellite." It was one of the best for a long time. Thanks once again, Jacques!

Now the most important forthcoming event is brought to your attention:

I pray you all, please do remember Our annual picnic in December. Sunday the eighth it will be on. At the picnic grounds at Mornington. By twelve o'clock we'll see you there—Join us at lunch in the open air. It's better when the food's home-made, And we'll supply the lemonade. What was that word that I did hear? Well—bring your own if you want beer! After lunch our sports we'll hold, With fun and prizes for young and old. When you've eaten up our sweets and ices, We'll leave you to your own devices, So never mind if skies are grey, Come along and let's be gay, All of you, Hams, Kids and Mum, To our picnic you must come!

QUEENSLAND

Unfortunately, due to an oversight of our Divisional scribe, who was on annual holidays, the "A.R." notes were not forwarded in time for publication. At the time, our scribe and John 4FP were visiting the Blackalls Park Convention near Newcastle, and enjoying the VK2 hospitality to the full! Many thanks for having us, fellows! Anyway John brought back several prizes and we would like to see some of the VK2 boys at our Convention next year take a few trophies back home, too! What about it, boys?

Since our Federal President, Mr. Bill Mitchell visited us we have had quite a bit of organising to do as the end of the year activities fall rather closely together. Of recent interest was the Jaycee display in the City Hall during the last week in November. There was a fixed working station, similarly manned as was the rig in the Hobbies Exhibition last year. Volunteers for operating the station on a roster basis were called for at the November general meeting. All the different facets of the Radio Amateur, from the time the "bug" gets him until he becomes a seasoned licensee were presented as fully as possible. The whole exhibition was built around the Amateur display, and everyone proved himself equal to the task, by making it a really good show!

The ballot for the 100 bundles of tubes has been drawn. As we received only 100 names, everyone who put in their name will get them on receipt of the necessary remittance. It will

be taken for granted that anyone who does not send in for his tubes within a fortnight of receiving October's "QTC" wishes to forfeit them! Don't delay. Contact the Secretary immediately.

We now have circuit copies (two photostat sheets) of the v.h.f. transceivers that were balloted some time ago. A complete list of component values are listed. Contact Alan 4ZAE or the Secretary for your copies.

The ballot also for the 100w. tx (c.w.) was drawn and Harry 4HB was the successful applicant.

Also of considerable interest is the disposal of nine 100w. Collins ART13 tx's, 200 Kc. to 18 Mc. The final uses an 813 and has 811s as modulators. These units are without valves or crystals. Nevertheless, they are considered the bargain of the year. There is an instruction manual with each unit. The ballot for these tx's closed on 4th Nov. and was drawn at the November general meeting.

Jim 4OB, our Treasurer, suggested after a discussion with the Auditor, that a stocktake of all Divisional equipment be made. A committee is to be set up to investigate all Divisional property and a report is to be made to Council. Jim also approached the Commonwealth Bank and now no exchange is necessary on cheques, money orders, etc., made payable to the Institute (Qld. Division). Good work, Jim. Keep it up.

Paul 4VS, our Librarian, has a considerable surplus of back copies of "CQ" and "QST". Council directed that these be sold in bundles of five for a nominal fee. There is a lot of good reading and information in these magazines, so send in your request promptly, as these won't last long. Council is also considering a recommendation sent in by Clive 4CC; it is quite evident by the text of Clive's letter that considerable effort went into the set of rules which pertain to general meeting procedure, and Council wishes to commend Clive for not only his interest, but also the personal effort that went into the preparation of such a comprehensive report.

Frank 4ZM, our President, and Jim 4PR, our Secretary, were both present at the opening of the A.O.C.P. classes conducted by Stan 4SA at his QTH. There were 17 student members present and the night was commemorated by a mobile contact with John 4FP who was lost in the wilds of Newcastle (for those interested, John was later "talked in for a safe landing" by one of the locals, Bill 4XT). Stan has already shown that a high standard of work and a friendly hand to the students is the order of the day! In fact Stan, as a class manager, is a "natural"!

It was made known by our President at the last general meeting that information from the Federal Convention is now to hand. The information is contained in a heavy foolscap size file presented in book form. We have three copies and information on any particular Convention subject may be had through the usual channels. At present, for the benefit of the country Amateurs, the report is being read in instalments by Bert each Sunday over 4WI. At the last general meeting Bert requested that any information on any of the Russian satellites be sent in as VK3WIA has repeatedly asked for Divisional co-operation in this regard.

We were also given a resume of the C.D.E.N. school at Mt. Macedon, Vic. by Vince 4VJ and Evan 4EF; they were both able to give the very latest information on the official attitude and policy concerning C.D.E.N. The school presented a broad survey of all the communication facilities available in Australia. It is to be appreciated that the role of the Amateur is, in terms of atomic warfare, that of one small link. In fact it represents a little more than 1% of all available communications in Australia today. However, any link, however small, is to be highly valued and the value of an Amateur, as was pointed out by a member recently, lies in the facts that—

- (a) He was on the spot, and
- (b) He was to be found throughout the land.

This combination will always provide, when all else fail, a comprehensive radio network.

The State Public Service in Queensland on an unofficial basis is prepared to furnish guidance in order to secure for the benefit of Amateurs, experience and information in civil defence networks. Needless to say, if you want to read between the lines, the next Amateur emergency network run may involve other services, so be on your toes! We are very grateful to Vince and Evan, as we have been to all the other boys who have attended the C.D.E.N. school, for making the long trip south and unselfishly giving up a great deal of their time.

It is with regret that we recently learned of the bereavement of Mrs. 4TX. I know that all those who knew Tex would like me to extend on their behalf their sincerest condolences.

Council would like you to bear in mind, as Xmas draws near, that the Annual Xmas Party will again be held at Anzac House on the second Saturday in December at 6.30 p.m. There will be plenty of fun with lots to eat and drink to everyone's liking. A varied program has been arranged, so how about making the effort to see the boys again. Full details will be released in the next "QTC", and as another year draws to a close, Council would like to wish each and every Ham a Very Merry Xmas and a Happy New Year.

TOWNSVILLE

Quite a number of visitors turned up to the firm evening held in conjunction with the monthly meeting. The P.M.G. Dept. was well represented by technical engineers and the Radio Inspectors. After the usual meeting business was disposed of, the President informed all of the impending visit of Evan 4EF who will visit the north and will be happy to address the members on Civil Defence Emergency Net, etc. It was decided to hold a special meeting on Thursday, 7th Nov. to give members an opportunity to meet Evan and hear all about the C.D.E.N.

Very happy to hear that Pat O'Brien, from the R.A.A.F., was successful in obtaining a Z call sign. He will be a welcome addition to the 14 Mc hook-up. Bob 4MT has his tower erected and will not be long before he causes QRM to 4EJ, 4DD and 4BE on 10 mx. Bob is just itching to get amongst the European Scramble. Eddie 4WH seems to have forsaken Ham Radio, in favor of photography, now he will shell out no disposal gear in that line.

Vern 4LK competing with Bob 4NG to see how many contacts can be held with Japan on 50 Mc, since the temporary allocation of this band for I.G.Y. period. This has spurred the T'ville boys and Rex 4LR, Alan 4BE, Len 4GD and even John 4DD to get their gear going on the band. Basil 4LW is off for a short period again and is re-building the rig and gives the usual Amateur saying. It is to be something right out of the bag. John 4DK heard beeps from the satellite at pal's place after locating the proper frequency. Eric 4EC called on many northern Amateurs during his brief visit.

Norm 5NT again on transfer, this time to Rabaul—the home of the "Quads". Will he be happy? Bert 4EP came in on the early morning 7 Mc hook-up a few times after long absence from the air. Andy 4BW up each morning to give the time tick for 7 a.m. hook-up. Harry 4LP now nearing his 1400 QSO with Andy. All fellows are satellite happy for a few mornings and some managed to see it in the evenings. Alex 4MA has again reappeared on the band since advent of a.c. but complains of high noise level due to passing a.c. lines. (Come down my way sometime Alex and hear proper noise level.) Graham 4DJ heard working 4TK and 4MA on Sunday. He is doing a lot of re-building also. Vic 4BJ got a lot of ragging over his "beaut" super pro on reguar 7 a.m. 7 Mc hook-up.

Bob 4TK has only the final stage to be completed on his new rig. Bob Fitzsimmons, second op at 4BW, facing the barrier next exam. Good luck. Arthur 4FE, on Thursday Island, heard asking in the hook-up on Sunday for 4 gallon drum of rain water. Will Arthur get the C.S.I.R.O. boys up? After their seeding exploits Queensland drought has been broken. Five inches of rain this week at this QTH. Many thanks to Bob 4TK in supplying a few notes for the column.

MARYBOROUGH

4CB getting plenty of DX on ten with his quad. Latest new country—a TF which was also worked by 4HD. Archie has installed relays and has a direction indicator on the front of his table-top rig. Has heard channel 2 sound from Melbourne a few times. 4DJ is getting an Eddystone 750 to end his rx worries. Soon hopes to have a quad on 10 mx. Is operating on 7, 14, 21 and 28 Mc. The three element 14 Mc beam at 4BG came down after two years' faithful service. A four element G4ZU is about to go up. Noel Bignell, from Scarmess, sat for the theory section of the A.O.C.P. Good luck Noel.

SOUTH AUSTRALIA

When President John 5KK opened our last meeting he had a very large number of members to welcome, very good that, for it indicates the programme committee are pleasing members and encouraging newcomers, also it looks good for future membership. An extra hand-clap went to "Mac" 5CE from Whyalla, who has been "heard" a fair bit but not "seen" often.



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Comparative Measurements:

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The lecturer for the evening was Bob Roper, 5PU, who got under way quickly with a very fine lecture on "Noise in Receivers". Bob really knows that subject, and proved himself an able lecturer, many present envied his ability to speak at length without reference to notes.

Large charts were used to illustrate the various points as they were made in his very well organised discourse. Our old friend, Brian SCA, officiated as Chief "Turner-Overer" (a task he performed with his customary savvy fair). Bob explained how receiver noise could be divided into two main categories, i.e. internal and external noise, and he dealt with the various merits of triode versus pentode r.f. stages in noise control and outlined how the selectivity of the first stages in any receiver governed the amount of noise.

The popular types of noise limiters next came for review and description, and then to bring most of us up-to-date with something a little new, he introduced the concept of spectrum or "image" noise. We all have at times been bothered by the "second spot" type of interference in our receivers, whereby a signal distant twice the i.f. frequency away rides in on the channel to which we are listening. It was here that many of us realised that although there may be absence of signal at the image frequency, there could very likely be noise.

This condition could be very prevalent on the higher frequencies particularly with cascade front ends. The solution here appeared to be co-ax line input circuits with their inherent higher selectivity.

The reception of Bob's lecture was evident from the attentive assembly and ably expressed in a happy speech by Bruce 5OR who proposed the vote of thanks by congratulating the speaker on delivering his lecture so well, that we were all raised to his (the lecturer's) own standard. (That sounded good but few of us had our doubts as ever reaching Bob's standard.)

Smoko and distribution of QSL cards provided an interval prior to the conduct of the formal business of the evening. Twelve applications for Associate membership were received, being a clear indication that Norm Colman has been active in getting signatures on the dotted line. In fact it has been circulated that he is mostly seen these days with a bundle of application forms in one hand and a ball point pen in the other, and his greeting altered to "Have you signed up yet?"

Oh yes, Norm is busy signing up new members for the forthcoming A.O.C.P. class, still a few members required to enable it to start, so any of you who are thinking about it, now is the time to get in at the start of another series, otherwise it will mean at least 12 months delay for you.

The January Picnic, as advised before, is to be held at Tea Tree Gully this year, and the picnic committee are anxious that it be to your liking, so if you have any bright ideas that you think will help the organising of it, pass them on to 5JO, 5LL, 5MZ, or Norm. Remember it is your picnic so help make it a success, and of course don't let any other engagement prevent your attendance.

For those of you who play that drop chested game, bowls, we have a new adherent, Wal 5DF. Yes, you have the figure Wal, but don't let it keep you off the air, tell us how near you went to Kitty, it will add still another variation.

The recent tests by the W.I.C.E.N. boys was most interesting and gave a good idea of what can be done, practice in message handling being one of the vital things noted, and in some cases some modification to gear was indicated. By and large, quite successful, and the committee responsible should feel satisfied with progress, and whilst we all hope the emergency net will not be required, pleased to know we have the system there in a workable condition.

Your scribe has been perigrinating somewhat and as a result has, for this month, had to lean on information gained via Les 5AX, Col 5RO, and a few contacts made whilst portable, so credit is given to them for keeping me posted.

We end this month with a touch of sadness in expressing our sympathy to the Cliffon family in the passing of John 5HI, who as you all know, was a very keen 20 mc DX man, and lastly our thoughts go to Bob 5OD, who, whilst in U.S.A., met with a very serious accident in which his XYL was killed instantly and he suffered severe injuries from which it is feared some permanent disability will result, not the least of which is the impairment of sight. Let us hope that Bob's condition will improve beyond present indications and that he will be able to carry on his wonderful work.

WESTERN AUSTRALIA

At the regional meeting on 15th October the programme included travel films, which included scenes from Harvey, W.A., and also a playback of a recording by 6BE of a summary of the work done by Rolo 6BO in tracing of the satellite No. 1. A tape was also played containing signals recorded from the satellite on 20 Mc. and the later continuous note on 40 Mc., also a short recording showing a heavy flutter due possibly to peculiar conditions at the time. At times the satellite was QRMed by Honolulu. I understand the signals were quite strong, and those recorded were picked up on an 80 mx dipole, fed straight into a converter.

The Divisional Secretary, Bob 6BE, is shortly due for his long service leave, so a temporary secretary will be needed to take over the job. Bob will be off duty until August. He hopes to do plenty of listening on 50 Mc., having got gear going well on the band, and is now busy making a beam.

6FM, of Meekatharra, has recently been heard using a No. 11 set (on 40 mx) to good effect, putting in really good signals.

The 40 mx Scramble was won by 6CL with 29 points. Ian will be presented with the trophy by the President at the Xmas meeting. Good work Ian!

C.D.E.N., now to be known as W.I.C.E.N. (Wireless Institute Civil Emergency Network), is gradually taking shape in VK6. A committee has been formed as follows: 6MK (State Co-ordinator and Chairman), with 6RU, 6EE, 6KW and 6HR. Copies of procedure an phonetic alphabet are being obtained and will be forwarded to all concerned when they arrive.

Slow morse transmissions are given by 6WI on Wednesday nights at 8 o'clock on the 3.5 Mc. band. These transmissions have been found of great assistance to learners, especially those in country districts where it is sometimes difficult to find a "sparring partner" with whom to practice the code.

1957 has certainly been an eventful year in radio circles, and 1958 should be full of interest for all concerned with Amateur Radio.

The President and all members of the Council in VK6 join in wishing all readers a Happy Xmas and best of luck and good work in whatever sphere of Amateur activity in which you are engaged during the coming year.

TASMANIA

We haven't actually been hibernating in the South. To go briefly backwards through what has been happening, our November meeting was treated to a very fine lecture on the behaviour and general principles of artificial satellites, delivered by 7KM whose everyday work—we assume that it does look like work to you. Ken—his done in the Physics Department of the University. On the same occasion 7LE had on display a complete range of pen-recordings, giving a clear picture of signals from the two objects which have lately been costing us the sleep of the just.

Farther back, but by no means forgotten, was a visit to Cadbury's at Claremont, who kindly arranged to keep staff on hand one evening so that members could see the Hollerith and other accounting machinery put through its paces. It seems a retailer's order comes in for a variety of lines and quantities, in the usual written form, after which things begin to happen rather rapidly. A girl makes pencil marks on a standard card to correspond with the detailed order, another card is inserted at the same time to supply standing information—not too sure what it's called—and then, at the tidy clip of 100 cards per minute, the process goes automatically right through to the final typed statement, addressed, discounted and all. Our thanks to those concerned, and particularly to 7RX, for an interesting evening.

We were fortunate to have Dr. Grote Reber in for a lecture just before he departed homeward for the U.S.A. The Doc became well-known to us in the couple of years he has spent near Hobart on a research project which had mostly to do (we think) with low and medium-frequency radiations from outer space. The wonder of all, to some of us, was the two-element array held up by convenient hills and cut for something below 500 Kc. This lecture, like 7KM's, was taped for the benefit of the other zones.

With 7JB back in the fold, a not-so-rare recruit is gained for W.I.C.E.N., the VK7 portion of which now convenes at 2030 Sundays on 3501 Kc. Joe 7BJ now produces the big modulation on 144 Mc., and has also completed a nice steel cabinet to house the whole works. You may be relieved to hear that 7YY's modulation, on the other hand, has for the

present packed up completely. 7KA is quietly putting 7GA's figures into concrete form with tower foundations, and these shouldn't be far out after Geoff's practice on the State's hydro towers.

With so much of the extraordinary in the news, here's wishing you all an ordinary and thoroughly enjoyable Christmas.

NORTH WESTERN ZONE

Would anyone finding a spear fisherman's gun along the N.W. coast please return to Associate David Searle. Any fish attached may be kept. Associate Ken Browne is still sticking to the low freq. end of the band and has taken to building hi-fi amps. Keep away from Sid 7SF and Roy 7RN, Ken, or you won't have any money left. Our newest Associate, Terry Tongs, of Ulverstone, gained distinction and nearly extinction recently by turning his car over on the Bass Highway. It is understood that Terry was chasing a radio signal at the time.

Roy 7RN has headed for the v.h.f. and is currently constructing a t.v. rx. Enthusiasm must be contagious, Roy apparently caught the bug from Sid 7SF who has been receiving good signals since the weather improved. Jim 7JO has also been battling with one-eye monster and was able to see a full programme till close down time late in October.

Believe Dennis 7DR's XYL, Nathalie, had trouble starting the car whilst shopping. Told the mechanic, "There is either something wrong with the car or with me." Mechanic hopped into the car which started first pull on the starter. "Must be you, madam!" he remarked. Dennis also had Lance 3ZA as a visitor recently. Lance works on Radio Australia and likes the late night shift.

Heavens above! Two satellites and an eclipse of the moon. What more do we want to give a Ham something to do. One southern Ham, Doug 7AB, even got up at 2 a.m. to see Sputnik II. Good luck to you Doug.

Don't forget the tx hunt on 1st Dec. Be in it. If you haven't got a rx with a loop, hitch a ride with someone who has. President Sid 7SF is in charge of the tx, having won the last hunt.

Our Secretary Max Ives is on annual leave at the moment, so hope the weather holds out Max. Keep at the study Max and you'll be able to put a mobile rig in the van. Leon 7JP has acquired an AMR300 and is doing something to the front end which should make it really hot. Let's know when you finish Leon, and I'll do the same to mine. Looks as though there will be another full member on King Island soon. Myles McGinniss, at Naracoopa, sat for his morse during October and was awaiting confirmation of his call sign last heard. Another member for the North West!

As these will be the last notes for the year, have a Happy Christmas for 1957 and don't book any rocket seats for the moon till 1958.

PAPUA—NEW GUINEA

There was a poor attendance at the last meeting which was disappointing, but it is hoped that a larger number will turn up next month.

Reg 9ZAL has left us and will be taking up residence in Victoria. The new QSL Manager is now Doug 9SB. Our YL has received her call sign which is 9RD. Congratulations Ruth, hope to hear you on the air soon. Russ 9XX is working 50 Mc. every night and can be heard up to 8 p.m. It is hoped some of the v.h.f. gang will give him a call and cheer him up. He has been trying so hard for so long that his face is looking the same way. Never mind, Russ, you will be lucky some night.

The Sunday hook-up has not been very heartening lately with no replies being heard. Maybe it is the conditions or do you think a change of frequency is warranted? A report from the Rabaul boys on his matter would be appreciated because it is the only time we can all get together and discuss the doings of the Institute and the only way those outside Moresby can give their opinions and learn what is going on. The W.I.A. does not mean the few in Moresby, but every Amateur in the Territory, including Norfolk and Cocos-Keeling Islands, and these members should be given every opportunity to take part in its activities.

The Division wishes to thank the retired Secretary, Norm 9NT for his untiring and devoted service during his short stay here and we know that no matter where Norm is, he has the Institute at heart. Best of luck in your new job Norm.

I would like to remind members that the next meeting will be held on 20th December at the Boroko Hotel—whack-o. I wish all the members a Very Merry Christmas and a Bright and Prosperous New Year.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

ASSISTANCE APPRECIATED

Editor "A.R." Dear Sir,

I wish to express my sincere thanks to those amateurs who assisted so magnificently with the collecting of data on "Sputnik" I and II. The organisers of the "Moonwatch Project" in Australia were astounded at the way in which the Radio Amateurs throughout Australia organised the returns of reports so rapidly and reliably in the early stages of the launching.

Without the co-operation of the Divisions, either individually or through the Divisional stations, together with VK3WIA (with our most able Federal Secretary), VK5WI could have achieved very little.

It was my good fortune to be representing the W.I.A. on the Moonwatch Committee and hence it fell to me to collate the data received and to release it to the Press. I take no credit, but feel exceedingly gratified that the Radio Amateur has shown once again that he is "Public Spirited", in a very practical way.

—Gordon M. Bowen, VK5XU.

ERRATUM

In the Balance Sheet of the W.I.A., which appeared on page 13 of the last issue, an error appears under Current Assets. No. 1 A/c. of the Commonwealth Trading Bank should read £86/12/8.

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

FOR SALE: Custom built commercial design 100w. trans. housed in a standard channel rack 5 ft. with dish pan chassis and covers. Final completely enclosed; finished in black wrinkle. Spec.: Aux. Tuning Unit plug-in coils r.f. meter 0-1, antennae change-over relay. P.A.: 813 plug-in coils 10 to 80 mx, high freq. silver plated split-stator tuning, balanced. Exciter: Gelson 10-80 mx, voltage reg. Buffer-driver: 807 broad-band, switched. Metering on panel behind glass: grid drive 0-10 mls., buffer 0-250 mls, 813 screen 0-50 mls, 813 final 0-150 mls. Mod.: 6SJ7 pre-amp., 6J7-6N7-6L8 p.p., high imped. input, matched trans., 500 line output to multi-trans. Power supplies: 1 choke input, 866s, 1000v. aside, 250 mls.; 1 choke input, 5Z4, 500v. aside, 250 mls.; 1 cond. input, 80, 400v. aside, 150 mls.; 1 fl. trans., 2-6.3v. 5 a., 1-7.5v. 5 a., 1-10v. 5 a. Spares: 813, two 6L6s. Sacrifice at £75. G. C. Ramsay, 8 Selby St., Grassmere, South Australia.

SELL: Receiver AR7, modified. A. Elliott, 31 Fenton St., Ascot Vale, Vic. FU 1580.

SELL: Three FS6 and one 109 Mk. II. Power Supplies. £5 lot. A. S. Mathew, 14 William St., Singleton, N.S.W.

WANTED: Converter, cover 2 and 8 with or without power supply. Schnitzlering, 72 Canning St., Warwick, Qld.

WANTED: Loan Circuit 7-27 Mc. Receiver Type CG46117. J. Kelleher, 3 Paine St., Newport, W.15, Vic.

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 8 ft. 6 in. 89/-
 Windscreens: W-3 Telescopic 3-pce.
 De Luxe 55/-
 A.W.A. Magnatenna 42/11
 Q Plus Loop Stick 25/5
 Aegis AF-1 Short Wave Noise Reducing
 Aerial complete with filters
 £11/15/6
 Porcelain Egg Insulators 8d. ea.

T.V. AERIALS

Model 11 £6/1/0
 " 111 £8/5/0
 " 212 £9/10/0
 " 215 £12/5/6
 " 313 super fan £9/16/0
 " 330 Rabbit Ears £4/15/0
 "The Showman" De Luxe Model
 Indoor Antenna £15/10/0 each.
 300 ohm Balanced Twin Feeder
 Line 1/- per yard
 All types of T.V. Insulators in
 stock.
 T.V. Lightning Arrestors 16/3 ea.

T.V. PARTS

E.H.T. Transformers, 17 or 21 in.
 £3/19/9 each
 21 in. Deflection Coil Assy. £7/8/0
 17 and 21 in. Linearity Coil with
 Ferrite Rod £1/4/0
 17 or 21 in. Line and E.H.T.
 Chassis Assy. complete £23/17/6
 Ferrocarr T.V. Turret Tuner
 £19/18/9
 Q Plus MK1 I.F. Strip £27/2/6
 Q Plus MK11 I.F. Strip (with
 Limiter) £31

ALUMINIUM CHASSIS BLANKS

5 x 3 x 2 8/0
 6 x 4 x 2 9/1
 8 x 5 x 2 1/2 12/3
 10 x 6 x 2 1/2 14/8
 11 x 8 x 2 1/2 17/6
 13 x 7 x 2 1/2 17/6
 13 x 10 x 2 1/2 21/9
 17 x 8 x 3 27/-
 17 x 10 x 3 30/-
 17 x 12 x 3 32/7

FILTER CHOKES

C8.1—14H/60 Ma. 22/9
 C5.1—20H/80 Ma. 44/0
 C3.1—20H/100 Ma. 59/6
 C1.3—20H/125 Ma. 76/6
 C1.1—20H/150 Ma. 92/10
 C6.1—20H/200 Ma. 126/-

ROLA FILTER CHOKES

12H/50 Ma., 550 ohm 14/3
 14H/60 Ma., 500 ohm 16/5
 Q Plus WFC1 10 Kc. Whistle Filter
 11/9
 Q Plus RFC2 4-pi R.F. Choke,
 2.5 mH. 7/9
 R.C.S. low tension R.F. Choke 6/6

MICROPHONES

Acos M.I.C.35 Crystal, hand. 55/-
 Acos M.I.C.22 Xtal. ball £9/18/6
 Zephyr 3XA Crystal 65/6
 Zephyr 4XA Crystal £6/7/7
 Zephyr 8XA Crystal £7/14/3
 Zephyr 1XA Mike Insert 45/9
 Acos M.I.C.19 Mike Insert 55/6
 Acos M.I.C.32 Mike Insert 55/6
 Zephyr 6 ft. extension microphone
 floor type tripod £5/6/0
 Zephyr adjust. banquet, hand 82/6
 Zephyr 6 in. desk type minitripod
 stand 16/10
 Zephyr 9 in. desk type 20/-
 Zephyr oval 4 in. desk stand with
 press-to-talk switch £3/9/9
 Zephyr 50 ohm to grid oval case
 line type mic. transfrm. £4/1/9
 Zephyr 50 ohm to grid chassis-
 mounting type mic. transfrm. 7/6
 Zephyr cord type chromium plated
 tully shielded 22/-

PICK-UPS

Acos G.P.10 Std. 72/5
 Acos H.G.P.40, 2 heads. £9/15/0
 Acos H.G.P.50, turn-over 99/6
 Acos H.G.P.60 (ceramic), £6/16/0
 Ibbott Crystal, 2 heads. £14/10/0
 Ronette Crystal, 12 or 16 inch arm
 £7/10/0
 Garrard, needle pres. gauge, 22/6

SOLDERING IRONS

Scope 6-Second Solder. Iron, 50/-
 Transformer for same for 230v.
 operation 49/7
 Birco D.9 40w. 3/16 in. bit, 34/9
 Birco D.8 60w. 3/8 in. bit, 40/3
 Birco D.1 80w. 1/2 in. bit 47/6
 Ersin Multicore Solder, 40 tin 60
 lead 12/6 1-lb. reel
 Ersin Multicore Solder, 60 tin 40
 lead 14/- 1-lb. reel
 Coraline 20 oz. tin Soldering Paste
 2/9

CAPACITORS

Ceramic Hi-K Disc (subminiature)
 22 pF.—400 pF. 2/1 ea.
 401 pF.—10,000 pF. 2/5 ea.
 U.C.C. Special "Dectroflash" 650
 uF. 250v.w. 46/7
 Variable Tuning Capacitors—
 A.W.A. Miniature (12-450 pF.)—
 2-gang, 28/6; 3-gang, 37/6
 A.W.A. Standard (11-430 pF.)—
 1-gang, 22/-; 2-gang, 29/3;
 3-gang, 39/-
 Roblan Midget type—
 1-gang 21/-
 2-gang plain 33/6
 2-gang with vernier 40/3
 3-gang plain 43/9
 3-gang with vernier 50/2
 Jabel 7-plate 3/2
 Jabel compression trimmers 1/6
 Philips air trimmers (3-30 pF.) 4/6
 M.S.P. air trimmers (2-28 pF.) 4/6

Ducon T.V. Capacitors—
 500 pF. 15 kv. 34/6 ea.
 50 x 50/350v. 21/6
 200 uF./350v. 24/3
 100 uF./350v. 19/9
 Ducon Paper Capacitors—
 0.001—0.006 600v. 1/2 ea.
 0.01/600v. 1/3 ea.
 0.02/600v. 1/5 ea.
 0.03/600v. 1/6 ea.
 0.05/200v. 1/2 ea.
 0.05/400v. 1/4 ea.
 0.05/600v. 1/7 ea.
 0.1/200v. 1/2 ea.
 0.1/400v. 1/9 ea.
 0.1/600v. 2/- ea.
 0.25/200v. 2/5 ea.
 0.25/400v. 2/5 ea.
 0.25/600v. 2/11 ea.
 0.5/200v. 2/7 ea.
 0.5/400v. 3/11 ea.
 0.5/600v. 4/1 ea.

WAVE CHANGE SWITCHES

JABEL ROTARY—
 1 x 12 x 1 14/4 each
 2 x 6 x 1 14/4 each
 4 x 2 x 1 14/4 each
 4 x 3 x 1 14/4 each

OAK ROTARY—

1 x 11 x 1 11/10 each
 1 x 11 x 2 18/4 each
 1 x 11 x 3 25/7 each
 1 x 12 x 1 13/10 each
 1 x 12 x 2 23/10 each
 1 x 12 x 3 31/4 each
 2 x 4 x 3 24/10 each
 2 x 5 x 1 11/7 each
 2 x 5 x 2 17/10 each
 2 x 5 x 3 24/10 each
 3 x 3 x 1 11/7 each
 3 x 3 x 2 17/10 each
 3 x 3 x 3 24/10 each
 4 x 2 x 1 11/7 each
 4 x 2 x 2 17/10 each
 4 x 2 x 3 24/10 each
 6 x 2 x 1 13/10 each
 6 x 2 x 2 23/10 each
 6 x 2 x 3 31/4 each

RECORDING TAPE

B.A.S.F. 1200 ft. 7 in. Reels, 67/6
 B.A.S.F. 1200 ft. 6 in. Reels, 65/-
 B.A.S.F. 1700 ft. 7 in. Reels, 95/6
 Collaro Hi Fi 1200 ft. 7 in. Reels,
 70/-
 Philips 1800 ft. 7 in. Reels, 95/-
 Scotch 300 ft. 5 in. Reels 28/-
 Scotch 600 ft. 6 in. Reels 45/-
 Scotch 1200 ft. Reels 70/-
 Westinghouse 1200 ft. 7 in. Reels,
 62/-

15 OHM WOOFER-TWEETER COMBINATION

A.W.A. 20928 12 in. Woofer, £6/6/0
 A.W.A. 20766 6 in. Tweeter, £2/9/6

SOCKET PUNCHES

(Hammer or Screw Type)
 1-3/16 inch Std. 43/4 each
 1 inch Carr octal 39/4 each
 1/2 inch Inoval 30/3 each
 5/8 inch button case 23/3 each
 1/2 inch for pots, bezels, 23/3 each
 "Bib" Wire Strippers 6/9 each

T.V. COMPONENTS

Q Plus VPC15-VPC500 video peac-
 ing coils 3/8 each
 Q Plus VPC2 filament choke, 1/5
 Q Plus CS2 two-way Couplers, 17/5
 Q Plus Aerial Ailerons (6 lb.,
 10 lb., or 20 lb.) 17/5 ea.
 Q Plus Alignment Tools, ATI,
 AT2 3/4 each
 AT3 5/- each
 Steel Cadmium Plated T.V. Chassis,
 19/6 each
 Q Plus 7 mm. Shielded Coil
 Formers 5/6 each
 Ironcore T.V. Power Transformers
 for R. & H. 17 in. T.V. £8/13/9
 Ironcore T.V. Filter Choke,
 1H/275 Ma. £2/18/9
 Q Plus Crystal Set complete with
 aerial, headphones, and instruc-
 tions 99/6
 Q Plus Crystal Set only 53/6

ROLA LOUDSPEAKERS

3C £1 12 0
 4C £1 11 6
 4F £2 1 0
 4-5C £1 17 6
 4-5F £2 5 0
 5C £1 13 6
 5CX £1 18 0
 5F £2 2 6
 5FX £2 5 6
 5-7H £2 8 0
 5-7L £2 3 6
 6H £2 5 0
 6M £2 18 6
 6-9H £2 15 0
 6-9L £3 9 6
 8H £2 10 0
 8M, 8M-PA £2 12 6
 12K £3 3 0
 12M £4 1 0
 12-O £2 6 0
 12-O De Luxe £6 10 0
 12-OX £11 4 0
 12UX Hi Fi. 15
 ohm V.C. £28 19 6

TRANSFORMERS—ROLA

Type B £1 14 9
 " C £1 10 9
 " D £1 5 9
 " E £1 1 0
 " G £1 3 3
 " H £1 2 6
 " K £1 6 9
 " L £1 0 6

Q Plus 5 in. Exten. Speaker, 89/6

"GIBBONS AND DENHAM"
 wooden leather covered Speaker
 Boxes—

For 6 inch Speaker 48/6
 For 8 inch Speaker 56/6
 For 12 inch Speaker 71/9

RECORD PLAYERS AND RECORD CHANGERS

B.S.R. HF8 4-speed player £13/5/0
 Collaro 3-speed record player £13
 Dual model "295" 4-speed record
 player £18/10/0
 Collaro 4-speed changer, £22/7/6
 B.S.R. 4-speed changer, £20/10/0
 Philips 3-speed changer, £15/18/0
 Dual 100 4 1/2 automatic changer,
 4-speed £37/9/6
 Dual 1003 automatic changer, 3-
 speed £27/10/0
 Philips AG201 "Disc Jockey" in
 portable case £21

290 LONSDALE STREET, MELBOURNE

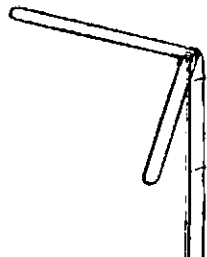
FB 3711

TV for the Amateur

AERIAL ARRAYS, INSULATORS, ACCESSORIES

by "BELLING-LEE"

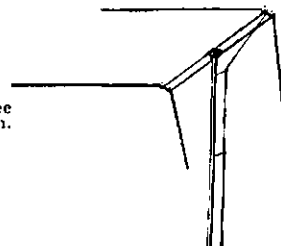
A complete range is provided for Amateur and TV Services of "Belling-Lee" Aerial Components and Accessories, only a few of which can be illustrated here. Owing to the ever-growing demand and increased Australian factory output it has been possible to make a number of reductions in prices.



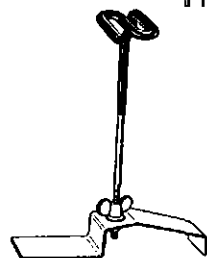
Cat. LA5983/R Folded Vee Array for 1 in. Mast or /CW for 1 1/4 in. Mast.
Retail Price: £4/11/9 ea.



Cat. LA5999 Double Vee Array for 1 in. and 1 1/2 in. Mast.
Retail Price: £10/11/- ea.



Cat. LA5990 Mast Stand-Off Insulator.
Retail Price: 2/3 ea.

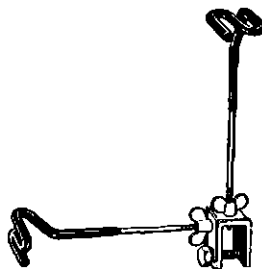


Cat. LA5994 Tile Clip including Insulator.
Retail Price: 4/3 ea.

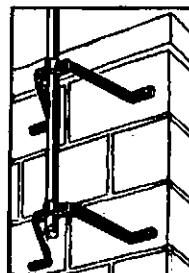


Cat. LA5993 Wall Nail including Insulator.
Retail Price: 2/7 ea.

Cat. LA5971 Mast Strap.
Retail Price: 1/2 ea.



Cat. LA5995 Gutter Stand-Off including two Insulators.
Retail Price: 6/- ea.



Cat. LA5997 Wall Mounting Brackets for 1 1/2 in. Mast, or Cat. LA5981 for 1 1/4 in. Mast. Retail Price: £2/13/7 pair.

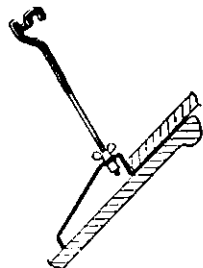


Illustration of Tile Clip and Insulator in position.



Cat. LA5992 Outdoor Wood Screw.
Retail Price: 2/- ea.

Cat. LA5974 Chimney Lashing Kit 1 1/2 in. Mast. Retail Price £4/2/11; Cat. LA5982 for 1 1/4 in. Mast. Retail Price £3/18/5.



All above prices include Sales Tax where applicable. Insulators illustrated and listed above are for Flat Ribbon Feeder. If Insulators are required for Tubular Ribbon add word Tubular when ordering.

In addition to the above, prompt delivery can be given of 6 ft. and 9 ft. x 1 1/4 in. Masts, 8 ft., 9 ft., 16 ft. x 1 1/2 in. Masts, and complete Single Vee or Double-Vee Assemblies.

For ease and speed of installation, high quality performance and endurance to all weather conditions, "Belling-Lee" TV Aerials stand supreme. Order from your nearest Wholesaler or direct enquiries to:

R. H. CUNNINGHAM PTY. LTD.

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RICHMOND, E.1, VIC.
Telephone: JB 1614



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